

Romania's unsustainable stabilization: 1929-1933

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Abstract

After the Poincaré stabilization, the same protocol was applied to other countries, frequently under the supervision of French central bankers themselves. This paper discusses the cause of the failure of *Banque de France's* (BDF's) mission in stabilizing the Romanian leu, in collaboration with the National Bank of Romania (NBR). French and Romanian archive documents provide evidence of this episode. In this paper, we defend the view that the ill-timed schedule of the mission was primarily responsible for the mission's failure more so than the impact of the Great Depression. We retrace the four years of cooperation between *BDF* and the NBR and capture this as a four-step game producing the sequence of interactions between French and Romanian partners. The game results predict the failure of the stabilization plan itself, regardless of the effect of the Great Depression and banking crisis. We then use original data provided by NBR to identify the factors explaining the evolution of the total cover stock of NBR during the period of the mission. We find that each tranche of loan had a negative influence on cover stock, which confirms our thesis of the ill-timed scheduling.

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1 Introduction

After the temporary success of the implementation of the *franc Poincaré*, the *Banque de France* (BDF) tried to export its methods and solution to other central banks in Europe, including National Bank of Romania (NBR), National Bank of Bulgaria and Central Bank of Turkey. In other cases, French members of *BDF* provided advice, for example, to Austria, Spain and Poland. In these countries, former French central bankers played important roles as experts of the League of Nations (e.g. in Austria or Hungary) and, later, as managers of the Bank of International Settlements.

Among these situations, the mission of the *BDF* in Bank of Romania played a significant role. Almost the entire *franc Poincaré* “winning team” was associated with the mission, maintaining a strong link with Paris during the period. This cooperation agreement spans four years, a sufficient time for the French delegation to implement its plans. In the Romanian case, the *BDF* worked alone, with the explicit agreement of the Federal Reserve and the major European central banks but without any interactions with them in terms of objectives, methods and the agenda. Concerning this experience, numerous sources are available on the French side with correspondence of the BDF members and the memories of Governor Emile Moreau. These sources can be crossed and completed by several writings from the Romanian side, generally in Romanian or French. Official documents, reports and data are also made public during the time of the cooperation. Given this, the subject has been well documented by previous historical contributions relying on archival data (Mouré, 2003; Cotrell, 2006, Torre and Tosi, 2010) despite Romanian materials was not really exploited in these works. There is general agreement that the mission failed, but the cause of this failure still remains a challenging question. The two most defended reasons are that (i) *BDF* provided poor advice and (ii) the Great Depression had a recessionist effect on the Romanian economy, which accelerated the failure of the *BDF*'s plan.

In 2015, NBR, in association with other central banks of Southeast European countries, published previously unavailable historical data on public finance, monetary aggregates and policy, credit and the financial market before World War II. In some cases, sufficient observations are lacking to conduct adapted econometric tests. In other cases, data provide the possibility to test the validity of theoretical assumptions. We use these data for the first time in this paper to analyze the reasons for the French mission failure. These results corroborate the thesis of Torre and Tosi (2010) that the timing of interactions during the cooperation between the two banks was probably responsible for much of the failure. Before doing this, we present the content of the mission of *BDF* and the results of the cooperation between both central banks. We then elaborate a simplified model capturing in a simple way the 4 years interactions between BDF and NBR/Romanian government, and provide a reason for the mission's failure that French partners should have expected. Last, we use historical data from the NBR to verify econometrically our thesis.

The rest of the paper proceeds as follows: Section 2 presents the monetary and financial situation in Romania before 1929, the decision of *BDF* to accept a cooperation

mission and it delineates the main stages and results of the mission. Section 3 proposes a theoretical model, which schematically captures the nature and sequence of interactions between partners. Section 4 presents the econometric analysis based on original NBR data. Section 5 concludes with a discussion of the main result of the paper—that the sequence of interactions of partners during the mission was the reason the *BDF* mission failed to stabilize the Romanian leu.

2 Motives, objectives and results of the mission

As with other currencies, the Romanian *leu* became inconvertible during World War I. Romania was among the winners of the war, but with an increased territory to administer, an inefficient fiscal system and an increased level of public debt. The National Bank's balance was seriously damaged by the government's increasing debt with the issuing institution. Its gold reserves had been sent to Moscow in 1916. At the beginning of 1918, the Soviet authorities declared indeed the gold confiscated in response to the support given by the Romanian government to the manifestations of the majority population in Bessarabia that asked for unification with Romania. Inflation developed, the public finance problem was not resolved and the Romanian *leu* depreciated considerably in relation to major currencies. During the first interwar decade, the Bucharest authorities made various attempts to revert the inconvertibility of the *leu*. Two conventions were executed between the NBR and the Romanian government on 19 May 1925. Their goal was to reinstate normal relationships between the government and the issuing bank and bring back the *leu* stability and convertibility by capping the issue, settling the state debt with NBR, gradually withdrawing from circulation the notes issued by the bank for state needs and providing the coverage necessary for fiduciary circulation.

These measures were adopted and put into practice against the background of relative stabilization of the Romanian economy. The government budget between 1923 and 1927 recorded excesses, and a similar evolution followed during that time, except in 1925, by Romania's trade balance. All these things occurred while the *leu* exchange rate on the foreign market, after reaching bottom in 1925-1926, began increasing in 1927 and became stabilized the following year. Thus, in 1920 the US dollar, which in 1915 in Bucharest was *lei* 5.1 (the legal parity being *lei* 5.18), was *lei* 54.81, in 1926 *lei* 220.08, and finally stabilized in the following years around *lei* 167-164.

Nevertheless, the goals stated in the deflationary policy inaugurated by the covenants of 1925 were not reached. The level of the fiduciary circulation did not diminish, and while the national economy had adapted to the existing monetary facts, any decline in the quantity of notes in circulation would have jeopardized the existing equilibrium. Adding to all these issues was the acute lack of cash resulting from the capping of issues, with the immediate consequence of an increase in the interest rates on loans. Although the state constantly made payments into the settlement fund for its debt with NBR, the bank continued to provide "advances" on request into the state's current account. Thus, it was already evident that the public finance situation was, for the most part, responsible for

the difficulty in stability.

2.1 The *BDF* mission and international loans

The decision to request international help to stabilize was common among many European countries in 1925, after the stabilization of the pound. The first act of the Romanian administration was to apply to the League of Nations for a loan, and the second was to require the help of London financial place. However, in both cases, establishing contacts was not fruitful. The third potential partner was France. The discussions between Romanian delegates and French central bankers began in 1927 and culminated in a “long talk” on December 28th 1927 between the French staff of *BDF* and a delegate of the Romanian administration, as related by Governor Emile Moreau (Moreau, 1954, p. 461). It was agreed that French engineers would go to Romania to study the railways situation and that Pierre Quesnay, the young economic adviser of the BDF and former student of Charles Rist (himself Deputy-Governor of BDF) at *La Sorbonne* University, would visit NBR to analyze Romania’s monetary and financial situation. These visits established the groundwork for a future mission of cooperation, which was approved by the Federal Reserve System and the main European central banks after intense interactions between the staff of *BDF* and these monetary institutions (see Moreau, 1954; Papiers Charles Rist, 1928).

