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THE INTER-ENTERPRISE DEBT EXPLOSION IN THE FORMER SOVIET UNION: CAUSES, CONSEQUENCES, CURES

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ABSTRACT

The reasons for the growth of inter-enterprise debt are analyzed. It is suggested that it results mainly from the appearance of normal trade credit in a liberalized economy, and when a monetary squeeze is part of a non-credible stabilization attempt. In the latter case the result can be a sharp fall in output. Non-market and market solutions to this problem are analyzed, and the advantages of the latter over the former are stressed.

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THE INTER-ENTERPRISE DEBT EXPLOSION IN THE FORMER SOVIET UNION: CAUSES, CONSEQUENCES, CURES

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1. INTRODUCTION

Inter-enterprise debt (IED) has long been perceived to be a problem in market socialist economies[2], and it has resurfaced as an acute anxiety for policy makers in many Post-Communist Economies attempting to implement so-called "big bang" liberalization/stabilization programmes. However, it is in the states of the former Soviet Union (FSU) that the phenomenon has attained truly epic proportions. Between 1 January and 30 April 1992 IED in Russia grew from a few dozen billion rubles to 1,800 billion rubles, the equivalent of total GNP generated in the first four months of the year[3]. Roughly the same relationship of IED/GDP held in Latvia in June 1992. This suggests that in both countries about half of transactions were not being paid for[4]. By end-June the stock of IED in Russia had reached 3,000 billion rubles. In Romania at the end of 1991, IED amounted to about 50% of GNP [Khan and Clifton 1992]. On the other hand, in the Central European PCEs the ratio of IED to GNP is much smaller, and seems to have increased at a far slower rate - or not at all - upon initiation of "big bangs". Thus in Czecho-Slovakia IED constituted about 18% of GDP at the end of 1991[5], a level to which it had merely doubled from the beginning of the year (Table 4). In Poland at the end of 1989 IED/GDP ratio was also around 18%, after which it declined (see Table 3)[6].

2. THE CAUSES OF INTER-ENTERPRISE DEBT EXPLOSION

As Begg and Portes [1992] point out, the ratio of IED to bank credit in Central European PCEs is not out of line with that in advanced capitalist countries, where the two categories of credit are roughly of equal size. This is the case in Poland, whereas in Czecho-Slovakia the IED/bank credit ratio only reached 25% at end 1991, although it was rising quite rapidly. In Poland during 1991 the average period of payment delay was 62 days [GUS 1991], whereas the corresponding figure in the West ranges from 45 days in Germany and Scandinavia, through 80 days in the UK to 90 in Italy and 110 in France[7]. Under central planning IED was strictly controlled by the authorities and severely discouraged as a symptom of enterprise independence. It is therefore clear that an important reason for IED growth in Central European PCEs is adjustment to levels suitable for market economies.

Begg and Portes suggest further micro-economic reasons for IED growth in PCEs: First, enterprises with liquid assets and low costs of monitoring other enterprises in their own sector may effectively join the banking business by extending credit to their customers (interest, often at penal rates, is due on payments delayed beyond the credit days granted by the seller)[8]. Second, taking action against debtors may signal to one's creditors that one is oneself in financial difficulties. Third, there is an option value in waiting before closing down a major customer - his financial health may improve. The last two are reasons for what Begg and Portes call "creditor passivity", which can be perfectly rational in such circumstances.

However, these explanations, although they may contribute to the phenomenon, cannot - severally or jointly - be adequate to account for the difference in the magnitude of the IED explosion in the FSU and Romania as compared to the Central European PCEs. First, as described in the previous section, the magnitude of

IED is of a different order in the FSU and Romania[9]. Second, the growth rate of IED has also been much greater. IED increased by about 130% in nominal terms and 50% in real terms in Czecho-Slovakia in the first six months of the stabilization programme in 1991. In Poland during the first six months of the stabilization programme in 1990, IED increased by 70% in nominal terms and fell 36% in real terms. On the other hand, in Russia in the first six months of 1992 the nominal increase was almost 100 times, and the real increase was about eight and a half times, while the ratio of IED to bank credit increased from almost zero to over two[10]. In Romania the increase was similar, but not quite so rapid. In 1991 IED increased six times in nominal terms and three times in real terms while the ratio of IED/bank credit increased from 0.2 to 2 (Table 5). Second, it would be stretching the meaning of words to suggest that Russia or Romania are market economies in anything like the way in which Poland or Czecho-Slovakia are.

The intuition has to be that in the FSU and Romania the main reasons for the IED explosion are macro, not micro, economic. Williamson [1992a] has provided a useful taxonomy of the various kinds of macroeconomic shock to which PCEs have been, or may have been, subject over the last three years (see Table 1). Some of these categories of shock could have caused IED growth because their effects on purchasers' cash flow was not anticipated by suppliers. The latter provided goods before they realized that payment would not be forthcoming. Once this had happened the reasons for "creditor passivity" described by Begg and Portes could have come into play. This scenario could explain IED growth where purchasers were affected by a fall in demand for their products for one of the following reasons: a fall in foreign demand because of the collapse of CMEA trade; a shift in domestic

demand (e.g. as a result of a fall in government's share of national income, which seems to have taken place in Czecho-Slovakia); the elimination of forced substitution with the disappearance of excess demand as a result of price liberalization; a fall in domestic demand for purchasers' products as a result of foreign trade liberalization (resulting in foreign competition); input dislocation making it impossible for purchasers to complete their output and sell their product, in spite of provision of inputs by some suppliers, because of the complementarity between inputs. Note that most of these reasons were as much present in the Central European PCEs as in the FSU and Romania.

Sachs and Lipton [1992] point to a number of technical causes of arrears specific to the FSU. First, and most important, is the breakdown of bank payments mechanisms leading to long delays in receiving payments[11]. Enterprises which have not yet received payments cannot pay their own suppliers. The fact that in the FSU non-cash rubles are not convertible into cash means that payment delays in the banking system cannot be avoided by resorting to cash payment in exchange for a discount on the price[12]. It is natural that arrears have grown faster in the FSU where this is the case, than in Romania where SOEs are free to shift into cash to effect payments[13] However, the slowdown in payments through the banks has itself been a result of accelerating inflation (banks wishing to obtain part of the inflation tax), and therefore caused by macro-economic conditions. Second, according to Sachs and Lipton, the cash shortage which existed until May of 1992 meant that final goods purchases were squeezed more than intermediate goods purchases, and final goods producers were unable to pay their suppliers. Intermediate goods producers, who had more access to the non-cash money which was more easily available, then

extended inter-enterprise credit (IEC) to final goods producers. While this factor may have played some role, there is no evidence that IED is concentrated in retail trade enterprises, or that the expansion of IED slowed after the elimination of the cash shortage in mid-May 1992[14]. Finally, in the FSU VAT is paid on goods sold only when the money due for them is received. Thus some of the losses from payment arrears are borne by the treasury rather than the supplier[15].

3. CREDIBILITY AND THE IED EXPLOSION

The most likely cause of massive growth in IED in the FSU and Romania thus seems to be simply a lack of credibility of the stabilization component of a "big bang" transition programme[16]. A reduction in the rate of growth of bank credit in nominal terms is always announced as part of such a program, and a fall in the rate of growth of real credit is usually part of its initial phase[17]. State owned enterprises (SOEs) which do not believe in the durability of the reduction in the rate of growth of nominal credit will behave entirely rationally if they extend credit to their customers. They expect these customers to shortly obtain sufficient bank credit to be able to repay the credit which suppliers have provided. However, in order to protect themselves from the inflation which can be expected to accompany the loose monetary policy which is implicit in such an expectation, they have to set prices sufficiently above what they would otherwise be for the real value of the payment they receive to compensate them for the goods they deliver on credit, adding even more to inflation in the short term[18].

This seems to be a good description of what has happened in the FSU in 1992 and Romania in 1991 (see Tables 2 and 5). Khan and Clifton, consider that it is the

faster growth in prices than in the money supply which is the cause of the increase in IED (to provide liquidity which compensates for the fall in real money balances or real bank credit). For the present author the direction of causation goes the other way: a lack of credibility in the stabilization program leads to a growth of the IED / money ratio, to increased inflation, and finally to a fall in the real stock of money. The lack of credibility of stabilization policy in Russia can also be seen in the maintenance of production of military hardware by the Russian defence industry, in spite of the very sharp cutback in budgetary spending under this heading. Because defence industry enterprises are not being paid by the budget they cannot pay their suppliers, yet they continue to be supplied [Sachs and Lipton, 1992].

In contrast, at the beginning of the stabilization program in Poland in 1990 the real value of IED fell 40% from December 1989 to January 1990, after which it remained at roughly the same level for the ensuing two and a half years (Table 3). The ratio of IED to bank debt exhibited much the same pattern. In December 1989 it was 1.54 and it rose over the two first months of the stabilization programme to 1.75. It then fell almost continuously, reaching 0.95 in June 1990, 0.75 in January 1991, after which it has fluctuated in the 0.75 to 1.0 range through to the summer of 1992. In other words there was no IED explosion in Poland after stabilization in 1990, showing that the stabilization was credible.

