

When the international lender of last resort faces a « too big to fail » sovereign borrower : the « *jeu de faux semblants* »

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Abstract

This paper aims to analyse the relationship between Russia and the IMF. The model used is one with a multilateral lender, whose utility depends on the stability of the international financial system, and a borrowing country, whose debt threatens this stability.

Keywords : international lending and debt problems ; international monetary arrangements and debt institutions ; asymmetric and private information ; transactionnal relationships - contracts and reputation.

JEL Classification : F34 ; F33 ; D82 ; L14

Introduction

The purposes of the International Monetary Fund are, according to article 1 of its agreement, to “give confidence to members by making the general resources of the Fund available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity”.

This clearly differentiates between the IMF and the World Bank, which is the second multilateral institution in charge with the stability of the international financial system. The way they take part to the regulation of this system must, indeed, not be confused : the World Bank deals with projects, not with “maladjustments in the balances of payments”. It is, therefore, much easier to check whether the funds were spent on the projects, or not. That is why the relationship between the World Bank and the borrowing countries is seen as more similar to lender-borrower relationships than it is, in the case of the IMF. In this case, the funds are not, initially intended to any specific use : the “checking” is, consequently, achieved through a conditionality on macroeconomic objectives.

The asymmetry of information is, then, all the more obvious that the borrowing country knows better the impact that the implemented economic policies really had, and

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can possibly lie to the IMF, regarding the measures that were actually taken, or the results they had. There is, for this reason, a tight link between this degree of asymmetry and the nature of the relationship between the IMF and the country- this depends on whether the IMF can trust the country, which will most probably be true when *it* is largely reliant on multilateral financing. Hence, this confidence is spoilt when the debtor is “price maker” on his multilateral debt¹. In this case, if the IMF intervenes whereas the country has ever failed to meet its obligations and the organisation is aware of it, the asymmetry of information can become deliberate. The main purpose of the IMF, that is to say the stability of the international financial system (IFS), is indeed, considered as more important than its conditionality principles, which are usually inviolable.

Conditionality will, eventually, be efficient when three conditions are met :

- First, the purposes have to be realistic ;
- then, the commitment of the debtor has to be credible ;
- and, last but not least, the debtor has to be “price taker” on his debt.

The IMF is, therefore, not an *obliged* lender of last resort, contrary to what is seen in the second half of the 1990’, concerning Russia. This country’s bargaining power, as a result of the geopolitical aspect of the problem raised by its default, is far more important than that of a majority of the IMF debtors². The asymmetry of information is, in the case of Russia, deliberate : on the one hand, the IMF is in position neither to define, nor to lay down Russia any conditionality, since its main purpose is to protect the stability of the IFS, which necessarily implies a support to the Russian balance of payments. On the other hand, this country has absolutely no reason not to make the IMF, rather than national taxpayers, bear the cost of the crisis.

The IMF, consequently, is an *obliged* lender of last resort in a “*jeu de faux semblants*”³, which is characterised by a deliberate asymmetry of information. Thus, our first part is aimed to develop a first analysis of this “*jeu de faux semblants*”, based on the “too big to fail” theory, *combined* with an asymmetry of information (1.1.), and to demonstrate the inadequacy of the existing literature on developing countries sovereign debt, based on intertemporal optimisation, as an appropriate framework for this analysis (1.2.). At this stage, the Principal/Agent model of PITCHFORD [1998] seems to be the most appropriate basis (2.1.). This model is synthesised with the main features of the “*jeu de faux semblants*”, so as to provide a basis (2.2.). The third part aims to describe the medium term evolution, in a “strong version” (3.1.) and a “weak version” (3.2.).

¹ “Price maker” is taken to mean that the sole default of the country directly threatens the stability of the IFS.

² This is confirmed by the creation of the G7+1 which systematically meets just before the IMF boards.

³ The basic principle is “ask no questions, and you will be told no lies”, *i.e.*, the IMF, does not ask any questions, so as to avoid information of which it is aware becoming common knowledge on the financial markets. The “*jeu de faux semblants*” was first developed in GILLES *et al.* [2000].

1. Russia, the IMF and the principle of the “*jeu de faux semblants*” : an alternative to usual optimisation frameworks

The analysis of the 1998 Russian financial crisis, illustrative of a “*jeu de faux semblants*” (1.1.), demonstrates that standard models of developing countries external debt are inadequate to be an appropriate framework to it (1.2.).

1.1 The IMF, cut off from its own conditionality principles : the asymmetry of information as a deliberate strategy.

a) The Russian crisis of 1998 : a pattern

The 1998 financial crisis is the result of a combination of three elements, which are typical of the shapes of the IFS in the second part of the 1990’.

- First, capital flows to Russia were, of course, welcome, but could not, in any way, be controlled ;
- In addition, Russia was, as Eastern Europe countries, and without being first endowed with sound economic, financial and political grounds, obliged to implement the liberal reforms which were set by multilateral organisations ;
- And, last, financial and exchange markets were left to themselves.