Jointly with the “stabilization” loan, advisory tasks were proposed by the French, a condition from BDF to provide NBR a second international loan. This second “development” loan could contribute to the modernization of the economy and, in particular, to the extension of the railways. This objective is explicitly referred to in conversations and exchanges between NBR and BDF. The second motivation, mainly instilled by the Western central bankers and governments, was to obtain the support necessary to stabilize the *leu*. This hierarchy of goals for Romania appears clearly in 1927-1928, during the first discussions between the Liberal administration in charge at Bucharest and the French central bankers: on 23 November 1927, Governor Moreau writes: “M. Rist says to me that M. Louis Dreyfus is back from Romania. M. Ion Bratianu [then Prime Minister of Romania] still hopes to raise a loan for public works, but is not currently interested, for the moment, in the stabilization of the *leu*” (Moreau, 1954, p. 432, 23 Nov. 1927). The Paris discussions of December 1927 confirm that the Romanians’ preferences for the use of the loan were unchanged (see Moreau, 1954, pp. 452-453, 15 Dec. 1927). However, the two partners finally adopted the French sequence: the first loan would mainly be devoted to stabilizing the economy and only the second to develop the country.

On 31 July, a new agreement was signed with the Romanian government, in which NBR was authorized to enter into conventions with foreign banks for issuing loans designed for legal stabilization of the *leu*, to purchase without limitation foreign currencies convertible into gold, and to increase the issue of notes subject only to the coverage in gold or gold currencies. As in the French franc Poincaré case, the solution adopted was to stabilize the national currency to the current value. With the agreement of Benjamin Strong of the Federal Reserve Bank of New York, a credit convention was also executed

with 14 issuing banks that committed to keeping available to NBR a stabilization credit of 25 million dollars. At the same time, the Romanian economy was showing first signs of turbulence of its post-war impetus. In 1928, after a poor agricultural harvest, the *lei* 4.6 billion deficit in the trade balance caused concern, and the deficit recorded in the state budget amounted to approximately *lei* 2.5 billion.

In addition, the issuing of the first loan and the installation of the mission were delayed by about a year because of the rivalry between Bank of England and *BDF* (for details of the rivalry, see Moreau, 1954, Cotrell, 2006). In late December 1927, Moreau (1954) relates a letter by Siepmann, deputy-governor of the Bank of England, in which he expressly asks the BDF for explanations about its initiatives in Romania and calls for a meeting with Quesnay as soon as possible. Quesnay denies the request because of his absence from Paris at the time (Moreau, 1954, 31 December 1927, p. 465). Then, in February 1928, Moreau visits the Bank of England despite the official postponement proposed by Norman. . . . In January, the Bank of England and a Romanian delegation are in contact. A correspondence between Norman and Virgil Madgearu, one of the most influent Romanian economist at the time, reveals that the Romanians would have “preferred to stabilize with the assistance of the Committee of the League of Nations, believing that this would allow Romanian borrowing under more advantageous conditions” (Mouré, 2003, p. 154), but the French progressively convinces the Romanian administration that the French solution is the best.

2.2 The difficulties to stabilize

The timing of the mission and the interactions can be formally split into four phases: (i) the time of the initial loan, (ii) the first phase of the interactions in Bucharest, (iii) the time of the second loan and (iv) the last interactions and the end of the mission. We use the cross-views of the French and Romanian teams to relate this time sequence and the main options requested by the French teams. This sequence appears as a game in which, as it would have been rationally forecasted, each partner lost any reason to continue after the third period.

The main goals of the stabilization plan are outlined by Quesnay in his note to Vintila Bratianu of February 1928 (*Papiers Charles Rist*, Quesnay, Note dictée par Quesnay et remise par Monnet après accord avec Jeze à M. Vintilla Bratianu, 2 Feb. 1928). Quesnay proposes that the Romanian government could obtain a loan of 80 million dollars for four uses: (i) to give the NBR the necessary liquidity to stabilize the *leu*, (ii) to consolidate the economic institutions of the country, (iii) to provide the liquidity to the government, and (iv) to help in the reorganization and modernization of the railways. This report indicates no tracking of a voluntary undervaluation of the *leu*. The first sentence of the report states, “the Romanian Government. . . intends to stabilize the *leu* on the basis of its current rate” (p. 1). Quesnay however refers precisely to the reserves “cautiously accumulated by the NBR which could partly serve as a counterpart of the currency. The reevaluation of the Gold stock consecutive to the devaluation will help to reduce the international value of the Government Debt to the Bank”. The report also mentions

different measures of consolidation of the debt. Notably, Quesnay does not refer simply to monetary and financial issues but also to the necessity of realizing rapidly public investments, particularly in the railways sector.

During this time, a new coalition was in charge in Bucharest. This new team, dominated by the National Peasant Party, was less francophile than the previous Liberal administration. Charles Rist visited the team at the end of November 1928 (*Papiers Charles Rist*, 1929, Deuxième séjour, Novembre 1928). A dominant impression of Rist's notes is the lack of consideration of his partners: "The leaders do not have any fixed program except some sentences; more precisely, they have only one objective: obtaining the loan as soon as possible. In this context, they are ready to follow whatever suggestion, even opposed to their program, or even, apparently to their interest" (*Ibid*, p. 3).

The "Monetary Act" geared to monetary stabilization was finally passed in February 1929: its conception was largely influenced and approved by a pool of foreign banks led by the BDF. Charles Rist, Pierre Quesnay, and Gaston Jeze, an expert in public finance, were the main contributors to the plan, which comprised international borrowing and "7% stabilization loan" devoted to the settlement of the government's debt; the plan also aimed to render easier short-term domestic credit operations and to restore asset liquidity. The National Railways company also benefited from extra funds to finance productive investment and to pay off a fraction of its debt. From an economic policy standpoint, the principles of a balanced budget, public sector restructuring and central bank independence serve as a guideline. The gold convertibility of the *leu* was rapidly restored and was able to fluctuate smoothly around its theoretical parities, as with any stable currency. Until the summer of 1929, Roger Auboin, a technical expert, checked the restoration of the convertible currency reserves of the central bank week after week.

Broadly, the Plan for the Stabilization of the *leu* was geared to the restoration of the NBR's balance, to regain the liquidity of its portfolio and provide the convertibility of the *leu*. Other goals included ensuring rigorous budget equilibrium for the normalization of the economic life, maintaining the stability of the national currency and achieving a program of investments in railways and other public works designed to create an infrastructure necessary for the sustainable development of the economy.

The stabilization appears to have been a success during the first months, when the NBR progressively increased its reserves of foreign currencies. During that period, under the influence of Auboin, the French mission tended to view the adaptation of the Romanian administration to the new monetary and budgetary orthodoxy as slow, while the Romanian administration regarded the main obstacle to the application of the stabilization plan as the content of the plan itself. These divergences were not only reported by Charles Rist but also by the economist and liberal politicians who initiated the project (Argetoianu, 1997, VIII, p. 153).

After the positive results of the first months, the situation began to deteriorate in October 1929, with degradation amplifying in 1930 due to the massive and sustained withdrawals of external capital from Romania. Between November 1929 and May 1931,

the capital exits amounted to *lei* million 8.047 (Madgearu, 1935, p. 29). Although the Romanian exports increased in quantity, the decrease in the prices of Romanian exported goods, together with the protectionist measures imposed by other states, led to the massive reduction of the entries of other currencies. In 1930, the state paid the external debt from the NBR's stock of currencies and by the partial sale of its stock of gold. For the French, the causes of this adverse evolution were threefold: (i) the government's difficulty of controlling the receipts of the budget, (ii) the tendency for debtors to ask at least for a postponement of their repayment and, in some cases, to neglect even this precaution when choosing to stop the repayments, and (iii) the decrease of the size of the NBR portfolio, which indicated the imminent difficulties of maintaining the rate of gold convertibility (*Papiers Charles Rist*, 1929, Correspondance avec Auboin et autres, Bolgert, Letter to Rist, 23 June 1930, Guitard, Letter to Rist, 2 December 1930). With these first effects of the Great Depression, an increasing number of Romanian observers challenged the way the stabilization of *leu* had been conceived.