Let us look in more detail at behaviour at the micro-economic level in such a situation. If stabilization is not credible and rapid IED expansion is taking place, then the prices charged by suppliers need to be higher than they would otherwise be as a result of two effects: first, without the credit purchasers could not afford to pay as high a price; second, the price incorporates an implicit interest charge for the

expected delay in payment, which itself reflects expected inflation during the period of non-payment. Effectively, for any given level of sales to a particular customer, a supplier is making a choice between a low price with immediate payment and a high price with delayed payment. If the authorities capitulate and abandon their stabilization programme, the extension of the inter-enterprise credit (IEC) is justified to the extent to which the price charged for the goods was sufficiently high to compensate the supplier for the opportunity cost of the money he failed to obtain at the time of delivery.

In such a framework, what are likely to be the determinants of the expansion of IED? These will include:

1) the expected length of time before the authorities reverse the credit crunch they have engineered;

2) the expected rate of inflation in this period;

3) the rate of interest on deposits;

4) the cost of financing inter-enterprise credit.

Given the expected values of these variables the SOE contemplating the extension of inter-enterprise credit needs to choose an optimal price, quantity, IEC combination. In the short term the system can be unstable: the larger the amount of IEC extended the higher both price and quantity can be; if many enterprises decide on high levels of IEC expansion this will lead to higher inflation, which may induce each creditor to charge higher prices and extend even more credit. Moreover, higher inflation means a reduction in the opportunity cost of IEC for any given rate of interest on deposits and of the cost of financing IEC for any given nominal rate of interest on loans. Thus there is the possibility of an inflationary bubble developing.

The bubble can be burst by a number of developments: an increase in the credibility of the stabilization programme; an extension in the expected period before the credit crunch is reversed; the introduction of ex ante positive real interest rates (on loans, deposits or both); or the unavailability of financing for IEC expansion. As yet, none of the above conditions for bursting an IED driven inflationary bubble seems to hold in Russia or the other countries of the FSU. This is a major difference between the FSU on the one hand and Poland and Czecho-Slovakia on the other. In the latter two countries, during the first six months of the stabilization programme, real ex post rates of interest on loans were positive[19] and real ex post interest rates on deposits were massively positive in terms of foreign currency.

How do SOEs finance the IEC they extend to customers? To a large extent this is done by not paying their suppliers, i.e. by the amount of IED they accumulate. This makes the calculation regarding the optimal amount of IEC to extend even more complex, in that the optimal amount of IED to contract becomes part of the calculation, so that the prices charged by suppliers (which incorporate their implicit interest charges) ought to be taken into account. Indeed, the calculation now becomes so complex that one must doubt whether SOE managers in fact behave in such a sophisticated way in deciding whether to extend IEC.

The true explanation may be cruder: when a Soviet-type Economy (STE) becomes a PCE, state enterprises become free to extend inter-enterprise credit. If this is followed shortly after by a credit squeeze as part of a stabilization programme, SOEs may initially be willing to muddle through and avoid adjustment by both taking on IED and extending IEC, without much concern about whether this is financially optimal or not, as long as there is a general belief in the impermanence

of the credit squeeze. The reasons for such apparently sub-optimal behaviour may not be far to find. First, one must remember a key microeconomic fact: in the initial stages of a big bang stabilization/liberalization package in a PCE there is unlikely to be an effective bankruptcy system in operation[20]. SOE managers are therefore unlikely to be very concerned about the effect on their income statements of extending or taking on IEC.

Furthermore, in the initial stage of a stabilization programme in a PCE, managers of SOEs are likely to have a particularly short time horizon because of the high level of uncertainty, and may therefore attempt to avoid the conflicts with the workforce over nominal wages which could arise from a need to economize on money balances so as to be able to pay suppliers. Money or bank credit are indispensable to SOEs in the short term only for the payment of wages and the purchase of foreign currency (in order to buy imports)[21]. All other purchases can be financed by IEC, if only it is made available. Thus not only may enterprises be unwilling to "waste" money on intermediate inputs when contracting IED is possible, but also they may not insist on money payment as long as their money revenues[22] suffice for those expenditures for which money is essential. There may, therefore, be a widespread willingness to extend IEC, as long as the opportunity cost of doing so is not very high due to low ex ante real interest rates on deposits[23].

Every enterprise can thus, for a short time, effectively create liquidity on a base of money as a reserve asset (which is needed to ensure wage payments etc.).[24] If domestically produced intermediate inputs constitute, for example, 60% of expenditures then, as long as purchases of these inputs can be financed with IED, SOEs could use all their money holdings to finance remaining expenditures, i.e wage

costs, payments for imports of intermediate inputs and tax payments[25]. In the aggregate the nominal value of transactions in the economy can increase rapidly when IED begins to grow, even if the money supply is constant. Thus:

$$PT = M(1/a)V + D \qquad (1)$$

where a is the ratio of transactions in which the medium of exchange is money to total transactions (which are financed using either money or by the extension of additional IED), and D is the increment in IED. If M and V are constant then as long as IED is increasing $a < 1$, so that $1/a > 1$. We can have a number of patterns of change in PT (with M and V constant). One such pattern would be the following:

1) when IED is forbidden by central planners, $D = 0$, $a = 1$ and PT is constant;
2) when D is constant, a = some constant < 1, so that PT jumps to the higher level which can be accommodated by $M(1/a)V$ and D, until IED reaches its maximum level;
3) once IED reaches its maximum level $D = 0$ and $a = 1$, so that PT jumps down to its previous level, as at (1).

Maximum IED is determined by expected inflation, the nominal interest rate, expected changes in the money supply and in the velocity of circulation[26]. The above pattern would be consistent with the extreme case of a completely incredible stabilization policy combined with a constant money supply. In phase (1) IED was banned by central planners. During phase (2) SOEs are convinced that the authorities will soon increase M. In phase (3) SOEs suddenly become convinced that the authorities will not increase M after all.

Alternatively, if the stability of the economy is credible, then once IED is

legalized, it will rise to some level which is the aggregate of the decisions regarding how much trade credit lenders and borrowers decide is optimal. While D is growing, a is declining and the velocity of circulation of money with respect to all transactions (V/a) - is increasing[27]. Once D stabilizes a also stabilizes. Once IED stabilizes, D = 0, a = 1, so that PT falls back to its previous level of before the increase in IED. Thus, even if the stability of the economy is credible, IED will only grow if an increase in M or V are anticipated[28]. Otherwise the growth in IED will merely cause a "bubble" in PT (and in inflation)[29].

Finally, if there is no maximum for IED, because SOEs are prepared to extend unlimited credit to their inter-enterprise customers, then D can remain constant indefinitely (financing at the limit all inter-enterprise transactions), and PT can remain stable. The need to pay for final goods and primary inputs in money, together with a fixed M and V, is what constrains PT and thus inflation even in this extreme case[30]. This is on the assumption that the prices of intermediate goods relative to final goods and primary inputs remain unchanged. It is possible, however, that the unlimited availability of IEC (e.g. because of an expectation of repeated multilateral clearing of IED[31]) will lead to the relative prices of domestic intermediate inputs rising considerably in the short term. D would then rise without a falling. PT would continue to grow, while PY remained constant. However, lower prices would come to be charged for cash on delivery, requiring the calculation of PT in "cash prices" (see below).

The situation may be clarified further if we assume that some enterprises are "downstream", some are "intermediate", while others are "upstream". The ratio of final sales/intermediate sales is relatively high in downstream enterprises (e.g. retail

networks and exporters), as is the ratio of final sales / primary inputs. In a retail network for example, 100% of sales may be "final", and thus involve the receipt of cash money, 10% of expenditures may be primary and thus require the payment of cash money, while 90% of expenditures may be intermediate, which can be paid for either with non-cash money (on the assumption that, as in the ruble zone, the difference between cash and non-cash money still exists), or by taking on IED. If all domestic intermediate inputs are financed with IED, then such a downstream enterprise will deposit its money revenues at its bank. In order to avoid this money being paid out in response to a payment demand order it may deposit the money in an hidden account, which its suppliers do not know about.

Then there are the "intermediate" enterprises. Let us assume that these have no final sales but only inter-enterprise sales. They can supply their customers on credit and receive domestic intermediate inputs from their suppliers on credit. However, they do have some, relatively small, amount of primary inputs (wages and imported intermediate inputs), which they have to pay for with money which they borrow from the banking system. Finally, there are the "upstream" enterprises, which sell most of their output to inter-enterprise customers, but most of whose inputs are primary (labour, imports). They too have to borrow money from the banks.

The banking system thus acts as the conduit for money from "money rich" downstream enterprises to "money poor" intermediate and upstream enterprises. Since the "money poor" enterprises cannot service their debts, let alone repay them, once such a situation arises the banking system is effectively bankrupt.

If, upon liberalization, intermediate and upstream enterprises begin to finance all purchases by their inter-enterprise customers by extending IEC, then the effects

of IED on PT can follow the following three phases:

1) when IED is forbidden, D = 0 and PT is constant;

2) when IED is permitted, D > 0 and PT jumps to the higher level at which all M is used exclusively for transactions involving final sales or primary inputs, while all intermediate transactions are financed by IEC;

3) if, in this situation, there is no limit on the growth of IED, then the relative prices of domestic intermediate products can continue to rise, causing continued growth of PT, increasing paper profits among upstream (and possibly intermediate) enterprises, and declining paper profits or even paper losses among downstream enterprises.

The point is that in this configuration it is far from clear what mechanism would, in the short term, prevent IED from increasing indefinitely. Indeed, D could grow over time so that IED grew at a constant (or even at an accelerating) rate. If M was not increased, final goods producers' unit costs would rise while their revenues remained constant. The result could be falling sales of final output.