There is one more reason, which is typical of Russia : the deficit of the Federal Budget, which was 6.1% of GDP in 1997 in spite of many privatisations, seemed all the more worrying that taxes were not paid. The simultaneous rise in interest rates, as a result of the Asian crisis, and the fall in oil prices, drew the attention to the sustainability of this deficit. Consequently, the government announced several reforms : they were aimed to increase the efficiency of taxation, and, generally speaking, to implement the IMF conditionality. Those reforms were immediately turned down by the *Duma*⁴. Russia remained, nevertheless, reliant on international capital flows, because domestic savings were not sufficient to cope with public deficits.

International investors confidence was, in this context, spoiled by the combination of three factors :

- There was a complete lack of realism in the hypotheses that were made when preparing the 1998 budget ;
- The interest rates that were used for projections in the Feb. 1998 agreement between the IMF and Russia were, too, considered as unreasonable ;

⁴ The Russian fiscal policy is, with regard to this aspect, illustrative of the “*jeu de faux semblants*”. The basic *scenario* is the following : in the first stage, the *Duma* turns the measures aimed to implement the IMF conditionality down. In the second stage, the IMF, not taking it into account, nevertheless lends. In June 1999, for instance, the *Duma* refused to vote the rise in oil taxes, which was required by the IMF for a 4,5 billion dollars release. The first part of it was released in July.

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– The government had proved unable to obtain a favourable vote from the *Duma*, concerning the reform of public finances.

Latin America and the most “fragile” industrialised countries (in particular Canada, Norway, and Denmark) were jeopardised by the fear of a propagation (i.e., the “Tequila effect”⁵). The United States were vulnerable too, being surrounded with countries the currencies of which had *de facto* been devaluated, causing the risk of a growing deficit in their balances of payments. This increasing mobility of capital flows, as a consequence of the Russian crisis, the Asian recession, and the difficulties of some of the Latin American main debtors, resulted in a deteriorated estimation, by investors, of global risk. Thus, the “flight to safety” had at least two kinds of harmful consequences for industrialised countries. First, capital flows took some investors on the rear (the hedge fund LTCM, for instance), and fed the “withdrawal into one’s monetary habitat” effect. Then, the growing taste of operators for public obligations, mainly German, conveys a risk for the “Euro zone”, since the European debt market is considered as the second world wide, whereas it is not structured for it yet.

b) *Moral hazard, the “too big to fail” principle and the “jeu de faux semblants”*

In this context, the relationship between the IMF and Russia did not fit a classical model any longer, for two main reasons : first, Russia was systematically bailed out, which seemed incompatible with the failure to implement conditionality. Then, the starting of the 1998 financial and monetary crisis turned out to be a real threat to the IFS. Propagation effects were, indeed, not confined to emerging markets. This can be analysed on the basis of a moral hazard phenomenon⁶ :

– Moral hazard can, first, be considered regarding the relationship between a multilateral organisation and a country. IMF loans, as a support available to defaulting countries, may in this case lead to a less rigorous economic policy, or even to more risky behaviours of international investors, since they feel *they* will not be affected by the consequences, but *the IMF* will⁷.

⁵ This was first used in reference to the propagation of the 1994-1995 Mexican crisis. This crisis was not anticipated and the losses of international investors on Mexican bonds (“Tesobonos”, which were indexed on US Dollar), consequently fed a distrust effect, and a contagion towards emerging markets as a whole. These countries were, indeed, considered as characterized by the same kind of risk. This contagion was called “Tequila effect”.

⁶ « Moral hazard » exists when the existence of a kind of insurance encourages risky behaviours. In the case of Russia, the IMF bailouts are considered as a collective insurance (the government knows that the IMF will *certainly* be a lender of last resort), which is an incentive to try and *take benefit of the asymmetry of information*, by choosing more risky projects and/or by making the rest of the world (i.e. the IMF) bear the cost of the crisis.

⁷ This is not new. American bankers and the *House Banking Committee* which were, in 1945, not in favour of the creation of the IMF, maintained that IMF loans were an incentive to implement “laxist” economic policies. They unsuccessfully campaigned against the ratification, by the US Congress, of the Articles of Agreement of the IMF. Some of US Governors came out with the same argument when the USA had to provide an 18 billion dollars contribution in Nov. 1998.

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– It can be considered, too, in reference to propagation effects, when support of defaulting countries is an incentive for other countries not to take the measures which could prevent a crisis.

The first meaning is given greater importance here : in other terms, we are focusing on the relationship between Russia and the IMF. The second meaning – *i.e.*, propagation effects – nevertheless largely determines, since Russia is “too big to fail”, the distinctive features of moral hazard in the “*jeu de faux semblants*”.

The 1998 crisis is, more precisely, and beyond the problem raised by Russia’s fundamentals⁸, revealing of a kind of moral hazard which is connected with the “*jeu de faux semblants*” : the Russian government pretends to conform to the IMF conditionality, and the IMF pretends to believe the Russian government does. In other words, the IMF behaves as if it were an *obliged* lender of last resort, since this is considered as the only way to avoid a major international financial crisis. This is an incentive to borrowers, lenders and investors to be less careful and, consequently, determines a kind of behaviour of postponement. The first step in its analysis is a comparative study of the literature on developing countries sovereign debt.

