

# The Russian Financial System's Unsteady Transition

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The financial crisis that began on 17 August 1998 confirmed any fears that we might have had as to the robustness of the Russian banking system and more generally its financial system. It also pointed up the organic link between the confidence essential to the working of the banking system and the State's ability to guarantee the legality of it. Although improvements have been seen since then, the fundamental issue remains.

International bodies have often asked questions about the issue in Russia of the relations between the State and the banking system during the transition in terms of financing the budget deficit and separating state finances from the currency. Of course this is an important aspect of the state's relationship to the credibility of the banking system. But more fundamentally the state must be able to ensure that debts will be acknowledged and that what is owed will be paid. It is not sufficient for the elements that make up the financial structure to be in place in an economy for satisfactory operation to proceed, even taking into account the problems inherent in getting any process going. Indeed the desire to make a break with the previous system led Russia to move far more vigorously and radically to a market in financial matters than it did in the industrial sector, although the previous structures and practices had in no way provided a preparation. It is this phase that economists label, somewhat approximately, the transition. In this sense the transition covers the series of successive stages of the move between two structures regulating operators' behaviour. This does not prevent some developments from taking place in the context of a stable structure when operators' behaviour does not hinder its self-regulation.

During this period monetary stabilization was properly ensured despite the fact that fear of hyperinflation was rife, proving that the Central Bank was able to act on monetary variables. These processes took place in the context of a very specific territorial reality typified by its immensity, diversity and discontinuity.<sup>1</sup> Complexity is also a feature of institutions: the Russian Federation comprises 21 Republics whose governors are elected, as are those of the 50 Oblast.

So the new financial institutions, whether freshly created or adapted from previous bodies, came into being in a particular context: one of stabilization (I. *Moving towards the market*). Successive financial crises, which were often caused by the rouble exchange rate and shook the whole financial system, brought out quite clearly the weakness of the banking system and its inability to finance an economy which nevertheless had an advantage that is rare during a transition – a trade balance in surplus. The August 1998 crisis and its aftermath revealed the dangers of a financial system built on narrow markets and unreliable banks (II. *An unfinished transition*).

## **Moving towards the market**

No financial organization can be directly transposed from one economy to another precisely because of the specificities of historical traditions and the peculiarities of economic organizations and expertise. However the desire to break with the previous system and the urgings of international organizations, with the IMF in the vanguard, encouraged the Russian state to move immediately to the market, without gradual stages during which monetary authorities could have monitored their ability to regulate the system. Nevertheless during the initial period they were successful in achieving monetary stabilization in these difficult conditions, but did not pull off their attempt to set up an effective financial system.

### *Creation of a market-focused banking system*

The 1990 banking reform was designed to establish a banking system able to offer differentiated financial intermediation.<sup>2</sup> So it gave the State Bank the prerogatives of a Central Bank. In fact the reform ended the confusion of roles between Central Bank and commercial banks and put in place a hierarchical banking system with two tiers. The lower-level banks enjoyed a fair degree of institutional independence from the state.

The Central Bank is independent of the executive, but according to the May 1990 law it is subject to the oversight of the Supreme Soviet. From 1990 steps were taken to limit then eliminate the monetization of State deficits. The Central Bank has the two main prerogatives of Central Banks: regulating money supply and supervising second-tier banks. All the levers of monetary policy are made available to it, whether it be those related to direct credit policy or those that are typical of an indirect policy of control of the money supply – interest rates, open market. But the Russian Central Bank was exercising its control over a system that was new and therefore feeling its way and composed of ill-assorted elements.

Indeed the wish to make a clean break with the Soviet system gave rise to a freedom to set up banks,<sup>3</sup> and a single-bank system was replaced by a sector teeming with banks. The twenty largest banks in Russia today date from that period. More than 3000 banks of every size were set up that were very unevenly distributed over the country, with the largest number of start-ups in Moscow and St Petersburg. Very many small banks appeared on the scene initially. Some quickly turned out to be 'pocket banks', where the main shareholder is also the main debtor. This type of capitalization through a bank gives rise to risks and from 1994 the Russian Central Bank attempted to bring about the closure of suspect banks. However undercapitalization was not the only cause of the risk run by Russian banks. In the financial context produced by the stabilization measures they turned to highly profitable speculative operations favoured by a permissive legal position and the creation of narrow and so volatile capital markets.