Lipton and Sachs [1992] have suggested that a similar process, in which the supply of non-cash money expands more rapidly than the supply of cash, may be one of the causes of the current Russian depression. Just as IEC is not convertible on demand into money so, in the ruble zone, non-cash money is not convertible into cash (except for certain categories of payments, such as wages, which are usually those required to obtain primary inputs). Furthermore, non-cash money is received mainly by intermediate and upstream enterprises, as a result of sales to other enterprises or as bank credit. Cash money is received mainly by retailers, and is spent mainly by very upstream enterprises which have high labour costs. The difference

between non-cash money and IED is that non-cash money is created by the banking system, whereas IED is created by the enterprises.

In both cases, however, the more rapid expansion of the inferior and inconvertible means of payment (IED as against money, non-cash money as against cash), if it continues unchecked, must ultimately lead to its depreciation. Prices will be quoted both for cash or money payment and (higher ones) for non-cash or delayed payment (involving the extension of IEC by the supplier). Once it has been recognised by all that there are in fact several means of payment in use within the country and that output price formation, profit calculation and taxation must take this fact into account, the real effects of IED or non-cash money growing faster than money or cash will disappear. The relative prices of intermediate goods will continue to rise in non-cash rubles or when sold on credit, but will remain constant in cash or money terms. As regards the accumulation of IED, the result would be a real devaluation of the stock of debt to the level which suppliers wish to hold. Once this had happened the real value of IED could not grow unless suppliers wished to hold more of it, real D = 0, and PT denominated in "money prices" (as opposed to those charged when IEC was extended) would be constant: this would be the long-term result in phase (3) above. One can thus see that the problems associated with excessive IED growth (and excessive non-cash money growth) are those of a transitional period, in which it has not been openly admitted that an SOE's debt may not be worth its face value, or that non-cash rubles are not worth cash rubles.

There is, of course, an important difference between IED and non-cash money. Since there is an implicit government guarantee of all bank deposits, actors need know only one price: the exchange rate of cash into non-cash rubles. In the case of

IED suppliers need to assess the likely payment delay specific to each customer.

4. CONSEQUENCES

As we have seen, the disappearance of administrative constraints on IED may lead to a temporary expansion of liquidity (money plus increases in IED) in the economy with little increase in the money supply.

A number of macroeconomic consequences follow. First, prices can rise more than expected if the expansion of IED was not foreseen [Khan and Clifton]. Second, since the "liquidity" provided by IED is of a very specific sort (i.e. unlike bank debt it is not usually accepted as a means of payment by third parties), the steady state nominal value of transactions in the economy remains unchanged[32]. As a result, although the increase in liquidity allows prices to increase more than they would have done, once liquidity is again stable then either prices or real transactions, or both, have to fall, so as to return nominal transactions to their previous level. These processes might therefore help to explain both price "overshooting" and the large output falls during stabilization/liberalization programmes in PCEs[33].

Policy makers implementing a stabilization programme in a PCE thus have to choose between, on the one hand, an initial reduction followed by an increase in real money balances, together with an increase in the size of the money multiplier as the ratio of high powered money to deposits in the structure of bank balance sheets declines [Rostowski 1992] during a successful disinflation, and on the other hand the expansion of inter-enterprise liquidity discussed here, when the stabilization is not credible [see Calvo 1992 for a useful framework within which one can consider these options].

A second round consequence of such an unsustainable increase in nominal transactions is that, when SOEs come to understand the nature of the process, they put pressure on the monetary authorities to increase the money supply, the velocity of circulation or the multilateral "clearing" of IED, so as to validate the price increases they have generated (see Section 5).

Apart from the macroeconomic drawbacks resulting from an IED explosion, there is also a complex of microeconomic problems, which are described by Begg and Portes. The first is that uncertainty regarding the liquidation value of individual enterprises is increased. Second, systemic risk arises because of the creation of an interlocking network of enterprise commitments. Third, liquidity is redistributed from sound to potentially unsound enterprises, which impedes exit and restructuring of the unsound.

5. PROPOSED SOLUTIONS TO THE IED PROBLEM

The simplest solution to the IED problem is to reverse the conditions which have given rise to it. This solution is usually favoured by those who are opposed to macroeconomic stabilization on the grounds that the cost, in terms of reductions in output and employment, is unacceptable. This implies making available as much bank credit - via an expansion of central bank credit or a reduction in reserve ratios - as is needed to ensure that the current level of PT can be financed by the new money stock M^{34}. In economies which require macroeconomic stabilization this can be the route to uncontrolled hyperinflation: the increase in bank credit would confirm the expectations of loose monetary policy which make the stabilization incredible.

Additional bank credit would then be needed not only to finance old IED, but also the new inter-enterprise credit which SOEs would extend more willingly once they knew that bank credit was once again easily available. A race between the growth rates of bank credit, inter-enterprise credit and prices would develop[35].

Alternatively, there can be a "multilateral clearing" of IED, without any additional money creation. As we shall see in Section 5.2, such an approach is likely to be less expansionary than money creation. Nevertheless, it does present serious difficulties: there is nothing wrong with cancelling out mutual obligations between pairs of enterprises; however, there is a fundamental difference between such "bi-lateral" netting out and the "multi-lateral" netting out (Section 5.1).

An approach which is intermediate between the two described above, consists in first "cancelling out" as much IED as possible, and then providing central bank credit to finance remaining net IED. Such a solution was implemented in Romania in December 1991 and in Russia in July 1992. Providing bank credit to finance the remaining net IED means that the authorities effectively validate the previous credit policies of SOEs. It means that SOEs are allowed to have effectively determined the level of bank credit growth in the period up to the emission of the new bank credit, i.e. to have determined monetary policy. The effects of such a mechanism then depend crucially on the extent to which the clearing is credible as a "one off" event. We explain in Section 5.4 why we consider this to be unlikely.

5.1 The Russian schemes

The Russian government's proposed solution to the IED problem in the summer of 1992 was of the "multilateral clearing without bank credit creation"

variety. The first step was to cancel out the debts among enterprises, and then use the assets of net debtors to pay net creditors. Net debtors were thus to be fully or partly liquidated. As the bankruptcy system is not operational, and will not be operational for some time, a special centralized debt management agency was to have been set up to administer the realisation of net debtors' assets [see Sachs and Lipton, 1992, for a description of how such a system might work][36]. While such an approach was less dangerous than that advocated by the Central Bank of Russia and in effect finally adopted (see below), there are still a number of serious problems involved.

First, the very act of multilaterally "netting out" IED is not a neutral, technical undertaking which merely ensures that mutual liabilities can be settled more quickly and conveniently - even though it is sometimes presented as such. The multilateral clearing of IED implies that all the IED "cleared" is given an equal value in the clearing process, with the result that the authorities change the true underlying (and as yet possibly unrevealed) values of the IEC extended by different enterprises. This value depends on the true, also possibly as yet unrevealed, creditworthiness of the borrowers. If the "multilateral clearing" did not take place, the IEC extended to purchasers who are expected to pay relatively quickly would be worth more than that extended to those who are expected to pay later - or possibly never. By setting all IED cleared equal to its nominal value, the authorities eradicate these differences in the value of IEC extended and then cleared.

It is true that only cleared IED benefits from this "equalling up" in this approach, with the result that the proposal of the Russian government was less inflationary than the CBR's in which, after "multilateral clearing", bank credit is injected to pay off all remaining net IED. How much less inflationary in the short run

"multilateral clearing without bank credit creation" is than its "with bank credit creation" cousin, depends on how much multilateral clearing of IED can be effected: the more IED is successfully cleared the smaller the difference between the two approaches in the short run (in the long run IED growth depends on increases in M or V - see Section 3). The amount that can be cleared may vary considerably, depending on the proportion of IED owed by net debtors. Thus, in 1991 the Comercny Banka of Czecho-Slovakia cleared IED and as a result reduced it by 20% [Begg 1991], whereas the Romanian multilateral clearing operation of end January 1992 resulted in the clearing of 75% of all IED[37].

It is worth also considering the political economy of the "multilateral clearing without bank credit creation" approach: the more IED has been cleared by "multilateral clearing" the greater the likelihood that the small additional amount of bank credit required to avoid unpleasant consequences for net debtors (and net creditors!) will somehow be created[38].

The similarity between the "multilateral clearing" of IED and the creation of money so that IED can be serviced is highlighted by the technique which was used for "multilateral clearing" in Russia in 1992: special accounts were created for each enterprise on which its inter-enterprise assets and liabilities were registered. Those enterprises with positive balances could then use their "special accounts" to pay off their IED. SOEs which received such payments could in turn use them to pay off their own IED[39]. The close similarity of this procedure to money creation is evident. If the "special accounts" had not been created, money would have had to be used to service the IED. In this way ordinary money was freed to be used for other purposes.

In the event, in Russia net creditors' positive balances on the special accounts were subsequently turned into money by making them useable for tax payments and for the servicing of bank debt, thus turning the earmarked money on the special accounts into ordinary money[40]. This has effectively meant the triumph of the Central Bank of Russia approach to IED clearing. The CBR wished to combine multilateral IED clearing with injections of central bank credit. In Romania also, the multilateral IED clearing exercise of December 1991 has involved an increase in the money supply.