1.2. *International optimisation : a suitable scheme to analyse the Russian crisis ?*

This part is a brief survey of the literature on developing countries foreign debt. It is aimed to identify a suitable scheme to analyse the “*jeu de faux semblants*”. Since standard models prove not to be this scheme, we are going to use, in the next steps, a Principal/Agent model, in order to catch the relationships between Russia and the IMF.

a) *Sovereign debt models : the distinctive feature of no possible materialisation of default risk*

Sovereign debt models are the usual scheme for the analysis of developing countries foreign debt⁹. They are, in general, considered as suitable for countries facing credit rationing from international capital markets, which is the case of Russia. The importance of such a survey originates in the main purpose of this literature, which is to explain the existence of long-lasting positive transfers to debtors with a default risk which is, in fact, not only strictly positive, but also usually confirmed¹⁰. The existence of those transfers is, in sovereign debt models, optimal to the lender¹¹.

⁸ There was, in Aug. 1998, a 8.2% decrease in the GDP (industrial production : - 11.5% ; agricultural production : -22.9%). In 1998 (as a whole), economic growth was – 3.8% and inflation 70%.

⁹ Those models are used for the analysis of *private* foreign debt but there is, regarding the environment and behaviours of economic agents, nothing in conflict with using them in the case of *public* lending.

¹⁰ This question remains, and there is no solution in the recent literature on developing countries external debt and debt crises. It is aimed, following upon the Mexican (1994-1995) and Asian (1997) crisis, to provide a basis for the analysis of crises events, which is based on the existence of speculative

But these models present one major problem : this result requires hypotheses which can, to a certain extent, be in contradiction with the situation they are aimed to analyse and are, any way, inadequate in Russia's case. The country, indeed, can borrow if, and only if, there is an incentive to repay, like in [1] below, *i.e.* its utility when repaying (Ev^R) is superior to its utility when defaulting (Ev^D) :

$$Ev^D (y_t) < Ev^R (y_t , d_t) \quad [1]$$

y_t is the borrower national product and d_t its debt service. Ev^R and Ev^D are positive functions of the present value of future consumption with, when defaulting, a penalty (which can be an immediate direct sanction, or even the exclusion from world capital markets).

There is, therefore, no room for default in basic debt models. These are, generally speaking, some intertemporal optimisation schemes, which is for two reasons in contradiction with the main features of the “*jeu de faux semblants*” – because, on the one hand, of the usual occurrence of default, and because, on the other hand, the efficiency of IMF policies is directly connected with the fainted ignorance, by each concerned economic agent, of medium and long term economic prospects.

Because of the intervention of a third part, which is a public actor, and of the existence of moral hazard, a second kind of sovereign debt and renegotiation models represent a less restrictive framework.

b) Moral hazard in sovereign debt and renegotiation models : the lender is always in a position of strength

The empirical approach of multilateral lending tends to confirm the “too big to fail” principle, on which the “*jeu de faux semblants*” is based. The article of AYLWARD & THORNE [1998] synthesises recent developments in this field. These articles are usually composed of econometric tests, aimed to show a link between the main conditionality indicators, and arrears on multilateral debt. The results suggest a cumulative framework¹². This connects with overborrowing processes, because of which the IMF, *in fine*, unquestioningly supports the defaulting country.

The connection between those results and basic developing countries debt models, can be made in two steps :

behaviours, and not of overborrowing processes and situations (see, for instance; SACHS, TORNELL & VELASCO [1996] and DOOLEY [1997]) .

¹¹ For details, see OBSTFELD & ROGOFF [1995] and EATON & FERNANDEZ [1995].

¹² When there were prior arrears, the lagged dependant variable, *i.e.* the existence of these difficulties in the service of multilateral debt, becomes, indeed, the only significant variable.

i. *Sovereign debt models, perfect information and the choice of observable variables*
ATKESON [1991] is a synthesis of the approaches taken by debt models, in which lenders cannot know whether borrowers invest or consume borrowed funds ; whereas at each period, the debt service depends on the observed amount of National Product. This approach is interesting because it raises the question of observable variables on the one hand, and of observable variables contracts can be based on, on the other hand.

ii. *Renegotiation models, and the ability to wait*

This family of models seems to be more suitable. All of these use the conclusions of RUBINSTEIN [1982], who states that in a renegotiation scheme, when an agreement allows a positive surplus, each player's bargaining power depends positively on his ability to wait. A public intervention, anticipated (BULOW and ROGOFF [1988]), or not contingent upon an agreement (WELLS [1995]), raises the borrower's bargaining power, allowing him to wait.

However, these two kinds of models cannot be used to analyse moral hazard in the « *jeu de faux semblants* », for two reasons :

i. First, the borrower's solvency is not limited (whatever contract agreed upon is implemented). One simply assumes, to avoid further constraints, that the borrower can pay. This is in complete contradiction with the situation of overborrowing crises.

ii. Moreover, as in the majority of debt models¹³, the lender has all the bargaining power, and the borrower is price taker¹⁴. If, in concrete terms, the negotiation fails to reach an agreement, *the borrower* is harmed, and not the lender.

Negotiations with the IMF are, furthermore, in the case of Russia, no more a secondary, but one of the main features of the debt crisis, which explains the choice of a Principal/Agent model of bargaining on *multilateral* debt. One can, then, give the Agent part of the bargaining power, and limited liability.

