PRODUCTIVITY IMPROVEMENTS, INVESTMENT AND THE RATE OF RETURN AS FORCES GENERATING ECONOMIC GROWTH (WITH EVIDENCE FROM EAST ASIA AND LATIN AMERICA)

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It is now almost two years since my first opportunity to observe the contemporary Russian economy. This is too short a period to evidence changes of huge magnitude, yet, given the shortness of time, I feel there has been an amazing amount of movement. A thumbnail sketch of Russia's story in recent years would begin with the crisis of 1998. Prior to that crisis the economy was characterized by a highly appreciated real exchange rate, fed first by growing international indebtedness and then by loss of foreign exchange reserves. The fact that the dollar was so cheap in real terms made it very difficult for Russian industries producing internationally tradable goods to thrive -- even to survive. The large devaluation of the ruble in 1998 changed all that. It gave a very interesting and

in my opinion healthy stimulus to tradable goods production. The share of barter transactions in total economic activity fell dramatically, as more and more items came to be able to compete in the international marketplace under the stimulus of a sharply devalued real exchange rate.

However, it was not long -- barely a year -- after Russia's devaluation crisis that new events threatened to change this picture. I refer here to the great oil-price boom that began in mid-1999. This boom brought with it an abundance of dollars, so it should come as no surprise that it would make the dollar cheaper in real terms. There are two ways that this can happen, one by a fall in E -- the ruble price of the dollar, and the other by a rise in $\bar{p}_d$, the general price level in Russia. As it happened, most of the appreciation of Russia's real exchange rate took place through a rising internal price level.

I believe it is a mistake to consider this rise in the price level to represent inflation as most monetary economists would understand that term. It is far better to think of it as an adjustment of relative prices between tradables and nontradables -- an adjustment caused by the new-found abundance of dollars stemming from the oil-price boom. Most true inflations are caused by the printing of money either to finance large government deficits, or -- much more rarely -- to finance a profligate expansion of bank credit to the private sector. Neither of these causes was present in Russia's case in the years 2000 and 2001. The government ran very substantial fiscal surpluses in those years, and banks were very reluctant to expand credit to the private sector. The source of monetary expansion in this

period was very clearly the accumulation by the Central Bank of large quantities of foreign exchange reserves.

What is really surprising is how relatively limited has been the rise in Russia's price level given the degree of monetary stimulus that was generated by the oil price boom. Three main explanations come to mind. First, the Russian government used its fiscal surpluses in part to build up deposits at the Central Bank. These deposits were part of the increased money supply, but an increment of deposits that is simply held as idle bank balances exerts no upward pressure on the price level. Quite similarly one can point to the second explanation -- a rise in the real cash balances that were willingly held by Russia's private sector -- households and businesses alike. Again these increments of monetary balances, to the degree they are willingly held by the public, exerts no upward pressure on prices. The third important factor helping to limit the rise in prices following the oil-price boom was the payment of external debt by the Russian government. Obviously, to the extent that extra dollars coming into the Russian economy simply make a U-turn and go out again (for whatever purpose), those dollars do not serve as a base for internal monetary expansion.

In addition to the above three principal forces helping to limit the price-level rise in Russia, there were operations within the banking sector that worked in the same direction. One of these was the effort by the Central Bank to stimulate the sterilization of monetary emissions by offering banks the opportunity to earn interest on deposits placed with the

Central Bank. The interest rates varied with the term of those deposits -- going from around 2% per annum for overnight or very short-term deposits to perhaps 10 or 11 percent per annum for deposits of, say, three to six months. The banks were willing to take some advantage of these opportunities offered by the Central Bank, thus helping to offset the monetary increments derived from the Central Bank's purchase of petrodollars. Another related source of offset was the accumulation of excess reserves -- paying zero interest -- by some Russian banks.

Forces Influencing the Equilibrium Real Exchange Rate

There can be little doubt that the revival of the production of tradables -- particularly that of import substitute goods -- in the wake of Russia's devaluation of 1998 came about because of the improved profitability of such activities, provided by the higher price (in real terms) of the dollar. Similarly, there can be little doubt that this element of profitability was threatened by the real appreciation of the ruble in the wake of the oil-price boom. This is why the economic authorities (both in the government and in the Central Bank) were pleased with the elements of sterilization mentioned in the previous section, and why at least some of them wished that the forces of sterilization could have been stronger.

The entire situation just described has undergone a major change -- I would even say a major reversal -- the last half year of so. The price of petroleum has suffered a very

significant fall. The natural consequence of this is that the equilibrium real price of the dollar should rise, and with it the profitability of tradable goods production in Russia.