Romanian economists increasingly regarded the selection of the Gold Exchange Standard, though widespread at the time in Europe, as the first error. Some already seemed aware of the inconvenience of this system by the dependence it created on convertible currencies (Bădulescu, 1931, p. 263-264; Slăvescu, 1932, pp. 384-388). To this first formal objection, they added the objection of "bad use" of the external loan, considering that Romania was paying the interest and the amortization of the loan amounting to more than *lei* one billion yearly, to maintain a stock of metal and convertible currencies as counterpart of a national currency that could not adjust freely to the rate or adapt to the needs of the external exchanges of Romania (NBRA, Secretariat, 37/1930, p. 454). In general, the Romanian economists believed that the payment from the very first year of interest and amortization for the just-contracted loan was a mistake, as there was not sufficient time for the investments to show any results. Other objections included the concept underlying the stabilization (Madgearu, 1935). Critics viewed the resources allocated to the liquidation of the public debt as insufficient, the actual amount of that debit being unknown to those who conceived the plan. Another equally significant deficiency was the lack of measures for the reformation of the banking system-especially the omission to create an agricultural credit institution, to provide medium and long-term lending to the peasants and, thus, solve the problem of the rural debtors, and to relieve the private banks from the loans extended to this sector. Without the latter, those criticizing the stabilization plan were of the opinion that the liquidity of the commercial portfolio discounted at NBR, obtained via the resources allocated from the loan, could not be maintained (*Argus*, 20 August 1930). They were probably right on all these points

2.3 The new development loan, the 1931 program and the banking crisis

In 1931, during the interactions devoted to determine the conditions of the second loan, the BDF proposed a text according to which the Romanian government and the NBR would be linked by more precise commitments than they were in the first loan (*Papiers Charles Rist*, Correspondance avec Auboin et autres, Farnier delivered by Auboin,

Notes sur les garanties d'ordre général demandées au Gouvernement Roumain, 13 January 1931). “The NBR will achieve to reorganize and maintain, in the conditions defined by its new statutes, the liquidity of its assets. The Government will, on its part, complete the reorganization of public finance [...]”. (*Papiers Charles Rist*, Correspondance avec Auboin et autres, Memorandum du Gouvernement roumain sur l'application du programme de stabilisation monétaire et de développement économique, [early] 1931). In the subsequent pages, the memorandum developed the kinds of accounting practices that the government must exclude or promote. The declared objective was to evolve to a more transparent presentation of the budget, in conformity with the prescriptions of the BDF document. All the divergences more or less hidden during the first two years of collaboration were then easily perceived when the BDF requested the presence for two more years of a foreign observer at NBR. The respective character, called an expert, would not attend the meetings of the Board of Governors of the issuing house but “could be consulted [...] on all the monetary and credit issues” that could emerge in the relationship between NBR and the foreign markets and had the task of preparing one to two reports per year regarding the financial situation of Romania. To observe the independence of the NBR, these powers had to belong to the issuing house in Bucharest (NBRA, Secretariat, 31/1931, p. 135).

Governor Dimitrie Burillianu's reply to these propositions mirrored the tension generated by the collaboration with the technical counselor up to that time. In the name of NBR, its leader refused the proposal of the BDF, regarding the presence of a foreign expert at the issuing house only as “an entirely exceptional and transitory measure” dedicated to a seeming purpose, the success of the monetary stabilization. The continuation of his presence was then perceived as a lack of trust in the NBR directors' capability of efficiently managing the respective institution. At the same time, the bank's management assured the Romanian government, which had submitted to them the BDF's request, that they would give full assistance to the foreign expert, whose advice the executives in Bucharest might have deemed necessary to resort to (NBRA, Secretariat, 31/1931, p. 135). The correspondence on this topic began on 1 February 1931 and continued until 9 March of the same year, with the management of NBR maintaining their same rigid position. In the end, the conflict was resolved by the government in Bucharest, which, disregarding NBR's independence, submitted a letter to the BDF Governor Moret, requesting in the name of the government and in agreement with the issuing house collaboration with Auboin as technical expert. His mandate entailed preparing half-yearly reports during 1932-1933 about the financial situation of the country for the foreign creditors. No reference was made any longer to the possibility of NBR's consulting with him about monetary and credit issues, but the issuing house in Bucharest was obligated to give its full support to the respective technical expert. Governor Burillianu, who persisted in his inflexible attitude, was removed from office before the termination of his mandate.

The equilibrium of public finance was momentarily restored by the Development Loan contracted in 1931, but the situation began to rapidly deteriorate. A few months after the payment of the second loan, a banking crisis affected the Romanian economy. The banking crisis in Central Europe, the crash of Creditanstalt and the massive withdrawal of the foreign capitals already recalled cast a spotlight on the deficiencies of the Roma-

nian banking system, causing in mid-1931 the bankruptcy of several prestigious banking institutions, the most prominent of which, due to its presence over time, prestige and business volume, was Marmorosch Blank Bank.

The deficiencies of the banking system were well known by the Romanian officials. Since 1930, the Minister of Industry and Trade Virgil Madgearu had talked about a crisis of the credit system of Romania. The essential aspects thereof were the lack of credit to finance the current economic activities, the extremely high interest rates and the over-indebtedness of the potential credit consumers. Even more, the Romanian economists talked about a set of measures intended to solve the problems. Among the first were the liquidation of the state debt and the restoration of the inflow of foreign capital for investments. At the same time, a belief began to be voiced that the state had to intervene in the organization and control of the credit system-in the conditions in which NBR could no longer exercise efficient control through the discount. In this respect, the enactment of a banking law was required to specify the conditions of establishment of a new credit institution, the merger of non-viable banks, the organization of credit intended to finance agriculture, and the transformation of short-term credits immobilizing the Romanian banks into long-term credits, through the development and revitalization of mortgage loan institutions (Argus, 20 August 1930; Manoilescu, 1993, II, p. 269).

An important correspondence among Rist, Auboin, Bolgert, and Mihail Manoilescu, NBR's governor at the time, relates these episodes and the attempts of the Romanian staff and the French mission, intimately associated with their goals, to save the sounder part of the Romanian banking system. During the crisis, Auboin repeatedly asked Quesnay, now director of the Bank for International Settlements, if that institution could provide in case of need the possibility to re-discount a portfolio of assets from NBR or other kinds of liquidity or advances (*Papiers Charles Rist, Correspondance avec Auboin et autres, Auboin, letters to Quesnay, 30 June and 9 July 1931*). The stabilization program, however, does not confer the foreign technical counselor the right to involve in the credit policy of the National Bank the activity and structure of the credit system exceeding his intervention powers. Nevertheless, the need to maintain the monetary stability determined the involvement of Auboin as technical counselor in the Romanian credit system issues and his co-optation in the administration of the banking crisis. Also playing important roles in all the phases of the banking crisis were governor Manoilescu, and the then Minister of Finance, Constantin Argetoianu. The role of the state and NBR became decisive in the context of the banks' requests to obtain an increased right of re-discount at NBR, related to the state's takeover of a part of the assets of the banks in difficulty. In one of his last 1932 reports, Auboin notes retrospectively that the 1931 loan had been the only external help that Romania received, while "massive repayments of external loans intervene since three years" (*Papiers Charles Rist, Correspondance avec Auboin et autres, Auboin to Tardieu, Flandin and Moret, 7 March 1932*). The situation then triggered a radical change in the modality of administration of the funds allocated under the stabilization plan for the liquidation of the debts of the state and private persons to NBR-these resources being re-oriented to the granting of aids to credit institutions confronted with ever-increasing difficulties (Madgearu, 1935, p. 33). The classic example in this respect was the takeover by the state of *lei* 600 million from the 1,200 million

portfolio rediscounted by Marmorosch Blank Bank at NBR, to allow the latter to re-discount other trade bills of the banks in difficulty. In contrast, the credits extended to the Romanian factories under the Industrial National Credit remained immobilized, as the funds intended to finance agriculture were also allocated for the same goal.