¹³ Except in EATON & FERNANDEZ [1995], where there is an overborrowing scheme in which no lender can control the total amount borrowed : bargaining power relates to amounts, not prices.

¹⁴ « Price taker » means, here, that the Agent has no bargaining power.

2. Moral hazard and the sharing out of bargaining power : the “basic model”

2.1. “Jeu de faux semblants” : short term strategy and discontinuous utilities

The scheme used here derives from a Principal/Agent model (PITCHFORD, [1998]) in which the Agent has limited liability, and a positive bargaining power. The Principal (the IMF) cannot observe the Agent’s (Russia) effort, corresponding to reforms implemented to fulfil conditionality. This effort determines a second variable : the Agent’s repayment capacity. The main result is that there is a continuum ($[x^u, y]$ on Fig. 1) of pareto-efficient contracts, depending on the sharing out of bargaining power.

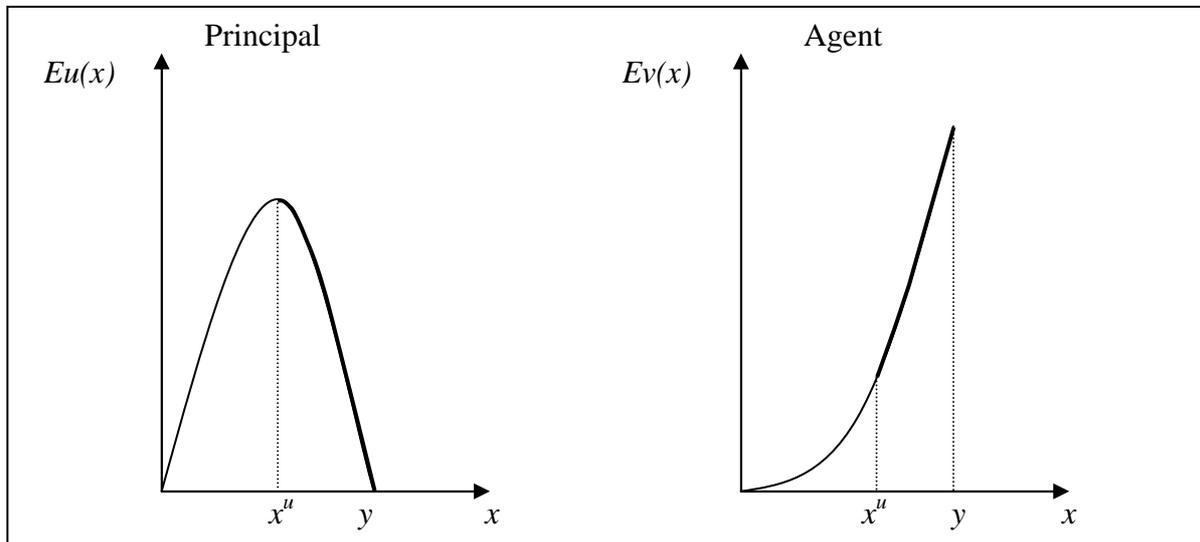


Figure 1 Utility of the Agent and Principal in the model of PITCHFORD [1998].

Other hypotheses are compatible with debt and renegotiation models. The Principal is not restricted in its access to credit, whereas the Agent is assumed to have zero net wealth (in order to introduce limited liability in PITCHFORD, and insolvency here). The positive bargaining power of the Agent derives from a last hypothesis : the Agent has a comparative advantage in reaching the objective, so the incentive constraint can be removed, while allowing a positive amount of lending. This comparative advantage is taken, here, in the broad sense of the term : Russian default is a threat to the IFS.

The sequence is as follows : once the Agent and Principal have reached an agreement upon the terms of the contract, the Agent chooses the degree of effort, of which the probability to obtain a favorable result (improved repayment capacity) is a positive and concave function. The Principal knows neither the effort nor the rule determining the result, according to the effort. Hence, the transfer to the Agent – here, newly provided

loans, is only based on the observed value of repayment capacity. The optimal contract is then (x_0, x_1) , respectively the transfer when repayment capacity is improved, and when it is not. The difference between these amounts is x . A non-contingent transfer has no incentive effect (see below - both utilities are zero when there is no effort), so x in equilibrium will be strictly positive.

In equilibrium, $x \in [x^u, y]$ and :

$$x = \text{Arg. Max. } [\mu Eu(x) + (1-\mu) Ev(x)] \quad [2]$$

The Principal usually has all the bargaining power ($\mu=1$) and x^u ¹⁵ is chosen. Here, since the Agent has part of the bargaining power ($\mu < 1$), there is a continuum $[x^u, y]$ of pareto efficient contracts. The Principal has, indeed, to provide an incentive to make a positive effort, which explains that the Agent is given part of the surplus, as a rent.