Unfortunately, the real exchange rate of an economy responds to many different forces so one cannot say for sure that one particular causal chain will dominate at any given moment. For example, all observers of the Russian economy have noted that for a number of years there has been a steady outflow of private capital from Russia. Recently there have been indications that the rate of outflow has declined, probably through a reflux of "old" flight capital returning from abroad at the same time as "new" flight capital continues to flow out of the country. A sufficiently sharp reduction in the net outflow (certainly its conversion into a net inflow) could be enough to offset the effects of the oil price decline, so that the equilibrium real price of the dollar might continue to fall.

Two other forces are important enough to mention here -- a) productivity improvements in the production of tradables and b) productivity improvements in the nontradables sector. I keep these separate because they have opposite effects on the real exchange rate. Productivity advances in the tradables sector increase a country's export surplus (or reduce its import surplus), thus lending to a cheaper dollar (in real terms). But productivity advances in the nontradables sector work in the other direction. By adding to the country's income they increase the demand for tradables without increasing their supply -- thus causing the equilibrium real price of the dollar to rise. Indeed, to the extent that productivity increases in any sector have their natural effect of increasing the general

level of real wages in the national labor market, a productivity increase in the nontradables sector will tend (via higher real wages) to reduce the supply of tradables at the same time as (through its effect on GDP) it increases the demand for them, thus strengthening the pressure for the real price of the dollar to rise.

The Role of Profitability

In an economic system governed by market forces, profitability plays an absolutely central role. It was through creating profitability in the production of tradable goods that the devaluation of 1998 had its stimulating effect. It was worries about the erosion of this profitability that led the authorities to welcome the sterilization of petrodollars, from all the various sources (planned or unplanned) from which it came. And, as I see it, as one explores the prospects of future growth in the Russian economy, profitability plays a key role along each of the main pathways to growth.

Let me begin with a brief description of what we call the "breakdown" of a country's growth rate into its main components. At the aggregate level we have:

(1) $$\Delta y = \overline{w}\Delta L + (\overline{\rho} + \delta)\Delta K + R$$

Here $\overline{w}$ = the average wage rate, taken to measure the marginal productivity of labor

ΔL = the net change in the active labor force, typically measured in man hours per year

$\overline{\rho}$ = the economy-wide real rate of return to capital, typically measured (in constant rubles) as the sum of the profits, interest and rents accruing to

the reproducible capital stock, expressed as a fraction of the current value (in the same constant rubles) of that same reproducible capital stock.

δ = the estimated (average) real rate of depreciation of the reproducible capital stock.

ΔK = the increment to the real reproducible capital stock over the year (or other period in question). Typically this capital stock is measured by accumulating past investments, using the formula $K_t = K_{t-1}(1-\delta) + I_{gt}$, where I_{gt} is gross investment in reproducible capital. In these exercises K, I, and y, as well as the income from capital (profits, interest, rents) should be expressed in the same real units. For this purpose the "natural" price index to use for deflating nominal values is the GDP deflator.

With a little manipulation we can express (1) as

(1') $$\Delta y/y = (L\overline{w}/y)(\Delta L/L) + K(\overline{\rho} + \delta)/y)(\Delta K/K) + (R/y)$$

or

(1") $$\Delta y/y = S_L(\Delta L/L) + S_K(\Delta K/K) + (R/y)$$

(1") is the form most familiar to economics students. It says that the rate of growth of output ($\Delta y/y$) is equal to the share of labor S_L times the rate of growth of employment,

plus the share of capital S_K times the rate of growth of the capital stock, plus a residual (R/y) representing the average rate of growth of total factor productivity (TFP).

Expressing capital's contribution to the rate of growth of output as $S_K(\Delta K/K)$, as in (1") has the virtue of symmetry with the labor contribution $s_L(\Delta L/L)$, but it is not the most instructive way of representing that contribution. It is much better to do the breakdown of growth as in

(2) $$\Delta y/y = S_L(\Delta L/L) + (\overline{\rho} + \delta)(\Delta K/y) + (R/y)$$

Here the capital contribution is expressed as the real rate of return to capital (gross of depreciation) which is equal to $(\overline{\rho} + \delta)$ times the rate of net investment -- that is, net investment expressed as a fraction of output. This way of representing capital's contribution to the growth rate lets us see it in terms of variables that have, as it were, a life of their own -- the real rate of return, and the rate of investment. The real rate of return measures profitability, and from (2) one can see how profitability directly impacts on the growth rate. Moreover, because we know that high prospective profitability will tend to stimulate high investment, and low prospective profitability will trigger low (or even negative) rates of investment, one can see that high profitability really has a double effect -- through $(\overline{\rho} + \delta)$ itself, and through its influence in stimulating a higher rate of investment $(\Delta K/y)$.