5.2 The Inflationary effect of different solutions

It is useful to compare the expansionary/inflationary effects of the three mechanisms:

(1) multilateral clearing without bank credit (i.e. money) creation;

(2) increasing M sufficiently to allow the money stock to service the new, higher, level of nominal transactions - PT in equation (1) - resulting from the extension of IED, without engaging in any multilateral clearing[41];

(3) multilateral clearing with bank credit creation.

If all IED could be multilaterally cleared, the approach excluding bank credit creation would then be the equivalent of temporarily increasing the velocity of circulation of money (V) to the extent required to allow all IED to be paid off while maintaining the quantity of money (M) constant. In terms of equation (1) therefore, PT can be sustained at its new, higher, level P'T'(determined by the optimal IED/M ratio), because domestic intermediate inputs can be purchased through the accumulation of new IED, i.e. D>0 once again. As a result the constant money stock M can continue to be used to finance exclusively transactions in final goods and primary inputs, i.e.

a<1. Under these circumstances comprehensive multilateral clearing is equivalent in the very short term to an increase in M which would have the same effect on PT[42].

However, there is an important difference between multilateral clearing and increasing the money supply when we take into account the effects of expectations on post-clearing events. We have noted that for transactions to be sustained at the higher level P'T' after a multilateral clearing of IED, IED must be allowed to grow after the clearing exercise. Thus, expectations of repeated multilateral clearings, far from fuelling accelerating inflation, are actually necessary if the aim of preventing nominal transactions from falling is to be achieved. However, the situation is quite different when there has been an increase in M. If this increase was sufficient to sustain transactions at P'T' in the presence of a belief among SOEs that M will not be increased further (and that there would be no multilateral clearing of IED), then if SOEs in fact expect further increases in M (or multilateral clearing), the result will be not just the maintenance of transactions at P'T', but instead an increase in transactions to a new, even higher level P"T". Thus in the presence of a lack of credibility, increasing M will be more inflationary than multilateral clearing.

The mechanism involving the creation of bank credit to eliminate net IED, which would only need to be applied if it were impossible to multilaterally clear all IED, would involve both a temporary increase in V and a permanent increase in M. Thus, the expansionary effect of this approach will be greater than that of multilateral clearing of all IED without bank credit creation. However, the inflationary effect of this mechanism may actually be greater than that of increasing M and not having a multilateral clearing of IED. This is, first, because the increase in M required to make the elimination of all net IED possible may be greater than the increase in M required

to allow the stock of money to service the new level of nominal transactions P'T'. What one might call the "money supply base" for the creation of IED would be increasedly (see equation (1)), so that IED could reach a higher maximum level than before (as determined by the aggregate of the optimum IED/M ratios for individual SOEs). Second, even if this is not the case, part of the stock of IED will have been cleared, allowing part of P'T' to be financed by increases in IED, so that a smaller increase in M together with the multilateral clearing of part of the old IED could have a stronger inflationary effect than a larger increase in M unaccompanied by any clearing of IED. Multilateral clearing without money creation is thus the least inflationary of the three mechanisms discussed, with the relative position of the remaining two being ambiguous.

The situation looks rather different if we assume that "downstream" enterprises are money rich while "intermediate" and "upstream" enterprises are money poor, and that the banking system acts as the conduit from the former to the latter, as we did in Section 3. If IED becomes grossly excessive, such a situation results in the banking system becoming effectively bankrupt, because the "money poor" enterprises can never be expected to be able to service, let alone repay, the credits they have obtained from the banking system. In this case, multilateral clearing without money creation will not suit, as the IED of net debtors is large. Money creation then not only provides the finance for commercial banks to be able to continue crediting intermediate and upstream enterprises, but by causing inflation, it reduces the real value of their past debt. As such, the policy can be thought of as being directed at saving the banks as much as the "money poor" SOEs. In this case, reducing the nominal value of IED by securitizing it (as described in Section 7) might need to be

accompanied by a once and for all increase in bank liquidity and a once and for all recapitalization of the banks.

5.3 Perverse incentives resulting from multilateral clearing

These occur if SOEs expect that a "multilateral clearing" of IED is due to take place, even if the clearing is to involve no bank credit injection whatsoever. In such a case, SOEs which are net debtors can improve their position by extending more IEC (which will then be set against what they owe). As long as they can do this there is no reason for them to attempt to achieve balance by reducing the IED they owe. Equally, net creditors will try to achieve balance so as to avoid being left holding the possibly valueless assets of the net debtors. However, they need not try to do this by reducing the IEC they have extended, but may rather do so by taking on additional IED - particularly since reducing IEC one has already extended may not be easy. Ceasing delivery to a debtor will not reduce the level of IEC an SOE has extended if the debtor ceases servicing his debt. As we have just noted, there will be net debtors happy to accommodate net creditors in this desire.

Once all SOEs had achieved rough balance of their IE assets and liabilities, then even if every SOE insisted on maintaining this balance, no technical limit would be set on IED growth if SOEs knew that a multilateral clearing exercise (even without money creation) was due to take place[43]. This is similar to the situation under free banking: the "law of reflux" and a bank clearing system are not of themselves sufficient to prevent excessive note issue by the banking system [Smith 1936][44]. Multilateral clearing will thus bias the economy towards the expansion of IED. The root cause of this bias has already been discussed: it stems from artificially setting the

value of one unit of each SOE's IED equal to that of every other SOE in the clearing process.

Although the nominal value of final goods and primary inputs should not be affected if M remains constant, nevertheless, the effects on the economy will be deleterious, as SOEs will compete for domestic intermediate inputs, driving up the prices of these relative to other goods (while their volume remains constant). The effects on the redistribution of profits among enterprises have already been discussed in Section 3. Alternatively, the real value of final goods could fall together with an increase in their price, due to the increase in the prices of intermediate goods. SOEs, not being profit maximizers might operate on a cost plus basis, at least in the short and medium terms[45]. The expectation of multilateral clearing, and the IED growth it leads to could, in such a case, cause accelerating stagflation[46]. This would happen both in the short term, i.e. when SOEs know that a clearing of IED is to take place soon, and in the long term, if they come to believe that such clearings will be a permanent feature of the economic system. In such a situation, in which IED has severely distorted relative prices, multilateral clearing is no solution whatever to the difficulties the economy is encountering as a result of excessive IED.

If a multilateral clearing with money creation is expected, then SOEs do not even need to ensure that their expanding IED is balanced by their IEC, so that the strength of the bias towards the expansion of IED is strongly augmented. Moreover, money creation will result in an increase in the money supply base for subsequent IED expansion.

All the above objections have far less force if multilateral clearing is voluntary and there is no money creation. In that case there is no imposition of equal value on

assets which may intrinsically have very different values. Nevertheless, even here, the multilateral clearing of IED speeds up the velocity of circulation of money, something which authorities in a country with near hyperinflation may wish to avoid. They would certainly need to try to allow for the resulting increases in velocity when determining monetary policy.

5.4 The Romanian Scheme

We saw in Section 5.2 that it is right to attach some importance to the relatively small size of the increase in broad money which was part of the multilateral IED clearing in Romania[47]. However, it is far more doubtful whether the Romanian authorities have been on the right track when, in order to convince SOEs that the clearing exercise was "one off" and thus to avoid the moral hazard problem, they attempted to sharply restrict IED after the multilateral clearing exercise of end 1991 by making failure to pay invoices within 30 days sufficient grounds for declaring a debtor insolvent[48]. Quite apart from ones doubts regarding the effectiveness of the Romanian measures, which depend on the voluntary actions of suppliers (creditors), it is dubious whether they are in fact desirable on either macro- or micro-economic grounds.

If there is a comprehensive multilateral clearing of IED accompanied by a minimal increase in the money supply, then if we were initially in a situation in which the existing money stock was insufficient to effect the current level of nominal transactions (including intermediate transactions), then we remain in that situation after the multilateral clearing. Therefore, in spite of the clearing, either a combination of prices and output must fall or a combination of money supply and IED must

increase. Not very surprisingly, therefore, in spite of the restrictions, IED in Romania increased from zero to 800 billion lei in the first six months of 1992, compared with an increase from 100 billion lei to 600 billion lei in the first half of 1991 [Table 5][49].

From the micro-economic perspective, it seems very doubtful whether one month's trade credit is enough for a market economy: as we saw in Section 2 average trade credit in the West ranges from one and a half months in Germany and Scandinavia to three and one third months in France.

We have already seen that once multilateral IED clearing with central bank credit injection begins to be seriously discussed, SOEs will know that in the run-up to the clearing they can effectively force the creation of bank and central bank credit by extending IEC[50]. This is exactly what happened in Romania in 1991. Khan and Clifton therefore suggest that the preparation of a multilateral clearing of IED should not be a long drawn out process. However, it is difficult to imagine the first (and supposedly last) such exercise in any country taking less than the few months which were required in Romania. Furthermore, once a multilateral clearing of IED had taken place, it is not in fact likely to be credible that it will not be repeated. SOEs are therefore likely to believe that they can effectively force the creation of bank and central bank credit by extending IEC. Naturally, they could in fact do so only if central bank policy proved to be accommodating. However, the costs of convincing SOEs of central banks' determination not to accommodate IEC extension could be very large.