2.2. Le « jeu de faux semblants » : short term strategy and discontinuous utilities

a) Utility of the Principal

The preceding model is used here as a basis : the utility of the Principal depends on the Agent's repayment capacity. The analysis of the « jeu de faux semblants » requires a utility depending solely, in the short term, on the IMF's ability to avoid a crisis, when the Agent defaults. This gives :

$$\begin{aligned} Eu(x) &= 0, x \in [0, z[& [3] \\ &= \alpha - (x-z)^a, Eu(x) \geq \beta, x \in [z, X] \\ 0 &< a < 1 \\ \alpha, \beta, z, X &> 0 \\ \alpha &> \beta, z < X \end{aligned}$$

x is no longer the difference between the transfer according to repayment capacity, but the value of $x_0 = x_1$. The Principal's utility is zero (see Fig.2) below z , the smallest transfer allowing to serve external debt, and avoid the Agent's bankruptcy. Indeed, for these values the crisis always occurs, and the IMF objective of financial markets stability is not reached, so $Eu(x) = 0$. When $x \geq z$, the probability of a crisis is a negative function of the transfer¹⁶, but this fall is lower when x tends to X ¹⁷.

¹⁵ The transfer in debt models is, in fact, at the end of each period, the minimum of two amounts : the amount the lender wishes to lend, and the amount the borrower wishes to borrow. Credit is, usually, rationned to the borrower. x^u can, then, be considered, too, as the usual optimum of debt models

¹⁶A speculative attack can occur even if the country services its debt, if its fundamentals are anticipated to be unsustainable, so an increased transfer to support reforms may lower the probability of a crisis. With

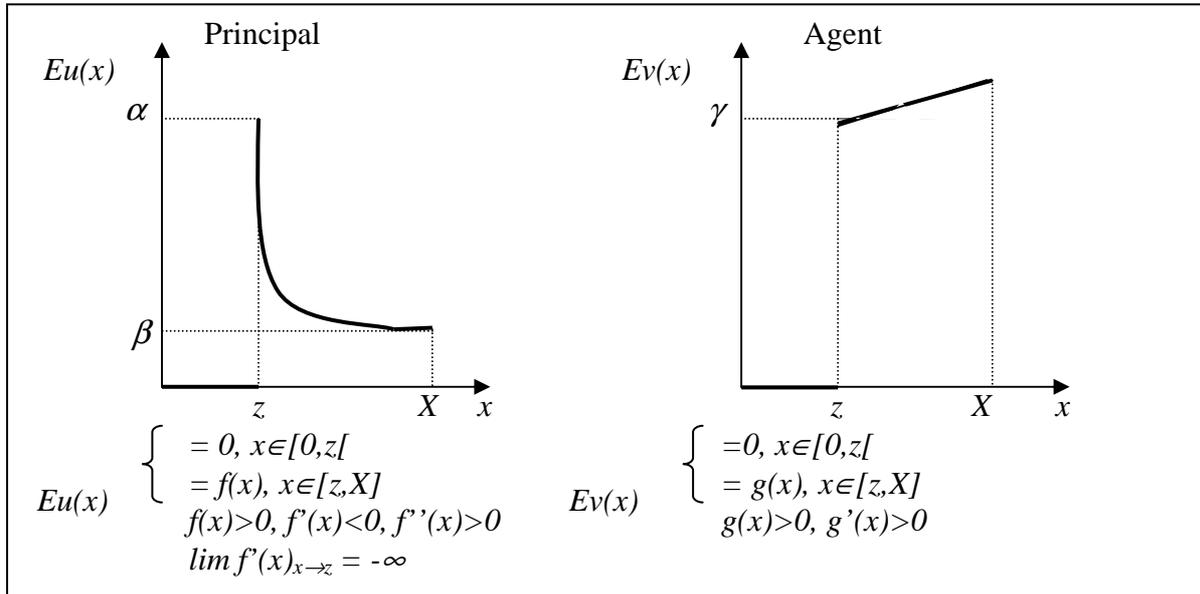


Figure 2 Utility of the Agent and Principal : “jeu de faux semblants”.

The Principal’s utility decreases for $x \in [z, X]$, with a positive limit β , corresponding to amounts where the Principal is unconstrained in its access to credit. However, when the loan becomes larger (when x tends to X), the credibility of the Principal is affected, which lowers its capacity to prevent a crisis. This effect is greater than the falling probability of a crisis when the transfer is increased so $Eu(x)$ is decreasing and convex.

b) Utility of the Agent

$$\begin{aligned}
 Ev(x) &= 0, x \in [0, z[& [4] \\
 &= \gamma + (x-z)^b, x \in [z, X] \\
 b &> 0 \\
 \gamma, z, X &> 0 \\
 z &< X
 \end{aligned}$$

respect to private investors, the intervention of the IMF indicates, too, that the debtor is “too big to fail”. The problem is, then, approached in some kind of “co-operative angle”, since they are aware of the inadequacy of IMF resources to prevent a major crisis, which would be harmful to them. This conclusion has two consequences : it is, on the one hand, a justification of our choice of analysing moral hazard on the basis of a bilateral relationship between the defaulting country and the IMF, rather than of a propagation framework. This behaviour of private investors is, on the other hand, wholly compatible with the main features of the “jeu de faux semblants” : it is, indeed, all the more easy to the IMF to hold its credibility whereas not conforming to its own conditionality standards that private investors are aware a *statu quo* is in their interest. For this reason, they do “not ask”, so as “not to be told any lies”.

¹⁷ There is a limit to IMF resources : the Principal’s utility function is, then, defined on $[0, X]$, in order to take this limit into account.