Profitability, Capital Flight, and Bank Lending

Two of the facts about the Russian economy that have been most surprising to me (as an external observer) are: a) the fact that capital outflows have been so large, reaching as high as 10% of GDP and b) the fact that the Russian banking system has been putting so much money in deposit with the Central Bank, either at a zero interest rate or low positive nominal rates that are nonetheless significantly negative in real terms. Looking for ways to explain these salient facts, one explanation rises above all the rest -- investors in Russia have not been able to find avenues of investment that promise high profitability in real terms, under conditions of risk that are comparable to those prevailing in most successful economies.

The money that flees Russia and is put in deposits in Cyprus or Switzerland or elsewhere may have an expected real rate of return of 2 or 3 percent (if kept on deposit in banks or invested in highly liquid and safe paper assets like U.S. Treasury bills). If invested in the stock markets of the U.S. and Western Europe it might have an expected real rate of return of 6 to 8 percent. This money goes abroad because those rates of return look good to its Russian owners.

I have no doubt whatsoever that these funds would come back to Russia if comparable rates of return were available, at comparable levels of risk. The problem appears to be that similar returns are either not easy to find, or if they are available, they carry extremely high levels of risk from the point of view of the investors concerned.

What accounts for these low rates of return? In the first place, and probably most important, much of the existing capital stock consists of buildings, machines and equipment carried over from the Soviet era. Even when it was built and installed, that capital was not really designed to produce products that could compete in the world market. Much less so today, when that capital is out of date, and when world markets are much more competitive than they used to be. So in thinking of high potential productivity one has to think of new investment, embodying more modern techniques, machines and factories.

Why do we not have a flood of new investments that meet these characteristics? Here one has to go into a whole litany of impediments. To the extent that the megafactories of the Soviet era survive as decision units, they are for the most part far too big for efficient decisionmaking in today's competitive world. This is a time for experimenting with new ways of doing things, so as to find, by trial and error, what "works" under the conditions of the Russian economy today. Then there are the issues of property rights and ownership, of efficient and reliable ways for firms to collect the money that is owed to them, of a proper and well-enforced legal framework for business ownership and transactions, even of well-functioning laws and procedures with respect to bankruptcy. And finally, of course, there have been in the Russian business sector serious problems of criminality at various levels and in varying degrees.

Others are in a far better position than I am to provide specific examples of how these barriers to profitability have worked and are working, and to assess the degree of progress that has been made in dealing with them. My comments are limited to the simple observation that while the huge capital outflow continues, and while bankers continue to have excess funds that are placed at negative real rates of interest at the Central Bank -- while those facts prevail, they are evidence that much remains to be done to surmount the barriers listed above.

To give readers an idea of a sensible range of possibilities, I believe that rates of return of 15 to 20 percent per annum are a distinct and reasonable prospect for business investments in Russia, once the barriers have been surmounted (or at least sufficiently reduced). These are rates which have been achieved in many cases of successful development, as we will show later in this paper. For the moment let me simply emphasize the message that a high real rate of return on capital, plus a high rate of investment, can together create a very impressive capital contribution to the rate of growth of an economy. Thus, if net investment is 20% of GDP, and is invested at a 15% average real rate of return, capital alone will account for 4 percentage points of annual grown of GDP. [This uses $\rho = .15$; $\delta = .05$; $(\rho+\delta)(\Delta K/y) = .04$.]

Improvements in Productivity,

the Real Rate of Return and Economic Growth

Up to now we have focused on the second term in equation (2) -- the one I have called the capital contribution to the growth rate. In this section we will turn to the third term – (R/y). This term has gone under a multiplicity of labels -- some call it the contribution of "technical advances"; others label it the "increase in total factor productivity"; others take a noncommittal route and call it simply "the residual term in the breakdown of the growth rate". I prefer the simpler label of "real cost reduction" because a) that terminology is quite descriptive of what (R/y) represents and b) it is something that is readily understood and translated to reality by businessmen, production managers, even by ordinary citizens. Anything that reduces real costs contributes to economic growth. This includes great new inventions like the telephone, the electric light bulb and the modern computer. But it also includes innovations of modern retailing which have led in much of the world to entities like Wal-Mart in the U.S. and Ramstor in Russia taking a growing position in retailing, displacing older competitors both large (like old-fashioned department stores) and small (like family-owned grocery stores and shops of all kinds).