In retrospect it seems obvious that it was dangerous not to control bank start-ups from the beginning by subjecting them from the outset to a strict regime of regulation. Several solutions were possible: separation according to sector, as was the French practice from 1945 to 1966, or laying down tough capitalization rules and solvency ratios for banks, following the German model of the universal bank. At all events the real difficulty was ensuring compliance with the rules.

And this was all the more true because from 1990 stock exchanges made their appearance in Russia, and after the liberalization of the economy in 1992 around 40 stock exchanges were carrying out financial transactions. They were set up on a regional basis but their volume of activity fell, in favour of the exchanges in Moscow, Ekaterinburg, St Petersburg and Vladivostok. In 1992 the Central Bank set up MICEX (inter-bank market of Moscow stock markets). To the original purpose of exchange transactions in roubles were added transactions in government bonds then regional and municipal stock and finally transactions in company shares. The State's requirements in order to finance the debt supplied market activity with initial material but also speculative opportunities that ratcheted up the risk.

### *Obstacles to the stabilization of the financial system*

Though the Russian Central Bank managed to choke off inflation – the annual movement in prices was in fact a fall from 2506% in 1992 to 22% in 1996 and 9% before the August 1998 crisis – it did not succeed in ensuring the creation of a stable financial system because of obstacles beyond its control, which had to do with choices made by the state.

At the outset the State deficit was around 10% of the budget and was financed by the Central Bank at 10%. Issuing zero-coupon Treasury bonds at 3–6 months' date, called GKO's, may have seemed more effective in controlling inflation and also more in line with the advice of the IMF, which looked favourably on the use of the market. This advice was based on theoretical views of a neoclassical, not to say monetarist, inspiration.<sup>4</sup> GKO's issued from 1993 onwards grew explosively in nominal value. However, the difficulty of managing the national debt is related far less to its overall volume than to the weight of interest borne by the budget, given the rates GKO's reached during the stabilization period. The level of the budget deficit was exacerbated by behaviour that seems closely linked to the management of state finances during the transition. It is now being improved by tax reform and particularly a single income tax rate of 13%, which makes tax returns simpler for large strata of middle income earners. Since they were not recovering their tax income, the authorities, either as a retaliatory measure or in order to keep their promises on the budget deficit to the IMF, went in for sequestration of spending, which means that they did not carry out the spending indicated in the budget and committed to the Republics and the State's suppliers, and furthermore it transpired that they did not pay civil servants' salaries. Thus non-payment of debts became a common practice that was contrary to the establishment of the very foundations of the simplest form of financial system: the payment of debts.

The issue of the financial system's very uneven distribution over the country should also be raised. However Russia's size and the establishment of certain banks in the regions stimulated activity in local exchange markets specializing in currencies used for local transactions. But the Moscow's dominance is quite solid and has been considerably strengthened since the August 1998 crisis, as MICEX is currently the only exchange market with a licence to carry out exchange operations.

During the stabilization period exchange operations relating to the productive sector were joined by very a substantial volume of speculative operations because of the absence, then the inadequacy, of exchange control.

This speculative behaviour on the GKO market precipitated several falls in the rouble. The exchange policy introduced helped to stabilize forward trading and so contain inflation especially as it was accompanied by companies being required to convert 50% of their receipts into rouble currency. After the 1998 crisis this requirement applied to 75% of receipts for home companies. This did not prevent a drop of nearly 70% in the value of the rouble in the aftermath of the crisis of 17 August 1998. The brutal measures it gave rise to – moratorium on the state's domestic debt, but also a freeze on the repayment by Russian banks of their loans, forward contracts and margin calls with respect to non-residents until 15 November – marked the endpoint of the deterioration of the financial situation in 1998. The opportunity offered to households to transfer their deposits with the main banks to Sberbank, thereby reducing the already low liquidity of those banks, confirmed the collapse of the banking system.

The problems that arose with the financial stabilization policy are mainly attributable to the failure of the State. The lack of control over state finances caused by the Russian State's inability to recover its tax receipts is at the root of the main obstacle to a lasting monetary stabilization: expansion of the debt and the consequent interest charges. In this context the sale of government stock on the second market gathered pace right up to the 18 August moratorium.