This is defined as the share of adjustment costs beared by the rest of the world, so it too is zero below the lowest transfer preventing the crisis ($Ev(x)=0, x \in [0, z[$). But it is, then, growing inversely to the Principal's utility : any transfer exceeding the amount used to service the debt is additional means, obtained without raising taxes.

c) *Pareto efficient solution*

A positive transfer at each period is, in this case, the result of the utilities discontinuity : whatever sharing out of the bargaining power is realised, no value in the range $[0, z[$ can be optimal. On the other hand, above z , the transfer depends on μ . Sticking strictly to the above definition of the « *jeu de faux semblants* », there is no reason to give the Agent any incentive to make an effort by paying a rent, since the asymmetry of information is deliberate. The Principal, then, lends an amount close to z ¹⁸. This is the case where μ tends to 1 : for these amounts, the crisis is prevented, and the Agent has restricted access to multilateral bailing out. On the contrary if x tends to X , μ is close to 0, and the Agent's bargaining power is positive. This can result from a dynamic autointensified phenomenon, i.e. when the IMF deviates from z , its credibility is affected, because of the non-implementation of conditionality, which reinforces the Agent's bargaining power with time.

3. From post crisis to medium term : the “strong version” and the “weak version” of the “*jeu de faux semblants*”

There is, in the medium term, two aspects in the evolution of the “*jeu de faux semblants*” :

– When, on the one hand, private investors' anticipations become stabilised, a crisis is less likely, and the ability to wait and bargaining power of the IMF are increased. μ , which was near from 0, tends to 1 with this increase, and the amount of transfer moves, for this reason, from X to z .

– On the other hand, the Agent's utility function is modified because of the medium term perspective. It is, in the case of post crisis (“basic model”, cf. section 2), growing in proportion to x (in this case, b , which is the exponent of the non-constant part of the Agent's utility, is 1). At the end of this period, two kinds of evolutions may occur : these are the “strong version” and the “weak version” of the “*jeu de faux*

¹⁸At each period. This means that the game is periodically repeated with the same constraints : the environment remains the same, since no reforms are implemented. The IMF has, then, to bail out again, to prevent the consequences of a default. Bargaining, at each period, takes only the current contract into account, contrary to renegotiation models, where there is intertemporal optimisation, because of the short-term nature of the « *jeu de faux semblants* ». The terms of the contract of each period being pareto efficient according to the forthcoming periods would, then, make no sense. The game is, in fact, played as if the agents were both amnesic (they “forget” that previous conditionnalities have not been implemented) and short-sighted (they do not take into account future periods), which is in contradiction with standard repeated games models.

semblants”. The corresponding utility functions are, on $[z, X]$, respectively convex (when $b > 1$), and concave (when $0 < b < 1$).

The occurrence of the “strong” or “weak” version depends on the Agent’s government preference and, in particular, on its standpoint *vis-à-vis* the exclusion from private capital markets, which results from the first stage of the “*jeu de faux semblants*”¹⁹. This exclusion is, in the case of the “strong version”, considered as less important. In the case of the “weak version”, the government seeks, on the contrary, some kind of positive summed game between public multilateral and private borrowing, at the close of the post crisis period, in the course of which the only aim was to make the rest of the world bear the cost of the crisis.

This can be seen, on figure 3 below, with reference to x^* , the amount of net transfers allowing public budget equilibrium – contrary to z , which allows to service foreign debt only. In both cases, x^* is the point of tangency of a 45° straight line to the utility function. This function is, in the case of the “strong version” of the medium term “*jeu de faux semblants*”, convex : the slope of a tangent is, then, less than 1 below x^* , which means that the utility is growing at growing rate with respects to the IMF transfers. In the case of the “weak version”, the utility function is, on the contrary, concave, *i.e.* growing at decreasing rate, between z and X and, in particular, growing less than in proportion to x below x^* . This results from the perpetuation of the short term “*jeu de faux semblants*”, considered as a negative signal by financial markets.

The exclusion from world capital markets is, therefore, not the result of the *existence* of the “*jeu de faux semblants*”, but of the *perpetuation of the short term scheme*. This scheme is, in the immediate post-crisis, known and agreed to, because it is in the interest of private banks and investors²⁰. The perpetuation of it, in the medium term, nevertheless hinders the return of private capital flows, whereas that return might occur within the context of the “*jeu de faux semblants*”, as the “weak version” shows. It is, in fact, precisely this context, and the unconditional bailing out , as a result of the “too big to fail” nature of the borrower, based on structural reasons, which guarantees the return of private investors – this behaviour, of course, feeds moral hazard.

3.1. The “strong version” of the “*jeu de faux semblants*”

The fact that the Agent has some latitude to determine, by its choice, the medium term evolution of the game is, itself, illustrative of the “*too big to fail*” theory. In this first case, $(1-\mu)$ slightly decreases. So, the bargaining power remains in favour of the

¹⁹ This preference depends, of course, on the evolution of bargaining power in favour of the Principal, or, in other words, on whether $(1-\mu)$ decreases quickly, or not.

²⁰ Cf. note n°16, relating to the consistency of these behaviours with the main features of the “*jeu de faux semblants*”.