The standard calculation of R/y is simply an inversion of equation (1'), namely

(1") $$(R/y) = \Delta Y/Y - S_L(\Delta L/L) - S_K(\Delta K/K)$$

that is, the contribution of real cost reduction equals output minus the respective contributions of labor and capital to that growth rate. But there is another way of

representing real cost reduction, technically referred to as the "dual", in contrast to (1"), which in this context is called the "primal" representation.

The "dual" representation of the real cost reduction looks at the problem from the side of the possible beneficiaries. If R is the number of real rubles saved, in a given period and in a given productive entity, by real cost reduction, the beneficiaries can be either the workers involved in that productive process, the owners of the capital employed there, or the customers who buy its product. Formally, this translates to

(3) $$R = L\Delta\overline{w} + K\Delta(\overline{\rho} + \delta) - y(\Delta P/P).$$

As with the "primal", this can be re-expressed in terms of rates of growth. Thus we have

(3') $$(R/y) = \frac{\overline{w}L}{y}\frac{\Delta\overline{w}}{\overline{w}} + \frac{(\overline{\rho} + \delta)}{y}\frac{K\Delta(\overline{\rho} + \delta)}{(\overline{\rho} + \delta)} - \frac{\Delta P}{P}$$

or $$(R/y) = S_L\frac{\Delta\overline{w}}{\overline{w}} + S_K\frac{\Delta(\overline{\rho} + \delta)}{(\overline{\rho} + \delta)} - \frac{\Delta P}{P}$$

Some readers may find it more meaningful to think of the capital term as $(K/y)\Delta(\overline{\rho} + \delta)$, i.e., as the capital output ratio times the number of percentage points by which the rate of return to capital changes.

The message from all of this is that the <u>change</u> in the rate of return to capital is an important place in which we can see a reflection of the real cost reduction that is going on. In what follows I will try to trace a typical scenario of real cost reduction in a particular sector or industry. In the first place, wages, in a market economy, tend to be determined by general market forces. If real wages are rising, firms have to accept that circumstance

and pay the going wage, or else lose workers and/or incur high labor turnover costs. In a certain sense, rising real wages present a constant and continuing challenge to business firms. This is particularly so for those which produce tradable goods, whose price tends to be set in the world market. If wages go up and world prices stay the same, the firm has either to find ways of reducing real costs, or bear the brunt of these developments in a declining profit rate. But by the same token, a firm that finds ways to make important real cost reductions can have rising profit rates even in the face of increasing real wages and a declining real price for its product.

A Scenario of Productivity Improvement

Consider the case of an individual firm that finds a new way to reduce real costs significantly. The reduction in real costs is the productivity improvement, and we assume that it appears in period 1 and remains functional from that point onward.

The most "natural" reflection of the productivity increase is a substantial rise in the profits of the enterprise. Let's say that those profits multiply by five, so that instead of a 10% rate of return on the existing capital stock, we suddenly see a jump to a 50% return.

This high return will, in a typical case, generate a strong incentive to invest. So, in addition to the direct effect of the productivity increase itself, the growth rate of the firm's output will expand because of a higher rate of investment ($\Delta K/y$) and because of a higher rate of marginal productivity of capital ($\rho+\delta$).

This high-investment, high-productivity capital phase could in principle go on for a long time, but there are two forces that tend to limit its duration -- a) competition from other firms and b) under conditions of healthy growth for the economy as a whole, an upward trend of real wages in the national labor market.

Competition from other firms has the effect of reducing the price of the final product in question. The real cost reduction remains, but instead of its being mainly reflected in profits to the innovating firm, it now gets disseminated to consumers by a reduction in the price of the affected product (relative to the general price level, of course). Obviously, this reduction in prices cuts into the profitability of the innovating firm. Even if it keeps on investing at the higher rate, the capital contribution to the growth rate $(\Delta K/y)(\rho+\delta)$ will decline because of the reduction in ρ. Competition from other firms can come in at least two ways. One would represent other companies simply imitating the innovation adopted by the first firm. This is a standard way in which agricultural innovations are disseminated (e.g., hybrid corn in the United States, or the green revolution in wheat production in the Punjab). The second way consists simply of other firms finding their own independent paths to real cost reduction. Either way, the productivity gains of other firms create a downward pressure on the price of the product in question, and drive down the rate of profit of the first firm.