The banking crisis is the last episode of cooperation between the two teams. In early 1932, Auboin still tried to convince the Romanian government that the intervention of NBR during the banking crisis must remain an exception (*Papiers Charles Rist*, Note sur les réformes restant à réaliser ou à achever en Roumanie, Auboin *et alii*, Annexe au douzième rapport trimestriel du Conseiller Technique, 7 Feb. 1932), but the *Conseiller Technique* was now alone to consider whether any room remained to cooperate. Bolgert had already expressed the following opinion before the end of the crisis: “In the current crisis, Romanian people are aware of the advantages that our activity provides on their relations with Western countries [...]. It is also evident that, as soon as the situation will improve, our involvement will be perceived more negatively” (*Papiers Charles Rist*, Correspondance avec Auboin et autres, Guitard, Bolgert, letter to Moret, 31 Dec. 1931). He then suggested a suspension of the mission: “I would favor a strict interpretation of the 1931 Program, *i.e.*, a suspension of all permanent presence in Bucharest and the implementation of a system of periodic inquiries” (*Papiers Charles Rist*, Correspondance avec Auboin et autres, Bolgert, letter to Moret, 31 Dec. 1931). The alternative was that “for the main point in debate, one of the members of the delegation would have a right of veto” (*Papiers Charles Rist*, Correspondance avec Auboin et autres, Bolgert, *ibid*). The last words of Bolgert are probably the more lucid and provide support for the theoretical illustration we present in the appendix: “The mission could work only if Romanian Government clearly expressed the wish of welcoming the work of the mission for its own benefit and not as a counterpart of the loans” (Bolgert, *ibid*).

2.4 The French reports and the last months

Two important reports were produced by the French mission and communicated to the Romanian authorities from the end of 1931 to May 1932. The *Rapport sur les deux premières années d'application du programme de stabilisation et de développement économique* (Report on the first two years of implementation of the program of stabilization and economic development) adopts the point of view of a central banker. The second report, labeled “Rapport sur les Finances Publiques de la Roumanie” (Report on the public finances of Romania) is signed by Rist, though Auboin, Bolgert and the rest of the mission members likely contributed to its elaboration as well. It is addressed to Argetoianu, who was in charge of the Treasury. These reports indicate three main concerns: central bank management, public finance management and industrial policy (see Torre and Tosi 2010). Regarding monetary policy, Rist and his co-authors noted the illegal practice of hidden advances from the NBR to the government.

The critics were more disparaging of public finance and concerned about the lack of financial orthodoxy of the government methods. On the one hand, they believed the government could not contain structural deficits, while on other hand, it was using external loans to repay existing loans, not to generate productive uses.

The structural form of public deficits had many forms: some receipts were over-evaluated, and some expenses were under-estimated or unexpected. Overall, the political successive administrations in charge seemed not to have the containment and reduction of the public deficits as a goal. These problems were voiced by Rist in 1929 and then confirmed in the correspondence of Auboin in the 1931-1932 and 1932 reports. In 1932, Rist also notes the forbidden reporting practices of engagements without order, unpaid orders and the many cases in which the government dangerously committed itself as collateral in private contacts and prefigured future increases of public debt. Rist also regrets the joint government and bank decision in 1929, given the structure of the public debt in the hands of the bank, to continue managing the long-term part of this debt but only by delegation of the government. Rist at last deplores, among other critical remarks, that the government would have chosen to intervene repeatedly in this long-term management of debt by discounting its own position or canceling its own debt.

The use of stabilization Loans to refund old arrears is one financial practice that completely goes against the academic conceptions of Rist. On the 1932 report, he notes: “A stabilization loan of lei 6 billions refunded the arrears of previous loans. This amount is far larger than the equivalent used in Hungary and Austria to pay off their deficit. It is unrealistic to expect obtaining new loans without a strict commitment to restrict Public Expenses to the level of Public Receipts” (Rist, 1932-Report, p.7). More generally, Romanian are suspected by the French Doctor to use systematically the new loans to extend the maturity of their old engagements, without taking the opportunity to plan new ways to increase the efficiency of their economy.

The criticisms from industrial policy concerned the lack of execution of the objectives of the stabilization program in the re-organization of the administrative and financial management of the railways. The policy suggested the creation of an autonomous management of the network, recommended reforms to accounting and reporting practices, and proposed removing gratuities and discounts and introducing control of management practices to rationalize the use of human resources. The report also recognized the creation of two specialized banks: (i) a bank specialized in financing agriculture and (ii) a system of short-term advances on harvests.

In a third report in October 1932, Auboin refers to new difficulties that faced the NBR regarding the problem of the advances to the Treasury. He particularly stresses the conditions of the advances in June during which “the NBR has accepted to transfer temporarily 1 Billion to the Government, from the gain resulting from the coins issuance, then 400 millions from a non-affected part of the loan. These accounts have not been associated to any efficient guarantee. They had the only objective to give to the Government the time to apply a serious plan of financial recovery. Now, this plan is yet in stand-by and the Treasury still cannot face its commitments. Moreover, in August the NBR has accepted to provide to the Government Swiss Francs 50 millions from a blocked account from abroad. The counterpart, i.e. lei 1,600 Millions, has been immediately transferred to the Government, without any guarantee but the promise of a long term repayment” (*Papiers Charles Rist*, Auboin, Note sur la Situation Monétaire de la

Roumanie en Octobre 1932, 22 Oct. 1932). Auboin goes on to tie the increase of credit amount of the NBR to the depreciation of the *leu*. At the end of this report, he concludes that the solution adopted in 1929 was efficient in the current case and that providing a new exchange reserve to NBR could not improve the situation if new measures of budgetary orthodoxy were not imposed by the government.

At this time, Madgearu opined that the fragile equilibrium obtained at the expense of the foreign loan was undermined for good by the economic crisis. He believed that all the expense cuts and increases in taxes and charges could not stop the downsizing of the economic activity, inevitably mirrored in the budget revenues (Madgearu, 1933, p. 4). In the period 1929-1933, the rate of collection of the government budget revenues decreased from 100% to 58%, while the payments could not be reduced to the same extent, with their rate dropping from 100% to 62%. The difference naturally translated into a budget imbalance: the accusation was that the budget deficits were due to the lack of foresight of those who had prepared the budget of the effects of the crisis (Madgearu, 1937, p. 9). Madgearu (1933, pp. 4-5) also noted that in addition to the diminished budget revenues generated by the crisis, the level of the budget expenditure compression could not exceed the level at which the very normal operation of the state apparatus could be endangered, though the Romanian authorities had closely approached that level in their option to support the payment in full of the external debt.

Another minister of finance during that period, Constantin Argetoianu, suggestively described this option of the Bucharest authorities and the rationales thereof. He considered retrospectively that any other option would have provoked “scandal and repercussions on the Paris market and in the political backstage on the shore of Seine - not to mention London and New York”. Moreover, the specific ratiocination of that time was that keeping the state’s creditworthiness and thus ensuring external support could help obtain the means necessary to pay the domestic commitments, but the preferential payment of these could not ensure the external creditworthiness and prestige of Romania (Argetoianu, 1997, IX, part VIII, p. 249).