Agent, who becomes accustomed to the principle of making the rest of the world bear the cost of its need for foreign capital flows.

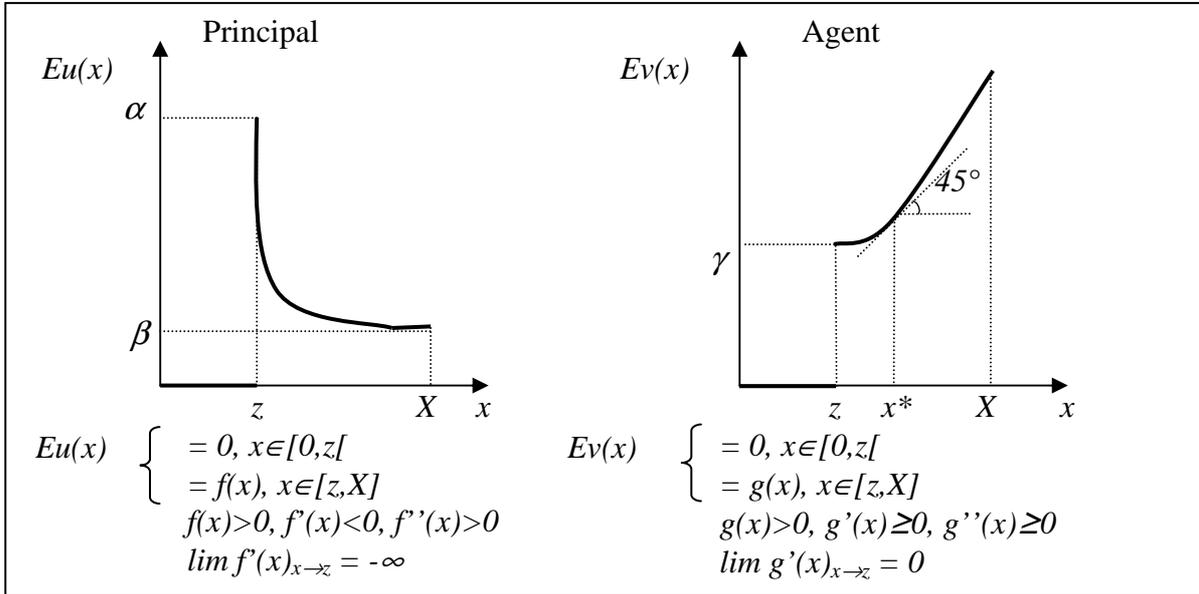


Figure 3 “Jeu de faux semblant” : medium term “strong version” ($b > 1$)

3.2. The “weak version” and the outcome

In the second case, the context of the “jeu de faux semblants” remains, but the decrease in $(1-\mu)$ is greater. That is why, the Agent tries to reach compromise solution. He wishes, in other words, to obtain additional multilateral flows without conforming to conditionality, but takes the resulting negative signal to private markets into account.

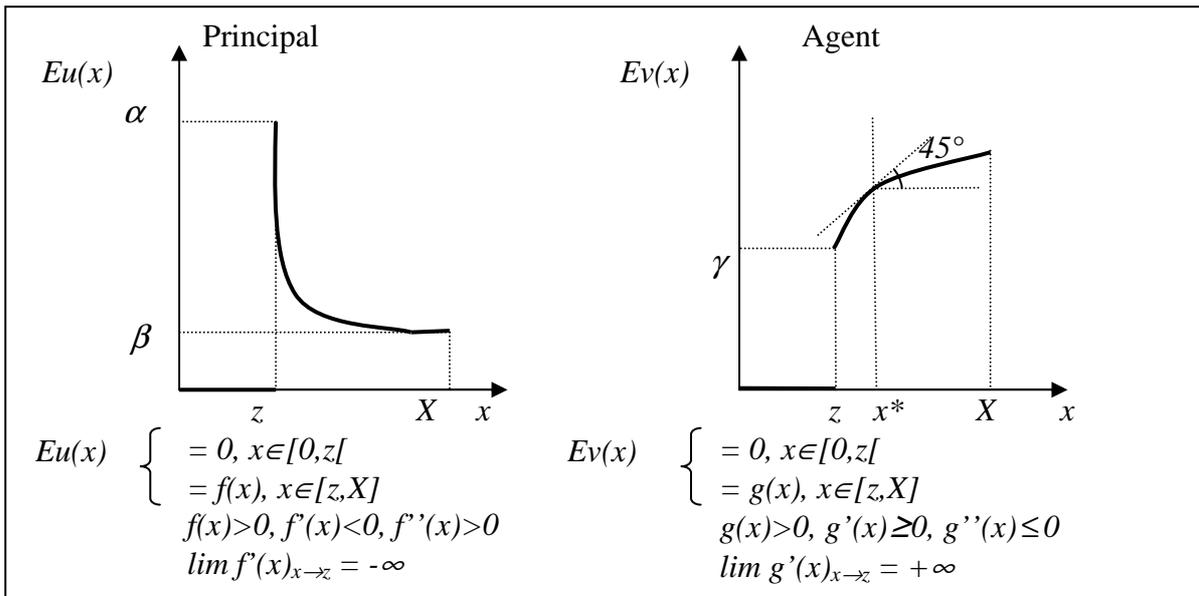


Figure 4 “Jeu de faux semblants” : medium term “weak version” ($0 < b < 1$)

The idea is, in fact, something similar to that of pre-commitment mechanisms in sovereign debt models : *i.e.*, a sovereign borrower who faces credit rationing on private markets, can to a certain extent be released from this constraint by implementing measures making a complete exclusion from these markets harmful. This vulnerability is, here, the reason why private capital flows come back, since the investors anticipate that the country will not try to take advantage of its bargaining power to cut off from private capital flows.