The collapse of the financial system in 1998 was in the first place the collapse of the banks. But although the Central Bank restricted the banks' liquidity extremely rigorously, it did not find effective solutions for the prudential control of the banks. Certainly it introduced and gradually increased prudential ratios, particularly in terms of the relation of capital to liquid assets, since Russian banks were very undercapitalized when they were set up. But the Bank of Russia did not enforce these ratios as aggressively as it controlled liquidity. It was probably hard for it to make more of a show of authority than the State in its determination to apply the rules. All the same it did have the advantage of having successfully managed the first phase of stabilization.

The causes of the Russian financial system's collapse in 1998 stem first from the difficulty during the transition in introducing rules suited to starting up an economy that was moving, with no organized staging, from an economy totally controlled from the top to a market economy. This assumed that actors were adjusted to a new legally constituted state and that the strictly economic protection afforded by exchange control was available.

The obstacles encountered by the Central Bank, as well as institutions managing the economy, could have been mitigated by a more phased plan for monetary and financial policy. But this did not tally with the theories behind the advice given by international bodies. However we can now suggest that a better control over enforcement of the rules could have been achieved by a staged management of the move to a market system. This would have been more conducive to operators learning about their functions as both financial intermediaries and regulatory bodies. European experiences prove that in various ways this was possible for banks and could have been possible for capital markets, especially in the context of exchange control.

### **An unfinished financial transition**

The move to a two-tier banking system meant revisiting the circulation of money as it was organized as a consequence of the single-bank principle. Thus setting up an effective

payment system should have been a primary aim<sup>5</sup> of the transition in the financial domain. The Bank of Russia's efforts in this area encountered both obstacles resulting from the previous period and problems caused by the transition. The payment system was the site of serious malfunction, which in moments of crisis was exacerbated by the weakening of the banking system. Therefore credit could no longer satisfy companies' borrowing requirements.

*Malfunction of the payment system and the weakness of credit*

An economy's *payment system*<sup>6</sup> is based on the way relations are organized between the Central Bank and second-tier banks, which have to ensure depositors' security and the banks' ability to pay.<sup>7</sup> In Russia, given the vast size of the country, the Central Bank's network of clearing houses means that its role in payments is decentralized.<sup>8</sup> The second-tier banks are very unevenly spread through the Republics, and their weak or even scarce presence in certain regions was a factor that aggravated the demonetization of the economy. The banks' ability to carry out between them the payment of their clients' debts, which is a fundamental part of a banking system, remains one of the weak points in Russia. The size of the country and the late introduction of an electronic payment system have made it difficult to manage the take-over from Gosbank, whose subsidiaries used to be responsible for all inter-bank payments. Taken together these difficulties resulted in very substantial amounts of payments being delayed in the pipeline – the 'float'. Indeed, uncertainty about payment times provides fertile ground for the practice of non-payment, that is, failure to pay suppliers in transactions between companies. In all developed industrial economies there are payment deadlines. A legal form appropriate to this situation does not exist in Russia, causing confusion between non-payment of debts and payment deadlines. Because of legal ambiguity the bill of exchange, which in Russian is called *wechsel*, became one of the causes of insecurity over payments. So it was because of the State's regulatory inadequacy that one of the principal weaknesses of the Russian payments system persisted to become a factor in the demonetization of the economy. The problem of non-payment was an aggravating cause of the lack of confidence in the payments system and an incentive to the practice of prepayment that spread from 1993 onwards and that of payment in kind – practices that restricted economic activity and promoted the establishment of an economy of networks. This type of economy means the loss of the main advantage of the market system: price determination through comparing the whole of supply with the whole of demand, even if in a situation of imperfect competition.

Unpaid debts and *wechsels* were a kind of private currency totally outside the monetary authorities' control, and a clear demonstration of a lack of confidence in the payment system, which was also expressed in the *dollarization of the economy*.

In this context, and up to 1995, the dollar in the transitional Russian economy fulfilled the function of a reserve currency, a money of account and a payment method, that is, all the functions that define the currency circulating in an economy. International financial institutions carried out calculations that in 1994 put the dollars circulating in Russia at double the volume of money in roubles or equal to the volume of money plus cash savings in roubles.