As the budget revenues were insufficient, the Romanian government constantly resorted to extra-budget means, which in that period amounted to *lei* 7 billion: funds from external loans and the two stabilization and development loans. In 1932, to pay the external debt coupon and maintain the cover stock, several short-term loans obtained from the BDF, Bank of England, Union des Banques Suisses, and Banque de Paris et des Pays-Bas, as well as by the sale of gold from the stock, were used (Madgearu, 1935, pp. 36, 50). During this time, Auboin continued to maintain a strict opposition to all forms of monetary depreciation (Auboin to Tardieu, Flandin and Moret, 7 March 1932), while Virgil Madgearu pleaded for the resizing, obviously in agreement with the creditors, of the amount related to the external debt annuity, in accordance with the payment capacity of Romania (Madgearu, 1933, pp. 3, 16-17).

The Romanian administration considered implicitly that it had reaped all the benefits of the second loan and that nothing could be gained from the joint stabilization plan. The abandonment of the gold standard by the United Kingdom in October 1931

was deemed an auspicious time for Romania to relinquish the stabilization objective, the more so because in February 1930, upon his departure from Romania, Rist had cast an element of doubt on the success of his mission, proclaiming the need to “stabilize the stabilization” (*Argus*, 10 February 1930). It is probably at that time that Charles Rist acknowledged, at least to himself if not officially, the failure of the stabilization of the Romanian currency. From that moment onward, the fate of the *leu* was sealed. The *Conseiller Technique* efforts to defend the stabilization objectives appeared to many members of the Romanian team as a matter of personal vanity, with the real mission of the latter only to supervise the payment of the external debt coupon. The lack of the October 1931 moment and the persistence in maintaining the convertibility until 18 May 1932 may have been a serious error—the more so as, in that context, the technical counselor pleaded to the NBR’s council for the maintenance of the convertibility of the *leu*, arguing that a strong *leu* would be an undeniable plus in the competition between Romania and the other countries of that part of Europe.

The last months of the mission were also characterized by the emergence of new challengers of the French influence on the Romanian stage. One of the members of the mission (probably Auboin) commented that the “violent campaign started last year in Bucharest during the discussions about *Anschluss* and the commercial propositions made by Germany to Romania” (*Papiers Charles Rist*, Correspondance avec Auboin et autres, Guitard, anonymous (probably Auboin?), Note sur la politique économique allemande en Roumanie, 11 April 1932). At the time, Germany was an important client of Romania for the exports of agricultural products and especially cereals. For this reason, Germany had more objective interests than France in having economic agreements with Romania and temporarily subsidizing the modernization of its economy. The author of the anonymous note does not really contest this complementarity of the two economies and refutes the “German solution” on very weak bases: as Germany was still obligated to repay the war debts, it was also obligated to realize commercial surpluses with all its commercial partners, including Romania. However, the author of the note clearly recognized that Germany could become a substitute for France as the leading economic partner of Romania (and of the other Danubian countries). He then proposed “counterbalancing this policy, to organize a close technical cooperation and a real economic support”. While the other pieces of the French correspondence were oriented to the withdrawal of the French delegation, the second part of the text developed the possible objectives and means of such a new round of economic cooperation.

Governor Moret repeatedly obtained permission from the BDF board to postpone the repayment of the 1931 loan and the approbation to reduce the amount of interest (Procès verbal de la séance du *Conseil des Régents et Censeurs* de la BDF, 23 March, 22 June, 27 July 1933). The September 1933 meeting was largely devoted to the Romanian debt, with the decision of suspension of any repayment of its previous loans sharply reducing the credibility of the Romanian authorities and increasing the risk of non-repayment of the loan. The intervention of Auboin, mentioned explicitly by Moret, had the consequence of softening the content of the decisions (Procès verbal de la séance du *Conseil des Régents et Censeurs* de la BDF, 21 September 1933).

3 A four stages game

When observed chronologically, the four years of the mission clearly indicate a four-stage process. Stages 1 and 3 basically correspond to the re-payment of the two loans by the BDF to the Romanian central bank and government. Simultaneously, actions were taken by the French side, under the form of monetary initiatives and financial advice. During stages 2 and 4, the Romanian side had the initiative not only to apply (or not) the financial and fiscal advice of the French counselors but also to adapt the central bank initiatives to the financial climate of the country. This process does not differ so much from the process of convergence of the future members-states of Euroland before 1999. The only important difference is that there is nothing “after” the four stages that stabilized participants’ expectations during the process. In this section, we show that this lack of long term objective of the two teams could be formally responsible of the failure of the cooperation process, when we capture this last as a sequence of rational actions from French and Romanian parts. As the two teams were perfectly able to anticipate the final failure, we must admit that not strictly rational or non-economic motives were also present in the mind of the partners when they accepted to cooperate after the 1930.

3.1 The model

The French team had two action variables L_1 and L_3 , namely the payment of the loan at time 1 (at the beginning of the mission) and at time 3.¹ To make things simple, L_1 and L_3 can only take the discrete values 0 and \bar{L} ($\bar{L} > 0$). The Romanian team control variables are f_2 and f_4 ($0 \leq f_2 \leq 1, 0 \leq f_4 \leq 1$). f_2 refers to the effort devoted to stabilize the economy and f_4 to develop it.

The potential gains of the French team are (i) the monetary advantages for the French administration to stabilize the Romanian *leu* and to integrate or maintain it inside the zone of influence of the French franc and (ii) the political advantages the French government could obtain in Central Europe by limiting its relationship to the Romanian administration. Monetary advantages depend only on the final actions f_4 of the Romanian team (the development of the Romanian economy would improve commercial relations between France and Romania and generate commercial advantages for the French economy). A linear form of this term is expressed as mf_4 , ($m > 0$). The second component of the gain for the French team depends positively on f_2 and f_4 , which can also be linearized as $nf_2 + n'f_4$, ($n > 0, n' > 0$) (all actions of the Romanian government in the direction recommended by the French team can be interpreted as a sign of increased political influence of the French administration on the Romanian one). The costs of the French team c_1 with $c_1 > 0$ and c_3 with $c_3 > 0$ cover the risks of non-repayment of the loans from one side, and the other costs cover the risks from the other side, corresponding to the opportunity cost to maintain members of the *BDF* staff and other civil servants near the Romanian monetary and financial authorities. The risk of non-repayment decreases

¹In a previous version of this paper, we introduced two other effort variables for the French teams that corresponded to the respective actions to advise NBR and the Romanian government during the period. These variables only make the game more complex without changing the results.

with the level of effort of the Romanian team during the stabilization and development period. This decrease is not homogeneous among loans. The risk of non-repayment of the initial loan L_1 decreases only with the early actions f_2 of the Romanian government (the relevant decisions for the repayment of a given loan are mainly undertaken in the few months and years after the payment of the loan). The corresponding term of cost is $\gamma L_1(1 - f_2)$. The risk of non-repayment of the subsequent loan L_3 decreases with the level of both the initial and subsequent actions (good initial practices and good actions to develop the economy make repayment of the loan easier). The corresponding term is $\gamma L_3(1 - f_2)(1 - f_4)$. Still, in terms of the loans, the risk of repayment of the first loan is dampened by the amount of the second loan: a development loan is necessary to improve development and to make the repayment possible. The corresponding term is $\gamma' L_1 L_3$. If λ_1 is equal to 1 when $L_1 = \bar{L}_1$ and to 0 when $L_1 = 0$, and if λ_3 is equal to 1 when $L_3 = \bar{L}_3$ and to 0 when $L_3 = 0$, the function of gain Π_F of the French team takes finally the form (1):

$$\begin{aligned} \Pi_F = & n f_2 + (m + n') f_4 \\ & - \gamma L_1(1 - f_2) - \gamma L_3(1 - f_2)(1 - f_4) + \gamma' L_1 L_3 - \lambda_1 c_1 - \lambda_3 c_3 \end{aligned} \quad (1)$$