The corresponding utility functions are, in the three cases (“basic model”, “strong version” and “weak version”) the following :

a) *Principal's utility function*

$$\begin{aligned} Eu(x) &= 0, x \in [0, z[\\ &= \alpha - (x-z)^a, Eu(x) > \beta, x \in [z, X] \end{aligned} \quad [5]$$

$$0 < a < 1$$

$$\alpha, \beta, z, X > 0$$

$$\alpha > \beta, z < X$$

b) *Agent's utility function*

$$\begin{aligned} Ev(x) &= 0, x \in [0, z[\\ &= \gamma + (x-z)^b, x \in [z, X] \end{aligned} \quad [6]$$

$$b > 0$$

$$\gamma, z, X > 0$$

$$z < x^* < X$$

$$x^* = z + \left(\frac{1}{b}\right)^{\frac{1}{b-1}}$$

The three cases are, respectively, $b=1$ (“basic model”), $b>1$ (“medium term “strong version”), and $b<a<1$ (medium term “weak version”). The fact that the curvature of the Agent’s utility function is, in the last case, inferior to the Principal’s (when the transfer is increased, the growth in the Agent’s utility is inferior to the decrease in the Principal’s) is aimed to take into account the evolution of the Agent’s preferences, and the importance to him of the negative signal resulting from $x \gg x^*$ (the Agent, here, wishes some kind of private flows). In other words, the level of the Agent’s and Principal’s abilities to wait directly determines μ , and their trend is, in the medium term, one of the elements resulting in the occurrence of the “strong” or “weak” version, too.

c) *The outcome*

$$\tilde{x} = \text{Arg. Max. } [\mu Eu(x) + (1-\mu) Ev(x)] \quad [7]$$

This can be solved in only one case : the “weak version”, because of the convexity of the utility functions in both other cases²¹. The outcome is the following :

$$\tilde{x} = z + \left[\frac{(1-\mu)b}{\mu a} \right]^{\frac{1}{a-b}} \quad [8]$$

This gives :

$$\frac{\partial \tilde{x}}{\partial \mu} = \frac{1}{a-b} \left(-\frac{1}{\mu^2} \right) \left(\frac{1}{\mu} - 1 \right)^{\left(\frac{1}{a-b} - 1 \right)} < 0$$

$$\frac{\partial \tilde{x}}{\partial a} < 0, \quad \frac{\partial \tilde{x}}{\partial b} > 0$$

Therefore, \tilde{x} is the sum of z , which is strictly positive because of the structural nature of the « too big to fail » theory, of a term which is a negative function of a and a positive function of b (the result will tend to z all the more quickly that the decrease in the Principal’s utility is fast and the increase in the Agent’s utility is slow), and of a term depending positively on μ .

Conclusion

Therefore, one can, by using a Principal/Agent scheme, explain that lending to Russia can be optimal for the IMF, knowing that the loans will not be repaid : the resulting cost is smaller than what would be incurred in case of a default followed by a financial crisis, considering the existence of systemic risk. Nevertheless, this behaviour raises a problem because the country which is bailed out anticipates that the IMF will necessarily be a lender of last resort in the future.

The “*jeu de faux semblants*” demonstrates, consequently, the need for a connection of two regulations, in order to reconcile the extension of the IMF’s field, which is necessary to preserve the stability of the IFS, with a limitation of the resulting moral hazard risk:

– The first of these regulations is unintentional, and based on the exclusion from private capital markets as a sanction to « *too big to fail* » borrowers, who take advantage of it to have multilateral organisations bear the whole cost of their need for foreign capital flows. In the “*jeu de faux semblants*”, this regulation is taken into account with b , which belongs to the Agent’s utility function. The exclusion from private markets will, indeed, be considered as all the more detrimental that b is near from 0. This is the main condition for the reduction of moral hazard.

²¹ This impossibility makes senses : the fact that the only case which can be solved is the one which is economically sustainable is compatible with the principle of the “*jeu de faux semblants*”.

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– The second regulation is intentional, *i.e.*, based on the existence of an *international* lender of last resort. The efficiency of such a regulation depends, in this case, eventually on a in the “*jeu de faux semblants*” – it is all the more important that a tends to 1. This parameter is linked to the level of resources of the IMF, and to possibly resulting amendments to the Articles of Agreement, aimed to be a signal that growing resources should not be associated with a release in conditionality.

The difference between a and b has, therefore, to be as important as possible, and b has to be small, in order to determine the “weak version” of the “*jeu de faux semblants*”. Hence this conclusion, which sounds as a paradox : the extension of financial globalisation strengthens the efficiency of the regulation of an international lender of last resort.

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