5.5 Other proposed solutions

A number of authors [e.g. Calvo and Frenkel 1991, Williamson 1992b] have suggested that the IED problem could be solved by forgiving or consolidating the

debts. Forgiveness differs from creating sufficient bank credit to allow all IED to be paid off to the extent that net creditors loose in proportion to their net asset position. However, the idea that such an outcome would be politically acceptable is at the least doubtful. As Calvo and Frenkel admit, it is more likely that after such debt forgiveness either the treasury would have to reimburse net creditors, or the central bank would have to create credit to provide liquidity to cover net creditors' losses. In both cases there would be little difference between debt forgiveness and increasing the money supply[51]. As for consolidation (i.e. rescheduling), under conditions of high inflation, it differs little from debt forgiveness unless the real value of IED is maintained through indexation[52].

6. MARKET BASED SOLUTIONS

The first of these is to simply do nothing about IED, as was done in Poland in 1990-2, and as Begg and Portes recommend. By the middle of 1990 IED had fallen to 95% of total bank credit, compared to 154% before the beginning of the stabilization program in December 1989, and through to the summer of 1992 it never exceeded 100% [Table 3]. On the other hand real bank credit exceeded its December 1989 level by August 1990 and then stayed at about that level for the next two years.

If nothing is done, Polish experience shows that a number of mechanisms may begin to operate to limit IED expansion (and even to cause contraction). The most important, of course, is that suppliers simply cease supplying those who are particularly slow in paying, unless they pay cash. Second, resumption of supplies can be accompanied by a cash settlement of outstanding IED at some (often considerable)

discount. Third, a secondary IED market develops in which financial intermediaries begin to trade IED at a discount. In Poland this market began to operate in early 1990 (i.e. soon after the beginning of the stabilization program) when one of the state commercial banks began to purchase the IED of its clients from their suppliers. As a bank, it had the right to deduct money owed to it from its clients' bank accounts and was therefore in a much better position to enforce payment than were the suppliers themselves. However, as could be expected, clients responded to this by moving their accounts elsewhere, and the bank concerned had to give up its activity on the IED market. By 1991 a number of private firms were acting on this market as brokers, bringing together creditors and debtors of an enterprise which was particularly bad at servicing its IED. The debtor of such an enterprise can buy his creditor's inter-enterprise liabilities from his creditor's creditors at a discount, and set them against his own liabilities. The bad debtor's creditors gain liquidity, while its debtors save money, the brokers charge a commission.

Setting real interest rates at realistic levels is an important part of "doing nothing" about IED. As described in Section 3 this increases both the opportunity cost and the cost of financing of IEC. A sharp increase in interest rates can thus be an important instrument in bursting a "IED-price-IED" bubble. However, making it mandatory for creditors to charge penal rates on IEC is not likely to be helpful. In the first place, where IEC is extended voluntarily the authorities' intention can easily be avoided by post-dating invoices. Second, where debtors cannot pay, pushing them even faster into a debt trap is not useful. Special high rates on IED are an attempt to affect directly the financial relationship between supplier and purchaser[53]. Since this relationship may already be unhealthy, in the sense that it exhibits a large element

of creditor passivity, it may not respond much to such changes in the price of credit. It is therefore better to affect the supplier's (lender's) financial environment through economy wide interest rates.

However, some developments which one might have expected to occur on the basis of western experience, may in fact be unlikely. In Poland in early 1990, when IED was thought to be a serious problem, much hope was placed on its voluntary securitization. It was hoped that suppliers would insist on immediate payment with bills of exchange (weekly). Such bills have the advantage that, if they are not honoured by their term date then the failure to do so becomes a sufficient reason for a court to declare the bankruptcy of the issuer[54]. Not surprisingly, purchasers were unwilling to voluntarily transform the undated liabilities which IED constitutes into strictly regulated commercial bills, so that the use of bills has not increased significantly.

Thus if the stock of IED is of approximately the magnitude observed in established market economies and if its rate of growth is not excessive - as has been the case in Poland and Czecho-Slovakia - then doing little about IED is probably best[55].

7. FORCED SECURITIZATION

However, doing little may not be an adequate response if, due to the lack of credibility of the stabilization policy, IED has expanded to such an extent that the existing level of nominal transactions (including IED servicing) is too large to be effected by the existing stock of money, requiring a sharp fall in prices or output or both. In other words: what should be done if the stabilization has not been credible,

the stock of IED is excessive relative to the money supply, but the authorities are determined to stabilize, and we wish to minimize the cost of their doing so? Moreover, as Khan and Clifton point out, falling output, which is the result of the lack of credibility of the stabilization, may itself increase the lack of credibility.

We thus come to the final possibility - a market based reduction in the nominal value of IED. As we have seen, a reduction in nominal IED should not take the form of a multilateral clearing of IED imposed from above. This is above all because it is very unlikely that the "one off" nature of a multilateral clearing of IED will be credible. There will be a bias in the economy towards the expansion of IED, as a result of the lack of credibility and the setting of the value of all IED equal to par, both in the run-up to the first clearing exercise and subsequently. This bias will be stronger if multilateral clearing of IED is combined with money creation. As a result, the situation after clearing is likely to revert rapidly to what it was before, with a level of nominal transactions which is unsustainable with the given money supply without a further multilateral clearing of IED. If IED expansion has led to a serious distortion of relative prices in the economy, then multilateral clearing provides no solution and merely perpetuates this situation. Furthermore, measures which have been suggested to strengthen the credibility of clearing as a "one-off" event are likely to involve considerable microeconomic costs - if they are at all effective.

The securitization of IED, by which it would be continuously "marked to market" would not have the same undesirable effects. There would be no credibility problems, because no concession would have been made (in the sense of bailing out SOEs which had imprudently extended IEC or taken on IED). Once the market mechanism for revaluing IED had been established, it would function continuously.

Thus there would be no problem of whether revaluation was to be repeated or not. Finally, the value of the liabilities of borrowers of varying quality would not then be made uniform and effectively set equal to their nominal value[56].

What would be the effects of this approach on the prices and output of goods and services? To make the situation more realistic, let us assume that the economy we are discussing conforms to our second model from Section 3, in which enterprises are either "downstream", "intermediate" or "upstream". Unlike our first "average enterprise" model, downstream final goods producers have high levels of IED and significant amounts of money in their bank deposits. Intermediate enterprises have large amounts of IED, but have also granted large amounts of IEC, while upstream primary input purchasing enterprises have granted large amounts of IEC, but have large borrowing from the banking system. As we noted in Section 5.2, revaluing IED on the market might then cause problems for the liquidity of the banking system, as final goods producers would finance more of their purchases from "intermediate" enterprises by buying the IED of the latter from SOEs further upstream for money. This money would not then be deposited as before in banks. A once and for all increase in bank liquidity might therefore be needed. There might also be a need for a once and for all recapitalization of the banks to compensate them for the losses they might suffer if purchasers of primary inputs found that they had to sell their IEC at such low prices that they were unable to service their bank debt.

However, revaluing IED on the market should make it easier for all three kinds of enterprise to go the route of price rather than output reduction in their adjustment to the shortage of liquidity in the economy at the given level of nominal transactions. Let us take the case of intermediate goods producers first (i.e. both

"intermediate" and "upstream" enterprises according to the classification we adopted in Section 3). A supplier of such goods who is owed a large amount of IEC by his customers has relatively little interest in reducing his sales price. If his inter-enterprise assets are equivalent to several months' worth of sales then, even if the demand curve for his product is elastic, any reduction in his sales prices will result increased revenue only once the IEC outstanding at the time he makes the decision has been paid off - and this is several months away. However, it is not only a matter of there being an long delay between price reduction and increased liquidity for the supplier. There is the more fundamental problem of the credibility of the purchaser, who has not been paying promptly and who now states that he is willing to accept larger deliveries if the price of the goods he purchases is reduced (it needs to be remembered that this in an institutional environment in which the bankruptcy system is not operational). In fact, for the liquidity of the supplier to improve once the goods delivered now at a lower price are paid for at a future date, then the IEC extended by the supplier to the purchaser must actually increase in the period until these lower priced goods are due to be paid for! Many suppliers may be unwilling to take this risk[57].

This problem can, of course, be solved if the supplier concerned offers a lower price for his products subject to immediate money payment on delivery for the newly lower priced items. In that case, by voluntary agreement between the parties a temporary moratorium is effectively placed on the customer's IED. This is quite similar to marking the IED concerned to market, something which becomes explicit if these moves are accompanied by an agreement on how the outstanding IED is to be serviced or paid off at a discount. The advantage of creating a market for all IED,

however, is that a price is generated for each SOE's IED in that market, allowing creditors to obtain money in exchange for their inter-enterprise assets if they so wish. Also time consuming bilateral debt rescheduling or reduction negotiations can be avoided. Once this has happened, suppliers are freer to decide whether to offer lower prices, and whether to demand payment on delivery or to extend new IEC to their customers. They thus operate in a more transparent environment than previously.

The situation with regard to final output is somewhat different. With a given money stock and a given velocity of circulation suppliers as a whole cannot increase their cash flow by reducing prices. But unless suppliers can enter a cartel, many individual suppliers will be able to increase revenue by reducing price, or will be able to maintain revenue in the face of price reductions by others only by reducing prices themselves.

As suppliers of final goods are generally paid immediately in cash, the problem of customer creditworthiness does not arise. However, it may be hard to reduce output prices in order to improve one's liquidity if one's suppliers are unwilling to reduce their prices. Producers of final goods may be unwilling to sell products at significantly below cost, even if their cash flow improves temporarily as a result and even when there is no effective bankruptcy system. If they do so they may make it more likely that they will not be able to service the IED they owe their suppliers in the long run, unless these latter themselves reduce their prices. Yet, as we have seen, there may be good reasons for intermediate goods producers not to reduce prices, unless this is accompanied by some credible settlement of the IEC they are owed. Thus, marking their IED to market may be essential for final producers also to be able to reduce their output prices[58]. What is more, given the existence of

a secondary IED market, intermediate input suppliers might be more willing to reduce their own prices as described previously, which would mean that more final goods producers could individually improve cash flow without worsening their profitability.