The second force operating to limit the duration of the profit and investment boom of an innovating firm is the general upward creep (in a healthy, growing economy) of real

wages. As mentioned earlier, real wage increases present a constant challenge to business enterprises. By and large these increases are determined by the labor market. Firms have to adapt to them, or else face a disaffected labor force, incur higher and higher turnover rates, lose their ablest and most ambitious employees first, etc., etc. The firm need not react instantly and exactly to such labor market pressures, but sooner or later it must adapt by raising its own wages to market-determined levels. This further erodes the rate of return to capital.

Obviously, rising real wages operate just as declining product prices do, to squeeze the profit rate of the firm in question. The profit rate may reach 50% as the immediate result of a major innovation, but it will not stay there, save in the extremely unlikely event of major innovations following one another in rapid sequence.

In general, firms and industries do not discover ways of reducing real costs in a steady, even stream through time. Almost by their very nature, real cost reductions come in spurts. A lucky firm is one that tends to be ahead of the pack in its industry. Its best periods will be those in which it leaps ahead of the rest of the firms, introducing profitable innovations, earning rates of return above the average, having high rates of investment and output growth. In its more passive periods it will not be innovating very much, and will see its profits squeezed through falling product prices and rising wages. But if it stays lucky, it will find new ways of making important reductions in real costs before its profit rate falls below the norm.

In contrast, an unlucky firm will be one in which all its real cost reductions take place in a struggle for survival, as it finds itself constantly squeezed by the pressures of rising real wages on the one hand, and of product prices that are either falling (in real terms) or else rising but not by enough to compensate the rise in wages. Its profitability will typically be less than the norm. Even though it finds ways of reducing real costs, its low profitability will make investment difficult, and, all in all, it will have to struggle to survive. In many industrial countries, such firms end up selling out to more successful ones, or in the worst of cases, closing their doors permanently.

Some Evidence From Asia and Latin America

The evidence I am about to present represents a further development of work that I had previously done.[1] The basic data are summarized in Tables 1 and 2. The last four columns of these tables break down the growth rate of a country over the specified period (usually 5 years) into a labor contribution $[S_L(\Delta L/L)]$, a capital contribution $(\rho+\delta)(\Delta K/y)$, and a rate of real cost reduction (TFP growth) equal to (R/y) from equation (2).

The first two columns of those tables show the rate of net investment $(\Delta K/y)$ and the net rate of return to capital (ρ). To get the capital contribution one simply adds to the

[1]See Arnold C. Harberger, "Reflections on Economic Growth in Asia and the Pacific," in Journal of Asian Economics, vol. 7, No. 3 (1996), pp. 165-92, and Arnold C. Harberger, "Evaluating Development Experiences in Latin America and East Asia," Third Senior Policy Forum, The EDAP Network, East-West Center, Honolulu (May, 1997).

net rate of return the appropriate real depreciation rate (δ), and multiplies that sum by ($\Delta K/y$). Our calculations for all countries were based on an assumed depreciation rate of 5% per year.

Certain broad observations can be made on the basis of Tables 1 and 2. Perhaps most important is the story of investment and the rate of return in the Asian countries. In the first place, all of them start with very high rates of return to capital. According to our scenario, this should generate high rates of investment, which indeed we observe in all the Asian countries. Moreover, one expects that with continued high rates of investment, plus greater linkage to the world capital market, the rate of return would tend to decline over time to more "normal" levels. This, too, is what we observe in all the Asian countries except for Malaysia where the rate of return stays virtually constant, fluctuating up and down close to 15% per annum. For Malaysia, Korea, and Taiwan, I see these developments as a natural reflection of modernization and liberalization, together with a substantial degree of increased linking with world markets.

Table 3 brings out some important substantive lessons. The idea underlying this table is to compare high-growth and low-growth periods within each country, and to try to ascertain what accounts for the differences between them. To accomplish this, we select, for each country in Tables 1 and 2, the two periods of highest GDP growth, and the two periods of lowest GDP growth. We then present in Table 3 the average (arithmetic mean) growth rates for these periods, broken down into the three standard components -- labor

contribution, capital contribution, and TFP growth rate (real cost reduction). We also look at the main ingredients of the capital contribution to growth -- namely, the rate of net investment and the net rate of return.

The story told by Table 3 is very clear, and it applies both to the Asian and to the Latin American countries. First, the main sources of growth, in the high-growth periods, are: a) the capital contribution, and b) the TFP growth rate. The labor contribution (which, under our methodology, includes the growth due to improved education and skills) hovers around one percentage point per annum.