The potential gains for Romanian team include the economic advantages associated with the payment of the loans. We assume that this term is linear and express it as $\alpha(L_1 + L_3)$. The likelihood of other positive gains is a challenging point. It is not clear whether Romanian authorities really perceived the benefit of their own efforts to increase orthodoxy of budgetary and monetary practices, though they likely considered the efforts to follow the recommendations of the *BDF* mission at least productive until the last loan was paid. This term is expressed as $q_2 f_2$ with $q_2 - 2 > 0$. We can consider two cases in which their effort reflected a positive term of the payment function. The second term $q_4 f_4$ is such that $q_4 > 0$ in a first option and $q_4 = 0$ in a second option. Costs are limited to that of effort and are expressed as $\chi(f_2) + \chi(f_4)$, where $\chi(f)$ ($f = \{f_2, f_4\}$), with $\chi(0) = 0$ and $\lim \chi(f) = +\infty$ when $f \rightarrow \infty$. These costs cover both the short-term perceived sacrifices in term of immediate growth (or probability of re-election) associated with their actions and the transaction costs generated by the maintenance of useful interactions with the French delegation. The function of gain Π_R of the Romanian team finally takes the form (2):

$$\Pi_R = \alpha(L_1 + L_3) + q_2 f_2 + q_4 f_4 - \chi(f_2) - \chi(f_4) \quad (2)$$

Table 1 gives the sequence of the game. Each team plays two times, sequentially. The French team plays at time 1 and time 3, while the Romanian team plays at time 2 and time 4. The game is solved by backward induction. At time 4, the Romanian team chooses the value of f_4 to maximize its net gain associated with expression (2), given the actions already undertaken previously by the two teams. At time 3, the French team

chooses, according to expression (1), the best values of L_3 and e_3 , given (i) the actions previously undertaken by the two teams and (ii) its expectations of the actions that the Romanian teams will rationally undertake at time 4 in response to its own actions at time 3. We determine the actions at times 1 and 2 in a similar way.

Table 1: The timetable of the mission

Actions	Initial Stage	Second Stage	Third Stage	(Planned) Last Stage
Romanian Actions		f_2		f_4
French Actions	L_1		L_3	

3.2 The outcomes of the model

If f_2^* is such that $\chi'(f_2^*) = q_2$ and f_4^* is such that $\chi'(f_4^*) = q_4$ and if $(L_1 = 0, L_3 = 0)$ maximizes Π_F when $(f_2 = f_2^*, f_4 = f_4^*)$, then the possible solutions of the game are defined by the following proposition:

Proposition 1. *According to the value of parameters and the form of cost functions, the previously defined game has three possible (unique) outcomes: one excludes all loan, both other ones include both loans.*

Proof: The game is solved by backward induction.

(i) During the last period, whatever previous actions, the Romanian team has always interest to choose the level of effort \tilde{f}_4 solution of $q_4 - \chi'(f_4) = 0$.

(ii) At period 3, if $L_1^* = 0$, whatever parameters values, $L_3^* = 0$. If $L_1^* = \bar{L}_1$, given the expectation that f_4 will be equal to \tilde{f}_4 at period 4, the French part has to choose between $L_3 = 0$ and $L_3 = \bar{L}_3$. Given equation (1), it will choose $L_3^* = \bar{L}_3$ if $f_2^* \geq 1 - \frac{\gamma' \bar{L}_1}{\gamma(1-\tilde{f}_4)}$ and $L_3^* = 0$ in the opposite case.

(iii) Consider now the choice of the Romanian part at period 2. Given the form of equation (2), there are four possible decisions. Let us define $\bar{f}_2 = 1 - \frac{\gamma' \bar{L}_1}{\gamma(1-\tilde{f}_4)}$ and \tilde{f}_2 as the solution of $q_2 - \chi'(f_2) = 0$. (iiiia) If $L_1 = 0$, the choice is always $f_2 = \tilde{f}_2$. If $L_1 = \bar{L}_1$, there are three cases. (iiib) Given the expected choices of French team at period 3, $f_2^* = \tilde{f}_2$ if $\tilde{f}_2 \geq \bar{f}_2$. In this case $L_3^* = \bar{L}_3$. If $\tilde{f}_2 < \bar{f}_2$, Romanian team chooses (iiic) \bar{f}_2 if $\Pi_R(L_1^*, \bar{f}_2, \bar{L}_3, \tilde{f}_4) \geq \Pi_R(L_1^*, \tilde{f}_2, L_3 = 0, \tilde{f}_4)$ and in this case $L_3^* = \bar{L}_3$, or (iiid) \tilde{f}_2 if $\Pi_R(L_1^*, \tilde{f}_2, \bar{L}_3, \tilde{f}_4) < \Pi_R(L_1^*, \tilde{f}_2, L_3 = 0, \tilde{f}_4)$ and in this case $L_3^* = 0$.

(iv) At period 1, whatever the value of \bar{f}_2 and \tilde{f}_2 and given expression (1), the French part chooses always $L_1^* = 0$ if $L_3^* = 0$. Given that $L_3^* = 0$ in period 3 if $L_1^* = 0$, there remains 2 other equilibrium possibilities, namely $(\bar{L}_1, \bar{f}_2, \bar{L}_3, \tilde{f}_4)$ and $(\bar{L}_1^*, \tilde{f}_2, L_3 = 0, \tilde{f}_4)$ according to the relative values of \bar{f}_2 and \tilde{f}_2 .

Finally, according to the values of parameters and the form of cost functions, there are three possible equilibriums: $(0, \tilde{f}_2, 0, \tilde{f}_4)$, $(\bar{L}_1, \bar{f}_2, \bar{L}_3, \tilde{f}_4)$ and $(\bar{L}_1, \tilde{f}_2, \bar{L}_3, \tilde{f}_4)$. The first excludes all loan. The second and the third include both loans and differ only by the level of effort of Romanian part at period 2 ■

It is interesting to verify that one single loan is never a solution of the game. The economic reason, captured by the form of expression (1) is that the first loan is a stabilization loan and cannot provide alone results sufficient to improve substantially the situation of French part. If there are lot a second loan expected by the Romanian part, their effort is too small to generate advantages for French team in term of future commercial or political benefits, and the lack of development effort compromise the repayment of this single stabilization loan. Another remark is that when the solution integrates both loans, the French part could not be deceived by the actions of the Romanian team after the second loan. In all case, according expression (2), these actions are at this stage independent of the amount of the loans and only depend on the interest of the Romanian part at this stage of the game. The development loan provides a direct advantage to the Romanian part but does not involve sufficient incentives to generate indirect gains associated to a change in the economic practices of Romanian government.