Thus the Russian monetary system had all the appearance of a two-currency system. In Russian money circulation the dollar took on the role of international reserve currency

– and as such was an important asset for the Central Bank and the second-tier banks – as well as the role of means of circulating cash – and as such, also the vehicle for households' savings, known as 'under the mattress savings', which were thus sterilized against investment in Russia. Although the use of the dollar as a payment method was considerably reduced between 1995 and 1997 because of the exchange control measures, the reserve function has continued. Since the 1998 crisis we have seen households spending their dollar savings in order to cope with rising prices.

In this context Russian banks were extremely active and made large profits on the exchange market without these profits benefiting the economy in general through their activity as financial intermediaries, especially in the form of *credit*.

In order to limit the banks' liquidity that was devoted to speculative operations on the exchange markets, rates were raised to extreme levels by the Central Bank. It could be said that during the stabilization period interest rates squeezed out the credit-to-companies market. And credit<sup>9</sup> remains a weak element in the financing of the productive sector in Russia: 10% of the capital expenditure undertaken in the first quarter of 2000 was financed by loans from finance companies and only 4% by the commercial banks. Companies' basic resource is still self-financing topped up by public subsidies. Thus the end of the crisis was not marked by a rise in credit. And yet, since the alternative of financing through the capital markets of the stock exchange was restricted, growth implied an increase in credit.

It is true that the law on the restructuring of banking came into force in July 1999, but the verdict is that it is inadequate. Better results were expected from the Agency for the Restructuring of Credit Institutions (ARKO), but it was underfinanced given the extent of its brief. In the end it was the Central Bank that helped the banks.

#### *Narrow, speculative markets*

The inter-bank market remained extremely narrow over the years because of the restrictive policy adopted by the Central Bank in order to achieve stabilization. To choke off inflation it set rates in the area of refinancing the banks that were a disincentive. The Central Bank only supplied the inter-bank market if there were exceptional difficulties, such as in June 1995 when it bought back government securities, GKO's. For this reason the Russian inter-bank market is small, which is a major weakness of the Russian financial system.

On a narrow market variations in supply and demand that do not involve significant volumes, compared with operators' assets, may cause big movements in prices, in this case interest rates. And in particular, whereas an inter-bank market's *raison d'être* is to increase exchange between banks, and offer a day-by-day pool of liquidity that facilitates money circulation because of the guarantee represented by the conversion of each bank's currency into the issuing establishment's currency, the narrowness of the market gives rise to networking practices that are restrictive as regards the monetization of operations. Long before the August 1998 crisis inter-bank exchanges were taking place within groups of banks or through the intervention of Moscow banks specializing in clearing. Since the 1998 crisis inter-bank operations have been carried out within small groups of banks or with foreign banks with branches in Moscow. From 1994 the Central Bank used the narrowness of the inter-bank market to force unreliable banks out of it and so close them

down. But the purge did not go far enough and the monetization of exchanges cannot happen without the inter-bank market operating satisfactorily:<sup>10</sup> when the 1998 crisis occurred, ten of the thirty biggest banks were insolvent.

Given that the size of Russian banks is not of the same order as very large companies like Gazprom, the mass company privatization of 1992 might have been expected to provide the Russian stock market with a special expansion and vigour. This turned out not to be the case, first of all because the majority of the shares issued at the time of the privatizations went not to the general public but to the directors and employees of the companies concerned, and secondly because, despite the improvements that have been made to its operation over the years, it remains a risk market, mainly owing to its narrowness and also the weakness of its organization. In addition, and this is probably the basic point, the stock market does not have the solid foundation provided by clearly defined ownership rights enshrined in law. In particular it is planned to reform the law on bankruptcy, which has frequently been criticized, especially by foreign investors.

The evolving story of the Russian stock market demonstrates the structural risk encountered by a financial system that is not backed up by confidence in the State as a guarantee of the legality of it, as well as Russian economy's ability to bounce back. Though the rouble has lost 75% of its value against the dollar, the stock market has returned to its level prior to 17 August 1998.

The fact remains that at present the financial markets cannot offer the Russian economy the resources to meet the needs of the productive sector. Restricting investment finance to the resources provided by self-financing and subsidies means restricting opportunities for growth in dynamic sectors. Bank credit or credit from specialized finance institutions that take in savings is the unavoidable solution in this phase. As it operates at present the stock market is basically a market of financial intermediaries. Foreign investors dominate and they are mainly financial intermediaries – either foreign banks or American pension funds – even if there are a few individual speculators. Russian banks use it to invest their liquidity but the August 1998 crisis made them draw in their horns. Russian insurance companies have not yet developed sufficiently to take the place in financial intermediation and on the markets that the insurance sector occupies in other economies. The narrowness of the stock market inevitably makes it a speculative market despite the regulatory presence of 'market makers' who are required to ensure that certain shares fluctuate only within predefined limits.