Second, differences in the TFP growth rate are the most important component of the differences between the average growth rates of the high- and low-growth periods. Behind that comes differences in the capital contributions, and finally differences in the labor contribution to growth.

Third, and quite important in my view, is the breakdown of the capital contribution into the rate of investment and the rate of return. Both these components are higher in the high-growth than in the low-growth periods, and together they account for a 2 percentage point difference in the growth rate in the Asian countries, and for a 3/4 percentage point difference in the Latin American countries. Both experiences reflect what I have termed the "growth syndrome", of real cost reductions creating opportunities for investment at high rates of return. As a result, we see a tendency for the TFP growth rate and the "capital contribution" to move together.

"National" versus "Business-Sector" Rates of Return

All the data presented in Tables 1-3 are at the national level. The output variable whose growth is measured is real GDP; the labor input is the entire employed labor force of the country, and the capital stock represents the cumulation of past net investment in the whole economy. This capital stock thus includes public sector capital in the form of roads, ports, airports, public buildings, etc. It also includes owner-occupied housing, the return on which is simply imputed by those who construct a country's national accounts.

The rates of return reported in Tables 1-3 have in their numerator the return to business capital, plus whatever economic return is generated by public sector capital, plus the imputed return to owner-occupied housing. Similarly, their denominator includes the cumulation of real net investment in public sector capital, in housing capital, and in the capital assets of the business sector. Typically, then, these "national" rates of return are weighted averages of zero rates of return on some public sector investments (government office buildings, parks, roads, except for toll roads, etc.), low rates of return on most other public investments, relatively low imputed rates of return on owner-occupied housing plus, finally, genuine market rates of return on regular business activities.

These average "national" rates of return are quite appropriate for the study of economic growth. When used as the estimated marginal productivity of new net investments, they assume that the national net investment of the period under study is distributed among the various sectors in rough proportion to their existing capital stocks.

We must always bear in mind that the division of the growth rate into a labor contribution, a capital contribution and a rate of TFP improvement represents a set of imputations, using the observed returns to labor and capital in the most recent period as the imputed return for new net additions to the labor force and the capital stock.

I make these observations here because I want to stress that the rates of return to business investment in all the listed countries are considerably higher than the "national" rates of return shown. Unfortunately it is not easy to calculate these "business" rates of return, starting from national accounts data. To do this, one has to separate total investment into that of the public sector, that of the housing sector and that of the business sector, and build up separate time series of the capital stock of each of those sectors. Similarly, one must break down the return to capital into the same three components. Having done this one can calculate three separate rates of real return to capital -- one for the public sector, one for the housing sector, and, finally, one for the business sector.

To help readers calibrate the likely order of magnitude of business sector returns in the countries and periods listed in Tables 1-3, I provide the following guide. It is based on the assumption that the public sector capital stock and the stock of housing capital each represent one quarter of the total capital stock with the business capital stock accounting for the other half. The calibration is built on the assumption that the public sector capital stock yields a 3% real rate of return (as measured in the national accounts), and that the housing sector yields a 7% real annual rate.

Calibration between "National" Rates of Return
And the Implied Gross-of-that-Rate of Return
On Business Investment

"National" Rate of Return (as shown In Table 3	Implied Business Rate
20%	35%
17.5%	30%
15%	25%
12.5%	20%
10%	15%

These data suggest that there were substantial periods in which the real rate of return on business investment averaged as high as 35% (net of depreciation but gross of taxes). These are the periods where the national rate of return shown in Tables 1 and 2 was over 20%. Malaysia, Korea, Taiwan, and Mexico all had at least one such period and Japan, with 19.61% (in 1960-64) came very close.

For all the experiences listed in Table 1, the average national rate of return is about 15%. The corresponding average rate of return on business investment would accordingly be around 25%. For the Latin American countries shown in Table 2, the average rate of return is about 11%, which carries an imputed rate of business investment of around 17%.

All of this is meant to convince readers that I am serious in suggesting that we should be able to look forward to a future in which business investments in Russia would normally have an expected real yield in the 20% range (net of depreciation but gross of taxes). That would be the point, in my opinion, when we can expect that most of the funds

now held abroad will come home to Russia. Also, of course, so long as these yields are genuinely passed through to those who provide the capital, this should create a thriving market for bank lending, with healthy real returns being passed through to depositors.