Another result expresses as a corollary of Proposition 1:

Proposition 2. *If the loans are the results of rational decisions, and that the French part provides both loans, it could not be deceived by the last actions of the Romanian part.*

Proof: From Proposition 1 it falls that if the French part decides rationally to provide both loans, it is because $\max\{\Pi_F(\bar{L}_1, \bar{f}_2, \bar{L}_3, \bar{f}_4), \Pi_F(\bar{L}_1, \bar{f}_2, \bar{L}_3, \bar{f}_4) \geq \Pi_F(0, \bar{f}_2, 0, \bar{f}_4)$, i.e. \bar{f}_4 cannot be a surprise for the French part when this last decides to provide both loans ■

A confrontation of the outcomes of this model and the stylized facts of the cooperation then suggests that the French team could have overestimated the influence of the loans of Romanian actions. They could have also underestimated the complexity of the reforms necessary to modify the fundamentals of the Romanian economy and consider that the loans and the advices of the missions would be sufficient to decrease the “cost of effort” of Romanian authorities. These are possible causes of their deception: the good solution would have been “no loan” with the style of mission they imagined and the type of advices their provided. This result is however only an interpretation of the gap between the outcome of the game (supposing rational choices) and the perception of events by the French part. The model is however very simple and cannot capture for instance the exact profile of efforts f_2 and f_4 of Romanian part. An empirical analysis, made with the help of SEMMHN data could be more conclusive.

4 An empirical analysis of the effects of the loans

In this section, we try to test empirically the main implications predicted by the model by analyzing the effect of both the stabilization loan provided in February 1929 by the *BDF* with other partners and the development loan provided in March 1931 again by the *BDF* contingent on NBR’s behavior in terms of international reserves. We treat the evolution of the total cover stock of the NBR during 1929-1935 as an endogenous variable. We choose a period of observation from 1928 to 1935 when monthly data are available and extend the period when less frequent observations are provided. With monthly data, we are, for example, able to observe the evolution of reserves before the loans, between them

Table 2: Results of ADF and KPSS stationary tests

	ADF test				KPSS test			
	Level		First diff.		Level		First diff.	
	Constant	Trend	Constant	Trend	Constant	Trend	Constant	Trend
$Ln(CV_t)$	-2.439	-2.282	-8.735***	-8.750***	0.197	0.136*	0.138	0.075
$Ln(Met_t)$	-2.670*	-2.660	-11.931***	-12.016***	0.654**	0.209**	0.203	0.058
$Infl_t$	-7.109***	-7.295***	-9.261***	-9.219***	0.439*	0.239***	0.240	0.169**
$Ln(FFX_t)$	-3.392**	-4.560***	-11.403***	-11.567***	0.642**	0.192**	0.237	0.111
$Ln(SX_t)$	-0.253	-2.860	-5.482***	-5.480***	1.184***	0.168*	0.144	0.109
$Ln(USX_t)$	-0.143	-1.846	-4.243***	-4.415***	0.955***	0.280***	0.367	0.112***
$Ln(BC_t)$	-2.260	-2.747	-6.475***	-6.491***	0.381*	0.103	0.093	0.045

Note: *, **, *** denotes significance at 10 % level, 5 % level and 1 % level, respectively.

The lag parameters for ADF tests are selected based on the Schwartz information criteria.

Model B implies shift in trend. Model C implies shift in both intercept and trend.

Critical values for the null hypothesis of stationarity (KPSS test) are taken from Kwiatkowski et al. (1992, table 1).

and after them. We use SEMMHN data, provided recently by NBR, in a partnership with other central banks of Southeast European countries. We begin with the following benchmark equation:

$$Ln(CV_t) = \alpha + \beta_1 Ln(BC_t) + \beta_2 Ln(FFX_t) + \beta_3 Ln(USX_t) + \beta_4 Ln(SX_t) + \beta_5 Infl_t(3) \\ + \beta_6 Sloan + \beta_7 Dloan + \beta_8 Crisis + \epsilon_t$$

where CV_t is the total cover stock of NBR; BC_t is the total circulation of banknotes; FFX_t is the nominal exchange rate of the leu against the French Franc; USX_t is the nominal exchange rate of the leu against the US dollar; SX_t is the nominal exchange rate the leu against the sterling; $Infl_t$ is the inflation rate; $Sloan$ is a dummy variable that equals 1 at the date of the stabilization loan in February 1929; $DLoan$ is a dummy variable that equals 1 at the date of the development loan in March 1931; and $Crisis$ is a dummy variable that equals 1 during the banking crisis from June to December 1931. All beta parameters must be estimated, and epsilon represents the error term.

In a first step, we apply the augmented Dickey-Fuller (ADF) procedure to test the order of integration of each variable retained in the analysis. For robustness checks, we complement this test with the stationarity test developed by Kwiatkowski, Phillips, Schmidt and Shin (1992; KPSS test hereinafter), which assesses the null hypothesis of stationarity instead of the existence of a unit root as in the ADF test. Table 2 reports the results.

Both the ADF and KPSS tests clearly indicate that most variables are I(1) over the full sample, which, as a consequence, could lead us to assume that all variables contain a unit root and to test the cointegration between those variables. However, standard stationarity tests such as ADF and KPSS may erroneously fail to reject the hypothesis that a series contains a unit root when the sample under scrutiny incorporates economics events or shocks responsible for shifts in regime (Perron, 1989). It is therefore important to take into account the possibility of a structural break in the testing procedure. As a consequence, we also rely on two tests developed by Zivot and Andrews (1992), Perron and Volgelsgang (1992) and Perron (1997) that allow an endogenous structural break. The main idea behind these tests is to check whether, in the presence of an endogenous structural break in the data, the time series are trend stationary. However, the tests are

quite different. Indeed, as Lee and Chang (2005) suggest, the test developed by Zivot and Andrews (1992) selects the break date using a different dummy variable for each possible break date, according to the most negative t-statistic on the coefficient associated with the autoregressive variable. The tests proposed by Perron and Vogelsang (1992) and Perron (1997) allow for two types of structural breaks: the additive outlier (AO) model, which allows for a sudden change in the mean (the crash model), and the innovational outlier (IO) model, which serves to capture gradual changes over time. Finally, both tests distinguish between sudden breaks and breaks that occur slowly over time. However, selection of the break date is different in the two tests. In the Perron (1997) test, the breakpoint is chosen according to the maximum absolute value of the t-statistic on the coefficient of the autoregressive variable, whereas in the Perron and Vogelsang (1992) test, it is selected by the minimum value of the t-statistic on the sum of the autoregressive coefficients over all possible break dates. Note that both tests only allow for a single endogenous break, which seems adequate for our analysis of the number of observations available. However, Clemente, Montanes and Reyes (1998) extend the approach of Perron and Vogelsang (1992) to allow for two endogenous structural breaks in the unit root test. Nevertheless, all these tests only allow for a break under the alternative hypothesis of stationarity and exclude the possibility of a break under the null hypothesis of unit root.

Both tests are of primary importance because they allow us to evaluate whether an external shock, which could be linked to the two loans provided by the *BDF*, for example, has shifted our time series. This could be viewed as a first analysis of the statistical properties of the total cover stock of the NBR and could give us first clues about the link between the loans and their evolution, especially if structural breaks are identified around the loans' dates.

Table 3: Results of Zivot and Andrews (1992) unit root tests

	Model A		Model B		Model C	
	t-statistic	Date of break	t-statistic	Date of break	t-statistic	Date of break
$Ln(CV_t)$	-4.326	03/1929	-3.919	04/1929	-5.385**	01/1930
$Ln(Met_t)$	-9.246***	04/1929	-5.645***	06/1929	-7.539***	04/1929
$InfI_t$	-8.583***	01/1930	-8.152	04/1931	-8.531***	01/1930
$Ln(FFX_t)$	-3.359	02/1931	-4.425*	05/1929	-5.265**	05/1930
$Ln(SX_t)$	-7.317***	10/1931	-2.571	10/1934	-13.379***	10/1931
$Ln(USX_t)$	-10.253***	05/1933	-2.789	12/1931	-8.566***	05/1933
$Ln(BC_t)$	-4.259	07/1931	-3.158	05/1930	-5.203**	07/1931

Note: *, **, *** denotes significance at 10 % level, 5 % level and 1 % level, respectively.