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In all the industrialized economies financial markets operate within an institutional and regulatory framework guaranteed by the State, even if the bodies managing them are composed of professionals. Although it may be noted in longstanding market economies that the market runs its own institutions, and even creates them, in an economy in transition only the State is in a position to create the legal framework appropriate to the efficient operation of markets and to oversee the implementation of regulation. Russia has gradually but incompletely moved to set up an institutional framework, but the State has not really played its part as guarantor. In particular delayed payments, and especially payments to its suppliers and employees, have given rise to exchange of goods and barter, behaviour that is contrary to the operation of a modern economy. For a few months now it has been possible to identify a certain remonetization, especially in the

form of company deposits coming back into the banks. But deposits by households are mainly managed by Sberbank. The task of reconstitution remains to be completed.

It is not so much the imperfections, which may always be minimized, of both public and private organizations that are the cause of malfunctions, but the unreliability of the whole system. Lack of confidence, and the possibility of evading the rules as well as punishment, result in behaviour that vitiates long-term improvement of the financial system. Here the relationship between the rule of law and economic effectiveness is clear as regards both the management of State finances and company privatization. And so the State's ability to guarantee the legality appears to be the necessary condition for the completion of the transition in the Russian financial system.

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## References

- Agence financière pour la CEI (1993–2001), *Le Courrier financier de Moscou*, and *Le Courrier économique et financier Russie CEI*, nos. 105 to 407, 15 December 1993–30 January 2001.
- Aglietta, M. & Sapir, J. (1995), La nature de l'inflation dans la transition en Russie et les politiques pour y faire face, *Bulletin de la Banque de France*, supplement Etudes, 2<sup>nd</sup> quarter.
- Allen, F. & Gale, D. (1995), A welfare comparison of intermediaries and financial markets in Germany and the US, *European Economic Review*, no. 2, March.
- (2000), *Comparing Financial Systems* (Cambridge, Mass./London, MIT Press).
- Allen, F. & Santomero, M. (1998), The theory of financial intermediation, *Journal of Banking & Finance*, 21.
- Bhattacharya, S. & Thakor, A.V. (1993), Contemporary banking theory, *Journal of Financial Intermediation*, 3.
- Blanchard, O., Froot, K., Krugman, P., Layard, R. & Summers, L. (1991), *Reform in Eastern Europe* (Cambridge, Mass., MIT Press).
- Boissieu, C. de & Renversez, F. (1990 & 1991), La question monétaire et bancaire en URSS, *Economie et prospective internationale*, no. 44, reprinted in *Problèmes économiques*, no. 220 (Paris, La Documentation française).
- Bruno, M., di Tella, G., Dornbusch, R. & Fraser, S. eds. (1988), *Inflation Stabilization: the Experience of Israel, Argentina, Brazil, Bolivia and Mexico* (Cambridge, Mass., MIT Press), March.
- Clément-Pitiot, H. & Scialom, L. (1995), Réformer l'intermédiation financière en Russie: les options, *Revue économique*, 2, March.
- Dornbusch, R., Sturzenegger, F. & Wolf, H. (1990), Extreme Inflation Dynamics and Stabilization, *Brookings Papers on Economic Activity* (Brookings Institutions), 2.
- Figuet, J.M. & Kauffmann, P. (1998), Systèmes interbancaires de paiement, effet de réseau et fonctionnement des économies monétaires, *Revue d'économie politique*, May-June.
- Ivanter, V.V. & Sapir, J. eds. (1995), *Monnaie et finance dans la transition en Russie: un dialogue franco-russe* (Paris, Editions de la Maison des Sciences de l'Homme/L'Harmattan).
- Khandrouev, A.A. (1995), La politique monétaire dans un contexte de forte inflation, *Bulletin de la Banque de France*, supplement Etudes, 2<sup>nd</sup> quarter.
- Lacoue-Labarthe, D. (1993), L'organisation de systèmes bancaires sûrs et efficaces en Europe centrale et orientale, *Cahiers économiques et monétaires de la Banque de France*, no. 41.
- Litviakov, M. (1995), *Transformations du système financier dans la transition économique russe* (University of Paris-X Nanterre), doctoral thesis in economics.
- Poste d'expansion économique près de l'Ambassade de France à Moscou, *Tableau de bord*, nos. 1–25, 1 January 1995–25 January 1999.
- Rajan, R. (1998), The past and future of commercial banking viewed through an incomplete contract lens, *Journal of Money, Credit & Banking*, 30, no. 3, August.