TABLE 1

RATES OF INVESTMENT, RATES OF RETURN

AND SOURCES OF GROWTH

SELECTED ASIAN COUNTRIES

Period	Rate of Net Investment ($\Delta K/y$)	Net Rate Of Return (ρ)	GDP Growth ($\Delta y/y$)	Labor Contribution $S_L(\Delta L/L)$	Capital Contribution $(\rho+\delta)(\Delta K/y)$	TFP Growth Rate (R/y)
a. MALAYSIA						
1970-74	19.30%	22.67%	13.09%	0.51%	5.34%	7.24%
1974-79	18.32%	19.83%	7.22%	1.47%	4.55%	1.21%
1979-84	26.67%	16.64%	6.87%	1.76%	5.77%	-0.66%
1984-89	14.96%	12.11%	4.70%	2.01%	2.56%	0.14%
1989-91	24.65%	12.97%	9.22%	1.47%	4.43%	3.32%
b. JAPAN						
1960-64	32.59%	19.61%	10.26%	0.43%	8.02%	1.80%
1964-69	29.11%	14.75%	10.63%	0.38%	5.75%	4.50%
1969-74	27.16%	11.53%	5.99%	2.55%	4.49%	-1.06%
1974-79	18.51%	6.13%	4.60%	1.32%	2.06%	1.22%
1979-84	16.17%	6.01%	3.86%	0.45%	1.78%	1.63%
1984-88	14.98%	5.88%	4.30%	0.28%	1.63%	2.39%
c. KOREA						
1960-66	13.22%	28.36%	7.33%	0.92%	4.41%	2.00%
1966-70	22.81%	22.93%	8.53%	1.86%	6.37%	0.30%
1970-75	20.30%	17.91%	7.84%	0.95%	4.65%	2.25%
1975-80	23.85%	16.59%	10.03%	2.06%	5.15%	2.82%
1980-85	21.01%	12.23%	9.13%	0.55%	3.62%	4.97%
1985-88	21.10%	11.54%	11.03%	1.07%	3.49%	6.46%

Table 1 (cont)

Period	Rate of Net Investment ($\Delta K/y$)	Net Rate Of Return (ρ)	GDP Growth ($\Delta y/y$)	Labor Contribution $S_L(\Delta L/L)$	Capital Contribution $(\rho+\delta)(\Delta K/y)$	TFP Growth Rate (R/y)
			d. TAIWAN			
1960-64	13.81%	20.27%	9.08%	1.58%	3.49%	4.02%
1964-69	19.02%	20.55%	9.76%	0.93%	4.85%	3.97%
1969-74	23.83%	20.80%	10.27%	1.26%	6.15%	2.86%
1974-79	23.12%	15.54%	10.31%	1.02%	4.75%	4.53%
1979-84	18.35%	13.20%	7.21%	1.63%	3.34%	2.25%
1984-89	13.22%	15.94%	9.08%	0.86%	2.77%	5.44%
1989-94	16.10%	14.44%	6.51%	0.95%	3.13%	2.43%
			e. THAILAND			
1970-74	15.85%	16.13%	7.19%	1.22%	3.35%	2.62%
1974-79	18.72%	14.82%	8.47%	1.72%	3.71%	3.04%
1979-84	18.78%	14.06%	5.60%	0.81%	3.58%	1.41%
1984-89	21.54%	14.59%	9.03%	0.17%	4.22%	4.64%
1989-91	34.11%	16.78%	9.81%	-0.70%	7.43%	3.07%

TABLE 2

RATES OF INVESTMENT, RATES OF RETURN

AND SOURCES OF GROWTH

SELECTED LATIN AMERICAN COUNTRIES

Period	Rate of Net Investment ($\Delta K/y$)	Net Rate Of Return (ρ)	GDP Growth ($\Delta y/y$)	Labor Contribution $S_L(\Delta L/L)$	Capital Contribution $(\rho+\delta)(\Delta K/y)$	TFP Growth Rate (R/y)
			a. COLOMBIA			
1960-64	9.53%	10.017%	4.99%	2.02%	1.43%	1.53%
1964-69	9.44%	10.46%	5.13%	1.80%	1.46%	1.87%
1969-74	8.74%	11.81%	6.54%	1.37%	1.47%	3.70%
1974-79	9.05%	12.34%	5.01%	1.96%	1.57%	1.48%
1979-84	10.73%	10.66%	2.45%	1.52%	1.68%	-0.75%
1984-88	9.69%	11.21%	4.50%	0.11%	1.57%	2.82%
			b. COSTA RICA			
1960-64	10.15%	8.59%	5.19%	2.25%	1.38%	1.56%
1964-69	11.26%	9.47%	7.46%	2.96%	1.63%	3.87%
1969-74	16.22%	9.98%	7.14%	1.12%	2.43%	3.59%
1974-79	14.17%	8.83%	5.55%	2.07%	1.96%	1.52%
1979-84	12.93%	6.91%	0.31%	0.98%	1.54%	-2.21%
1984-88	13.21%	5.67%	4.13%	2.19%	1.41%	0.53%
1988-92	14.33%	5.33%	4.52%	-0.43%	1.48%	3.47%
			c. ECUADOR			
1960-64	9.84%	12.17%	3.72%	2.51%	1.69%	-0.47%
1964-69	9.68%	10.71%	4.49%	2.46%	1.52%	0.52%
1969-74	14.44%	14.07%	12.51%	0.08%	2.75%	9.68%
1974-79	20.13%	16.21%	7.43%	2.41%	4.27%	0.75%
1979-84	14.64%	13.44%	3.37%	0.80%	2.70%	-0.13%
1984-88	9.49%	12.18%	4.37%	2.08%	1.63%	0.66%