To summarise: the creation of a secondary IED market would not be sufficient to result in the (constant) money supply becoming fully adequate to finance the higher level of nominal transactions which has resulted from an excessive expansion of IED. Prices or quantities, or some combination of both, would still have to fall. However, prices could fall more and output could fall less than in the absence of a secondary IED market[59]. Furthermore, the stock of money needed for the servicing of IED might be smaller, as much of the debt settlement which took place would happen on the basis of the setting off against each other of the assets and liabilities of given SOEs[60].

Last but not least, an excessive stock of IED has effects which are similar to those of a debt deflation, and this applies both to intermediate and final goods producers [Fisher 1936]. In this situation falling product prices, which are essential if output is not to fall and the money supply is not to be increased, result in increases in the real value of the inter-enterprise component of SOEs' liabilities. Given a constant money supply, reductions in prices can have no effect in the aggregate on SOEs' cash flow nor on the ratio of that cash flow to their IED. Nevertheless, it does increase the real value of that debt, possibly to a degree which might be considered unrepayable, even in the absence of interest charges on IED. If this were the case, suppliers would be unwilling to continue supplying such customers[61]. In such a situation output would fall even if prices were fully flexible downwards. Of course,

as with a standard western debt deflation, one can either accept the output effects for the sake of the anti-inflationary results, or one can try to reduce the real value of the debt through an inflationary policy (or prevent it from increasing through an anti-deflationary policy). The difference is that in a PCE in transition loose financial policy may cause expectations to become not merely inflationary but hyperinflationary. If there were a secondary market on which the value of IED could be reduced in nominal terms, the danger that persistence with stringent monetary policy would lead to a debt deflation would be reduced[62].

8. INTER-ENTERPRISE DEBT AUCTIONS

However, for all this to happen IED must be tradeable, i.e. securitized. As we have seen, the Polish experience shows that SOEs are unlikely to voluntarily securitize their debt quickly: the securitization therefore has to be forced if it is to be rapid. What is more, we noted that it is the absence of an efficient bankruptcy system which causes the IED problem to arise in the first place: the exact nature of the instruments into which IED would be transformed would therefore have to take this key institutional fact into account.

Fortunately, a good instrument is to hand in those countries which have the good luck to have maintained the "payment demand" system which existed under central planning. Under this system, demand for payment is not sent directly to the purchaser in the form of an invoice, but instead is sent by the seller's bank to the purchaser's bank in the form of a "payment demand". Once the payment demand reaches the purchaser's bank it is automatically paid out of the purchaser's account.

If there is no money to fulfil the payment demand it is filed in the so-called "second file" (kartoteka dva) of the account in the order in which it arrives[63].

The existence of this payment demand system allows the elimination of an excessive stock of IED through the simple expedient of IED auctions. Since all payment demands in the "kartoteka dva" are dated, it is simple enough to decide to auction off each month all the demands which are, let us say, more than three months overdue[64]. All commercial banks, on instructions from the Central Bank, would be obliged to organize such auctions. This would be necessary to avoid the defection of customers to banks which were not forcibly securitizing IED. Settlements would have to be by banker's cheque or cash. Initially one would expect three kinds of bidders to appear on the market: the creditors (who would be setting a reserve price), the debtors (who would be offering to settle their debt at a discount), and debtors' debtors, who by buying their creditors' liabilities at a discount could reduce their own liabilities to their creditors by setting off the newly acquired assets against their own liabilities. With time, however, one could expect the emergence professional arbitragers, who would buy the liabilities of a particular SOE on the basis that its debtors' debtors at several removes would be willing to purchase this security as a cheap way of settling their own liabilities.

How efficient will such a market be? For efficiency each of the players should have equal access to information about the financial position of the SOE in whose debt he wishes to trade. Since this depends in turn on the financial position of the debtors of the SOE concerned, and their position depends on that of their own debtors, and so on, one could argue that for the market to be efficient all players have to have equal access to information about the financial position of all SOEs. Not only

is this clearly impossible, it is also unnecessary. The players likely to be initially involved in trading an SOE's debt are, as already mentioned, the firm itself, its creditors and its debtors. A considerable amount of information about the firm and its environment will be available to all these players acting together (and against each other). The price for the IED of the SOE concerned will be the result of the bids of the players involved, and will be a reflection of the information held by them[65]. In setting a price for IED the bidders will be making the information they hold available to others, including players involved in pricing another SOE's IED. Although the market for an SOE's IED cannot be efficient, it is the attempt by those with privileged information to benefit by it from participating in the market which generates and spreads information regarding the SOE concerned.

The fact that no effective bankruptcy system exists, and that it is very unlikely that such system can be created in the time frame required[66], means that it would be pointless to set a term by which the newly securitized IED had to be repaid, since there are no sanctions which can be effectively applied in the case of non-compliance. Unpaid payment demands are already overdue liabilities, and it seems unnecessary to pretend otherwise by setting a new, later, time limit. Equally, since it is the purpose of such securitization to make it possible for equal nominal values of IED debt be set off against each other (whatever the discount they may have been bought at), one should no longer require debtors to meet the payment demands in chronological order[67]. There remains the fact that the secondary market value of IED might increase as the prospect of effective bankruptcy procedures approaches. This need not be a problem, as it will induce debtors to settle for cash the more quickly. Also, the main stabilization problems, which are the primary source of excessive IED,

should have been settled by the time an effective bankruptcy system is in place.

As a final twist, it is possible to widen participation in the securitized IED market considerably by making debt to equity conversion possible, either on the basis of negotiation between creditors and debtors or, preferably, through rules relating nominal IED to the book value of SOEs. In this way the secondary IED market, in which private persons would be allowed to participate on equal terms, could become a powerful instrument in the privatization process[68].

What can be done in countries in which the "payment demand" system has already been abolished? One possibility is to oblige suppliers to obtain a confirmation of delivery which would show the value of the goods delivered. In the absence of such a confirmation suppliers would be denied recourse to the courts to enforce payment. Effectively, all deliveries for which such a confirmation had not been obtained would be gifts by the supplier to the customer from the legal point of view[69]. Such "confirmations" would then be made tradable, and banks could be required to organize monthly auctions of them. Obviously, since the "confirmations" would not be all deposited at the banks as are "payment demand orders" under the "kartoteka dva" system, it would be an entirely voluntary matter whether suppliers delivered their unhonoured "confirmations" to the banks for auction or not.

It may be objected that a secondary market in IED involves a high degree of moral hazard, in that debtors can affect the value of their own liabilities (by not servicing them) and then buy them back at a lower value. However, it needs to be remembered that because of the non-existence of an effective bankruptcy system, debtors already have full control over the true value of their liabilities due to their power to decide when (and whether) they will fulfil their obligations. The only choice

facing creditors is whether to continue expanding the credit they have already extended. If IED is securitized it is creditors' options which are expanded - not those of debtors. Creditors can then obtain payment from their debtors' debtors at an appropriate discount, and base their decision on whether to continue supplying a particular customer on the effective price (net of discount) which they expect to receive for the goods[70].

9. CONCLUSIONS

There are a large number of possible reasons for IED growth in PCEs. One can distinguish healthy expansion of IED from the pathological (or excessive). The former is mainly the result of previous repression of trade credit by central planners (an example is IED growth in Czecho-Slovakia in 1990 and 1991). The latter occurs when IED growth leads to a level of nominal transactions in the economy which is unsustainable at the given money supply, velocity of circulation and relative prices of domestic intermediate goods with respect to other goods. The FSU in 1992 and Romania in 1991 seem to provide examples of such pathological IED expansion.

The most important cause of excessive IED growth seems to be a lack of credibility of macroeconomic stabilization policy in the absence of an effective bankruptcy system. In such a situation it is quite rational for firms to extend large amounts of IEC, as long as implicit interest charges are included in the price. Thus the fall in the real value of IED in Poland at the beginning of the stabilization program suggests strongly that stabilization was credible in that country from the very beginning. In countries in which stabilization is not credible an IED-price-IED bubble can develop, leading to levels of transactions which cannot be sustained.

If the authorities are determined to stabilize, but their will or ability is not credible, what should they do to minimize the costs of incredible stabilization (which will take the form of falls in output)? A one-off increase in the money supply, which is the best solution from a purely technical point of view, is unlikely to be credible. The greater money supply will merely be perceived as providing a higher base for further IED expansion. Multilateral clearing of IED is no solution if nominal transactions are already at an unsustainable level: further multilateral clearings or increases in the money supply will be required in due course, if reductions of output are to be avoided.

The least bad solution seems to be the forced securtization of IED, which allows the development of secondary IED markets, enabling creditors to improve their liquidity and debtors to improve their balance sheets. As a result the unavoidable downward adjustment of nominal transactions to a level consistent with the money supply should involve a greater reduction in prices and a smaller reduction in output than otherwise. Above all, this solution involves no additional liquidity provided to the economy from the outside. All that the authorities do is make certain trades possible. Flexibility is increased without increasing liquidity. The problem of establishing the credibility of the one-off nature of the intervention does not, therefore, arise. Countries which still maintain the "payment demand order" system and the "kartoteka dva" are particularly well placed to forcibly securitize IED through regular auctions of unhonoured payment demand orders carried out by the banks.