- Sachs, J. ed. (1990), *Developing Country Debt and Economic Performance* (Chicago, University of Chicago Press), 2 vols.
- Sapir, J. (1999), A l'épreuve des faits. Bilan des politiques macroéconomiques mises en oeuvre en Russie, *Revue d'études comparatives Est-Ouest*, 30.
- Schmidt, R.H., Hackethal, A. & Tyrell, M. (1999), Disintermediation and the role of banking in Europe, *Journal of Financial Intermediation*, no. 8.
- Scialom, L. & Zlotowski, Y. (1994), Les fondements institutionnels de la crise monétaire russe, un éclairage théorique, *Revue d'économie politique*, September-October.
- Walter, G. (1999), Le secteur bancaire russe avant et après la crise, *Le Courrier des pays de l'Est* (Paris, La Documentation Française), no. 437, February.
- Zlotowski, Y. (1998), La monnaie dans la transition russe (University of Paris-X Nanterre), doctoral thesis in economics.

## Notes

1. The Tableaux de bord from the Poste d'expansion économique at the French embassy in Moscow publish very well informed notes on the Russian economy, especially on macroeconomic statistical data. They can be compared with Goskomstat statistics and used to amplify the very useful analyses from the *Courrier financier de Moscou*, Agence Financière pour la CEI (France), whose reproduction is not permitted by the Trésor. See *L'enjeu régional en Russie, Tableau de Bord 'Régions de Russie'*, 14 May 1997. Needless to say, any errors are entirely the author's responsibility.
2. C. de Boissieu & F. Renversez (1990), La question monétaire et bancaire en URSS, in *Economie et prospective internationale*, no. 44, 4<sup>th</sup> quarter. Reprinted in *Problèmes économiques*, no. 2220 (Paris, La Documentation Française, 1991).
3. M. Litviakov (1995), Transformations du système financier dans la transition économique russe, doctoral thesis in economics, Paris-X Nanterre.
4. M. Bruno, G. di Tella, R. Dornbusch & S. Fisher eds. (1988), *Inflation Stabilization: the Experience of Israel, Argentina, Brazil, Bolivia and Mexico* (Cambridge, Mass., MIT Press); R. Dornbusch, F. Sturzenberger & H. Wolf (1990), Extreme Inflation Dynamics and Stabilization, *Brookings Papers on Economic Activity* (Brookings Institutions), 2; J. Sachs ed. (1990), *Developing Country Debt and Economic Performance* (Chicago, Mich., University of Chicago Press), 2 vols.
5. D. Lacoue-Labarthe (1993), L'organisation de systèmes bancaires sûrs et efficaces en Europe centrale et orientale, in *Cahiers économiques et monétaires de la Banque de France*, no. 41.
6. This analysis is based on the work of the Franco-Russian seminar on monetary and financial problems, which has been operating since 1991 in Moscow and Paris under the direction of V.V. Ivanter, head of the Forecasting Institute for the National Economy, Russian Academy of Science, and J. Sapir, research director at the EHESS, Paris.
7. Y. Zlotowski (1998), La monnaie dans la transition russe, doctoral thesis in economics, University of Paris-X Nanterre.
8. H. Pitiot & L. Scialom (1993), Système bancaire et dérapage monétaire, in *Economie internationale*, no. 54, 2<sup>nd</sup> quarter.
9. G. Walter (1999), Le secteur bancaire russe avant et après la crise, in *Le Courrier des pays de l'est* (Paris, La Documentation française), no. 437, February.
10. J.M. Figuet & P. Kauffmann (1998), Systèmes interbancaires de paiement, effet de réseau et fonctionnement des économies monétaires, in *Revue d'économie politique*, May-June.