The lag parameters are selected based on the Akaike information criteria. Model A implies shift in intercept.

Model B implies shift in trend. Model C implies shift in both intercept and trend.

Lags are selected according to the Akaike criteria.

When we consider Zivot and Andrews's (1992) test, it seems that all our variables are stationary around segmented intercept and trend. Of note, the structural break for the total stock cover of the NBR occurred in January 1930, after the stabilization loan from France, which was issued in February 1929. This external shock seems to have had a strong and significant impact on NBR's total cover stock. This phenomenon is also true

for the total metallic stock of the NBR ($Ln(Met_t =)$) for which we find that the structural break occurred in April 1929, two months after the stabilization loan. We also reject the null hypothesis of a unit root at the 1 % level for all bilateral exchange rates, and it seems that the structural break occurred in May 1930 for the nominal exchange rate of the leu against the French franc. Although Zivot and Andrews's (1992) test is informative and allows integrating structural breaks in the testing procedure for the existence of a unit root, in contrast with tests such as KPSS, it does not allow the occurrence of more than one structural break in the model. Therefore, we apply the methodology developed by Clemente, Montanes and Reyes (1998). Table 4 summarizes the results. We find that structural breaks of all our variables are gradual over time. Indeed, we find that for most of the studied variables, only the IO model displays significant results. In particular, we evidence two structural breaks in the stationarity test of the total cover stock of the NBR. We still identify the first break near the stabilization loan from France (January 1929), while the second one occurs in February 1930. The results of the total metallic stock reveal a structural break in December 1928, two months before the stabilization loan, and another break in March 1933, three months before the decision of the Romanian government to cease servicing external debt. This result shows the importance of these two events in the structural evolution of both the total cover stock and the total metallic stock from the NBR.

Table 4: Results of Clemente, Montanes and Reyes (1998) unit root tests

	Innovational Outlier (IO)		Additive Outlier (AO)	
	t-statistic	Dates of break	t-statistic	Dates of break
$Ln(CV_t)$	-6.945***	01/1929*** 02/1930***	-2.180	04/1929*** 04/1930***
$Ln(Met_t)$	-109.367***	12/1928*** 03/1933***	0.328	11/1928*** 03/1929***
$Infl_t$	-8.599***	11/1929** 06/1934***	-7.208***	01/1931 09/1934***
$Ln(FFX_t)$	-7.706***	09/1928*** 03/1930	-0.732	01/1929*** 02/1930**
$Ln(USX_t)$	-10.942***	09/1929 03/1933***	-1.304	08/1933*** 04/1934***
$Ln(BC_t)$	-5.836**	11/1929*** 05/1931	-2.763	02/1930 08/1931

Note: *, **, *** denotes significance at 10 % level, 5 % level and 1 % level, respectively.

Critical values for the test are taken from Clemente, Montanes and Reyes (1998): -5.24 at 10 %, -5.49 at 5 % and -5.96 % at 1

As suggested by both Zivot and Andrews (1992) and Clemente, Montanes and Reyes (1998) unit root tests, it seems that all our variables are stationary around a structural break. Furthermore, this first analysis seems to confirm that both the total cover and the metallic stocks of the NBR experienced shifts during the studied period, especially near the stabilization loan date. As a consequence, to evaluate more precisely the impact of both loans on the total cover stock of the NBR, we estimate equation (1) with the ordinary least squares estimator and still obtain unbiased results, as in Aizenman et al.

(2007). We produce Newey-West standard errors to correct our data from heteroskedasticity and autocorrelation. We assume possible autocorrelation up to one lag. Table 5 summarizes the results.

Table 5: Determinants of total cover stock and total metallic stock of the NBR

	(1)	(2)
	$Ln(CV_t)$	$Ln(CV_t)$
$Ln(BC_t)$	0.487 (0.597)	0.311 (0.287)
$Ln(FFX_t)$	13.866*** (4.282)	0.067 (0.670)
$Ln(USX_t)$	-0.050 (0.079)	-0.183** (0.070)
$Ln(SX_t)$	0.364 (0.299)	0.278** (0.137)
$Infl_t$	-0.074 (0.793)	-0.404 (0.564)
$Sloan$	-0.193*** (0.050)	
$DLoan$	-0.053 (0.070)	-0.126** (0.052)
$Crisis$	-0.047 (0.071)	-0.058 (0.040)
$Ln(LoanUS_t)$		0.090*** (0.029)
Intercept	-13.421 (18.392)	16.466*** (4.670)
Adjusted R^2	0.485	0.487
Observations	96	72

Note: *, **, *** denotes significance at the 10 % level, 5 % level and 1 % level, respectively.

Note: Newey-West standard errors are in brackets.

In the first estimation, we focus our analysis on the entire sample from January 1928 to December 1935. In the second estimation, we add an explanatory variable that captures the price for the 7 % 1929 stabilization loan provided by the US government to the Romanian economy. Because of the lack of data, when we add this variable, we only focus on the period between January 1930 and December 1935. As such, we skip the variable capturing the effect of the stabilization loan provided by the French government.

The baseline results show that the stabilization loan provided by France had a significant and negative impact on the total cover stock of the NBR, which confirms the prediction of our model. Indeed, after obtaining the credit, the NBR recorded a decrease in its total cover stock, suggesting poor management of the funds.

Moreover, the results from the first column of Table 5 show that the nominal exchange

rate of the leu against the French franc had a significant impact on the total cover stock of the NBR. Indeed, the fixed exchange rate of the leu to the franc implies that the NBR had to intervene when some depreciation or appreciation tendency of the national money occurred against the French franc. Therefore, we show that international reserves are sensitive to the variation of the French franc. In addition, in terms of the second estimation, our results indicate that the development loan also had a significant and negative impact on the total stock of the NBR, suggesting an important economic shock. Finally, we find that our measure of the price of the Romanian loan had a significant and positive impact on the total cover stock of the NBR.

Our analysis reveals that the two main loans provided by the BDF to the NBR entailed poor control of international reserves by the latter, suggesting that the French plans were not efficient in stabilizing the monetary policy of the NBR, as suggested in the scenario of our model.

5 Comments and conclusion

This paper discusses the cause of the failure of the BDF mission with NBR and the Romanian government during the 1929-1933 period. From the review of original documents in the Romanian and French languages but also backed by Mouré (2003) and Cotrell's (2006) reference articles, we tried to identify the components of the French plan and the method of cooperation chosen by the Romanian administration and the French partners during those four years.

Observation of the four-year cooperation provides other elements to the analysis. The opinions, attitudes and positions of the two teams depict the development of a four-year game in which each player chose actions according to its own interests, answered the previous actions of its partner and then tried to expect the consequences of its choices. This game is made more complex by the exogenous shock generated by the Great Depression and the banking crisis. We argue, however, that these perturbations only helped accelerate the final failure of the coordination in actions of the two teams. The illustrative model provided in the appendix defends our thesis that the only links between the objectives of the two teams were the 1929 and 1931 loans. On the French side, the second loan guaranteed the first. On the Romanian side, when we remove the Liberal administration with its affective francophile preferences, only the direct advantages of the loans explain the few efforts made by the Romanian administration to reform its practices. The lack of any common projects of the Romanian and French teams generated a rational free-riding attitude on the Romanian side and a blind persistence to defend the convertibility option on the French side. This last option was disastrous for Romania, while it was likely considered the best option for the French lenders, as BDF did not consider the possibility of a suspension of the convertibility when the Bank of England chose this option.

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