Endnotes

1. Centre for Economic Performance, London School of Economics; School of Slavonic and East European Studies, University of London; and Centre for Research into Communist Economies. I am grateful for comments to Marek Dabrowski and for discussions with Fabrizio Coricelli and Geoffrey Davison. The Centre for Economic Performance is financed by the Economic and Social Research Council.
2. Peter Wiles [1973] describes it with regard to Yugoslavia.
3. The figures are those reported to the IMF by the Russian Government. According to figures provided by the Bank of Latvia, in that country IED had reached 25 billion rubles by June, showing that Latvia, which had traditionally accounted for about 1% of the USSR's population and GDP, now accounted for approximately the same proportion of IED.
4. In Poland the ratio of transactions to GNP in industry is about 2, and I am assuming a similar ratio for Russia.
5. Hrincir and Klacek [1991] give the figure for January 1991 as 8.5% of GDP. Assuming this to be the same as for December 1990 and taking the figures for the real value of IED at the end of 1991 from Table 4, then we arrive at 18% if we accept a 10% fall in GDP during 1991.
6. Calvo and Coricelli [1990] make the mistake of comparing end 1989 IED with nominal GDP for 1989 as a whole, and get 47%. Since prices rose 740% (December to December) during 1989 this is not suitable. I have crudely re-estimated 1989 GDP in December 1989 prices by assuming that real output was the same in all twelve months of that year. I get a value of 260 trillion zlotys (as opposed to the 100 trillion

at average 1989 prices), and therefore an IED/GDP ratio of 18%.

7. C.Batchelor, Financial Times 11.2.1991.

8. Even if credit is formally free, interest can be effectively charged by being incorporated in a higher price for the goods delivered, which the purchaser would refuse to pay in the absence of the credit.

9. Romania seems to be closer to the countries of the FSU in this respect than to Central Europe. Thus at the end of 1991 IED amounted to 1.8 trillion lei, or 50% of GNP [Kahn and Clifton 1992].

10. Russian data in Table 2 show the sharp fall in IED in July 1992 which resulted from the effective closing of the "second file" on bank accounts to new payment demands (see Section 8 for a description of the system). Banks were no longer obliged to accept payment demands, with the result that the stock of IED on the "second file" declined as old payment demands were honoured. The clearing exercise of August then eliminated some 60% of the IED that remained. This does not, however, mean that IED is now close to zero. It now merely takes the form of unregistered unpaid invoices.

11. Delays are particularly long for payments between republics.

12. It is legal to pay for goods in cash, but it is not legal for banks to allow SOEs to withdraw deposits in the form of cash except for specified, justified, purposes. These include wage payments but exclude the payment of suppliers. Thus the expansion of the use of cash in inter-enterprise transactions is severely inhibited.

13. Thus, unlike in Russia, the shift to cash transfers probably helped to compensate the Romanian economy for the slowdown in payments through the banking system, and thus helped to mitigate the fall in output caused by growing arrears. This does not

emerge clearly from Khan and Clifton [1992], who take the view that the shift into cash delayed payments further, which seems unlikely in a country in which payments through the banking system take between 15 and 21 days [Coricelli and Thorn, 1992].

14. The absence of bills of exchange and letters of credit appeared as much in Poland and Czecho-Slovakia as in the FSU. Moreover, unsecuritized and uninstrumentalized trade credit remains the norm in domestic transactions - as opposed to international ones - in Western market economies (see footnote 6).

15. Information from the Ministry of Finance of the Russian Federation.

16. Kahn and Clifton's failure to note this in the case of Romania is of a piece with their mistaken belief that: "The rapid growth of arrears poses a serious policy problem in all the transforming economies of Eastern Europe..".

17. Sometimes, as in Poland in 1990, there is also a reduction in the level of real bank credit. See Calvo and Coricelli.

18. In Romania arrears were effectively indexed in 1991. When not paid on time, suppliers would re-bill debtors at new higher prices [Khan and Clifton].

19. If one excludes the first month's once and for all price jump.

20. Bankruptcy laws are only a necessary, but far from sufficient, condition for the existence of a bankruptcy system. If courts have no experience of bankruptcy cases and of how to rule on their complexities a high "R&D" cost is borne by the first to use them. Also there will be few, if any, trained liquidators for the courts to hire: in Poland in mid-1991, i.e. 18 months into the big bang programme there were six such people in the whole country.

21. Taxes also have to be paid in money, but it may be possible to accumulate arrears here also.

22. I use this term so as to avoid the question of whether payments are made in cash or bank money (which is not convertible into cash in the FSU).

23. As Begg and Portes point out there may also be a "strategic" reason for SOEs to extend IEC. Those which are not "too big to fail" on their own, may hope to create an interlocking network of inter-enterprise commitments, so that all the enterprises in the IEC chain together are indeed "to big to fail", and the failure of any one SOE in the network threatens the failure of all.

24. Thus Khan and Clifton report that in Romania as a result of the growth in IED the income velocity of broad money rose from 1.8 in 1990 to 3.9 in September 1991. The ratio of GDP to broad money plus gross IED (i.e. the income velocity of "liquidity") was 1.7 in September 1992. In other words it had hardly changed compared to 1990, when there was very little IED (see Table 5).

25. Note that within the ruble zone in 1992 enterprises could extend IEC to each other across state boundaries.

26. As long as a is declining inflation can increase independently of increases in M and V.

27. Here, V is the velocity of circulation of money with respect to transactions financed with the use of money (i.e. excluding those financed with the use of IED).

28. This may result from an anticipation of a natural increase in V as a result of increased efficiency of the bank payments system as a result of reform in the absence of very high inflation (this may have been the case in Czecho-Slovakia).

29. As long as SOEs' debt is not accepted as a means of payment by third parties. This would presumably only happen to those enterprises which were scrupulous in meeting their obligations on demand - i.e. to those SOEs which effectively became banks. This

is unlikely to happen in many cases.

30. The nominal prices of primary inputs and final outputs then jump up by 1/a, as do the prices of intermediate inputs.

31. See Section 5.

32. In the absence of increases in money stock or velocity.

33. Price overshooting both relative to government expectations and "objective overshooting" which requires downward price adjustments after initial increases. This process cannot, of course, be the only reason for price overshooting in PCEs since we have seen that IED expansion was not a major source of liquidity growth in either Poland or Czecho-Slovakia in the aftermath of "big bang" stabilization. Moreover,in these two countries the "bust" phase followed immediately upon stabilization rather than with some delay, as one would expect if the main cause of recession were excessive IED expansion in the face of tight monetary policy. Such a mechanism may, however, be part of the explanation of output declines in Romania in 1991 and Russia in 1992.

34. An alternative would be the banning of IED and the return to physical command planning. It is interesting how few people suggest this at present. This is probably due in the FSU to the main opposition to stabilization coming at present from the industrial lobby. That lobby has no desire to see a return to direct control from the centre. Rather, it wishes the freedom of a market economy without the need to control costs. The impossibility of businesses functioning effectively in a hyperinflation [see Auerbach, Davison and Rostowski 1992] has not yet been understood by many industrial managers.

35. Calvo [1992], therefore suggests wage (and possibly price!) control as a way of

ensuring that the real value of additional bank credit is not eroded by inflation. The question is whether wage control can be effective in the face of expansionary monetary policy (for it is of that which we speak). Price controls are unlikely to be a good idea in PCEs, whose distorted relative price structures are an important source of waste.

36. It is not clear what the incentives would be for the employees of such an institution to brave the opprobrium which liquidating enterprises would bring on them - and all for the benefit of the net creditor enterprises.

37. The rest was financed by credit from the banking system of which about 10 percentage points came from the National Bank of Romania [Khan and Clifton].

38. As happened in Russia in September 1992 and in Romania in June 1991.

39. In fact, since "multilateral clearing" takes place in time, new IED would be contracted even as the clearing was taking place.

40. A similar thing happened in Romania in May and June 1991, when banks extended 15.5 billion lei in credits to enterprises on special accounts which were to be used exclusively to pay off arrears, and were then to be repaid to the National Bank of Romania. They never were repaid. In Russia, as a result of this change it is not clear at present what the status of net debits on the IED clearing accounts is. Some 300 billion rubles worth of the net positive balances on these accounts was used to pay tax arrears in September of 1992, significantly improving the appearance of the Russia's budgetary accounts (information supplied by the Russian Ministry of Finance).

41. We need to distinguish between increasing M so that the existing level of PT can be financed and attempting to increase M sufficiently to eliminate IED altogether. Trying to do the latter implies an even looser posture. This is because M has then to increase

sufficiently to finance PT AND to pay off all IED.

42. Naturally, if not all IED can be cleared multilaterally then the failure to provide the bank credit required to clear the IED of net creditors will result in PT having to fall from P'T', and would make this option less expansionary than either increasing M or multilaterally clearing IED and supplying bank credit to clear net debtors' IED.

43. IED would stabilize only if there were some maximum IED/M ratio above which SOEs were not prepared to expand IED. Furthermore, if there are net debtors whose position is hopeless - i.e. SOEs whose net IED already exceeds all their assets, and who are therefore inevitable bankrupts - these would be willing to take on unlimited quantities of additional IED, concentrating the net debts of all SOEs in their own hands. In this way they gain the possibility of effectively creating money. This would give a new twist to the usual situation in which central banks cannot go bankrupt - here bankrupts would temporarily become central banks! Non bankrupt net debtors would not need to deliver goods of any significant value to the bankrupts - they would merely need to invoice them appropriately. In this situation net creditors would try to escape their exposed position, and this would act as the only brake on IED expansion. Yet, it is a rather weak break, given the difficulty a net creditor has in reducing IEC unilaterally.

44. The limit on note issue was banks' need to maintain convertibility into gold. Overissue was possible, however, in the sense that convertibility could become threatened.

45. This could then feed through to lower demand for primary inputs in real terms, so that the prices of these could also rise.

46. IED, effectively inconvertible into money, would thus play a role which was similar to non-cash money in the FSU in contributing to stagflation [Lipton and Sachs].

47. As Khan and Clifton do. The money supply increased as a result of the clearing exercise of January 1992 by only 17%.

48. This in itself is then a basis for creditors to enforce payments through the courts. The World Bank has, following its usual dirigiste instinct, effectively approved this approach: it has made its Structural Adjustment Loan to Romania subject to the condition that IED should not exceed 7.5% of SOE turnover [Khan and Clifton].

49. In real terms the level of IED in June 1992 was 40% of that in June 1991. However, real bank credit was also less than 50% of its June 1991 level.

50. The inflationary effects of 15 central banks in a single currency area have already been observed in the FSU - the effects of tens of thousands of emission centres can readily be imagined.

51. However, if the authorities succeeded in refusing to maintain the liquidity of net creditors, then SOEs would probably become very careful not to extend any IEC in the future, which would ensure that the IED problem did not recur for quite some time. The question is whether there is any benefit in having net creditors' illiquidity legitimized in this way?

52. Indexation would make the debtor's position worse than it is at present in Russia, where real interest rates on IED are massively negative.

53. There may also be further effects due to the tax system. Thus in Poland, until the second half of 1991 penal interest rates due (but not paid) on IEC counted as part of the supplier's revenue - but not as part of the purchaser's costs!

54. The fact that commercial bills need to be endorsed by two or more non-bank firms before being discounted by a bank means that they can constitute a sophisticated mechanism for assessing the creditworthiness of the issuer.

55. A modest proposal regarding what to do even in this situation, so as to help the secondary market in IED to develop, is put forward at the end of Section 8.

56. This does not happen in the case of net debtors if we have multilateral clearing without bank credit injection, but as we have seen in Section 5, such a system creates strong incentives for there to be few of these.

57. Of course, lowering the price may attract new, credible, customers.

58. Also final goods producers may find that by reducing their prices they cause their suppliers to doubt their ability to pay, which may cause these suppliers to cut them off, rather than to reduce their own prices.

59. In practice some increase in the money supply might be countenanced. This would need to be less than the preceding price increases so that the real money stock should fall, first, in order to ensure the disappearance of any monetary overhang which might exist, and second, so as not to accommodate all of the SOEs' "price push".

60. These would be set off against each other at par, although they would have been bought by their current owners at varying discounts depending on the status of the debtor (see the description of the auction system suggested below).

61. This gives us an additional reason as to why SOEs might decide to keep prices high in the absence of a secondary IED market. Doing so may not improve one's cash flow compared to price reductions, but it signals to suppliers that one continues to consider the current credit crunch as temporary, and that once it is reversed one's IED will be of manageable proportions.

62. However, the nominal value of bank debt owed by SOEs could not be reduced.

63. The "first file" (kartoteka odin) consists of paid payment demands. In the traditional system the payment demands in the "kartoteka dva" were paid in strict chronological

order as money became available. Nowadays, even where the payment demand system has survived, enterprises have the right to decide in which order the payment demands should be met.

64. As the system proved effective ever "younger" payment demands could be forcibly securitized in this way.

65. Clearly some players will be more liquidity constrained than others, but this in itself is an important piece of information.

66. This was still the case in Poland two years into the reforms.

67. On a purely technical note: evidence of delivery of goods, confirmed by the purchaser and accompanying the payment demand, should be required for its validity to be accepted by the banking system and the courts. Suppliers could avoid forced securitization in this way, however, only at the cost of loosing all legal claim to payment. Suppliers can, furthermore, avoid securitization by setting the reserve price of their IEC at its nominal value. To discourage this one could require the original owners to actually pay in money for their own IEC if it failed to reach the reserve price, so that they would loose the use of the money involved for a certain amount of time.

68. Khan and Clifton's view that IED is a contingent liability of the budget because SOEs belong to the state is mistaken. In market socialist economies, such as are most PCEs, the state's liability in SOEs is limited, whether these are formally limited liability nationalised firms or the more traditional "state enterprise" (with or without workers' control).

69. In the 1970s in Yugoslavia the so-called "weksel" was introduced as a confirmation of delivery.

70. Thus the shorter the period of delay before IED is auctioned the better from the supplier's point of view.

TABLE 1

Possible Causes of Output Collapse in the Economies in Transition

Cause	**Countries**
External demand:	
- exogenous decline	Bulgaria, Hungary CSFR, Poland, Romania East Germany
- overvalued currency	East Germany
Internal demand:	
- Keynesian	CSFR, Poland?
- FX shortage	Bulgaria, Romania, FSU,
- Demand shift	CSFR, Poland
- Unwanted goods	Russia, all
Supply:	
- Exogenous shocks	Russian oil
- Uneconomic output	Widespread
- Input dislocation	FSU
- Credit squeeze	Poland? CSFR? Hungary?

Source: Williamson [1992a].

TABLE 2

Credit and Inter-enterprise arrears in Russia 1992
(billions of rubles)

End Month	Nominal bank credit	Real bank credit	Nominal arrears	Real arrears	Arrears / bank credit
12 1991	450	450	39	39	0.078
1 1992	510	148	141	41	0.277
2 1992	700	147	390	82	0.558
3 1992	920	149	800	129	0.870
4 1992	1050	139	1800	239	1.710
5 1992	1050	125	2050	243	1.952
6 1992	1400	140	3000	299	2.143
7 1992	2300	207	1190	107	0.517

Source: Russian Centre for Economic Reform.

TABLE 3

Credit and Inter-enterprise arrears in Poland 1989-92
(trillions of zlotys)

Month	Nominal bank credit		Real bank credit*	Nominal arrears		Real arrears*		Arrears / bank credit
12 1988#	11.1	11.11	7.0		7.00		0.63	
3 1989+	13.0	10.00	6.8		5.20		0.52	
6 1989+	15.3	9.46	9.2		5.68		0.60	
9 1989+	21.5	6.49	15.9	4.80		0.74		
12 1989	30.7	4.15	47.4	6.41		1.54		
1 1990	30.2	2.27	50.3	3.78		1.67		
2 1990	37.7	2.28	66.1	4.01		1.75		
3 1990	44.8	2.61	75.1	4.37		1.68		
6 1990	70.7	3.54	81.5	4.08		1.15		
9 1990	95.5	4.33	77.3	3.51		0.81		
12 1990	113.1	4.38	103.0	3.99		0.91		
3 1991	133.8	4.11	109.1	3.35		0.82		
6 1991	154.5	4.30	126.2	3.52		0.82		
9 1991	178.1	4.72	143.0	3.79		0.80		
12 1991	192.0	4.65	179.8	4.35		0.94		
3 1992	208.3	4.52	177.1	3.48		0.85		
6 1992	220.2	4.35	190.6	3.77		0.87		

Source: GUS, 1992.
Calvo and Coricelli, 1990.
+ Coricelli and Thorne, 1992.
* In December 1988 zlotys

TABLE 4

Credit and Inter-enterprise arrears in CSFR 1989-91
(billions of crowns)

Month	Nominal bank credit	Real bank credit	Nominal arrears*	Real arrears	Arrears / bank credit
12 1989	578	578	7	7	0.012
3 1990	569	569	11	11	0.019
6 1990	579	579	14	14	0.024
9 1990	588	588	28	28	0.048
12 1990	583	490	54	45	0.093
3 1991	618	358	77	53	0.125
6 1991	664	367	123	68	0.185
9 1991	694	391	147	83	0.212
12 1991	732	407	155	86	0.212

Source: Begg and Portes [1992].

* These are overdue arrears. Before the beginning of the transition, normal terms of payment in Czechoslovakia were one month, so that at end 1989 the ratio of total arrears (overdue and not overdue) to bank credit was about 0.2. Since normal terms of payment do not seem to have changed during the transition, and at the end of 1991 overdue arrears were equivalent to one month's payment lag [Schaffer,1992], the ratio of total arrears to bank credit at the end of 1991 was 0.4. As a result total arrears / bank credit and the real value of total arrears increased significantly less between end 1989 and end 1991 than follows from the table.

TABLE 5

Credit and Inter-enterprise arrears in Romania 1990-92
(billions of lei)

Month	Nominal bank credit	Real bank credit*	Nominal arrears	Real arrears*	Arrears / bank credit
12 1990	684	486	100	71	0.146
3 1991	756	419	400	222	0.529
6 1991	811	332	600	245	0.740
9 1991	749	235	800	250	1.068
12 1991	954	215	1777	400	1.863
3 1992	1270	193	400+ 61	0.316	
6 1992	1274	158	800+ 99	0.627	

Source: Khan and Clifton [1992].
International Financial Statistics, IMF, for prices.
+ National Bank of Romania.
* In October 1990 lei.

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