Table 2 (cont)

Period	Rate of Net Investment ($\Delta K/y$)	Net Rate Of Return (ρ)	GDP Growth ($\Delta y/y$)	Labor Contribution $S_L(\Delta L/L)$	Capital Contribution $(\rho+\delta)(\Delta K/y)$	TFP Growth Rate (R/y)
			d. MEXICO			
1960-64	11.54%	20.65%	7.27%	1.86%	2.96%	2.46%
1964-69	13.63%	20.09%	6.87%	1.93%	3.43%	1.51%
1969-74	12.76%	18.43%	8.82%	2.23%	2.99%	3.60%
1974-79	15.51%	15.95%	6.14%	1.87%	3.25%	1.02%
1979-84	15.28%	15.35%	2.51%	-0.40%	3.11%	-0.20%
1984-88	9.27%	14.52%	0.97%	0.38%	1.81%	-1.22%
1988-92	11.23%	15.30%	3.20%	0.26%	2.28%	0.68%
			e. PANAMA			
1970-74	21.99%	10.78%	4.86%	2.92%	3.47%	-1.53%
1974-79	17.00%	7.06%	3.76%	0.97%	2.05%	0.74%
1979-84	14.57%	8.04%	4.83%	1.79%	1.90%	1.15%
1984-89	1.71%	6.09%	-1.11%	1.13%	0.19%	-2.43%
1989-92	8.62%	7.31%	7.48%	0.16%	1.05%	6.27%
			f. PERU			
1970-74	8.94%	11/55%	5.32%	1.89%	1.48%	1.95%
1974-79	7.17%	11.59%	-0.11%	0.19%	1.19%	-1.49%
1979-84	11.68%	10.49%	2.19%	1.34%	1.81%	-0.96%
1984-89	10.98%	9.76%	0.80%	1.70%	1.62%	-2.52%
			g. VENEZUELA			
1960-64	7.91%	14.07%	7.67%	1.30%	1.51%	4.86%
1964-69	12.91%	14.98%	4.34%	2.05%	2.58%	-0.28%
1969-74	18.73%	12.99%	5.36%	0.51%	3.37%	1.48%
1974-79	21.25%	10.72%	5.01%	3.87%	3.54%	-2.20%
1979-84	8.60%	7.33%	-1.02%	0.82%	1.06%	-2.71%
1984-88	5.57%	8.29%	3.55%	1.82%	0.74%	1.19%

TABLE 3

DIFFERENCES BETWEEN HIGH-GROWTH

AND LOW-GROWTH EXPERIENCES

(Average annual rates of GDP growth, and components thereof)

	High Growth (2 Highest-Growth Periods Per Country)	Low Growth (2 Lowest-Growth Periods Per Country)	Difference
FIVE ASIAN COUNTRIES			
GDP Growth Rate ($\Delta y \mid y$)	10.37%	6.14%	4.23%
Labor Contribution [$S_L(\Delta L/L)$]	0.77%	1.10%	-0.33%
Capital Contribution ($\rho+\delta$)($\Delta K/y$)	5.47%	3.41%	2.06%
TFP Growth Rate (R/y)	4.13%	1.68%	2.50%
Rate of Net Investment ($\Delta K/y$)	25.32%	17.54%	7.78%
Net Rate of Return (ρ)	16.58%	14.47%	2.11%
SEVEN LATIN AMERICAN COUNTRIES			
GDP Growth Rate ($\Delta y \mid y$)	6.80%	1.99%	4.81%
Labor Contribution [$S_L(\Delta L/L)$]	1.50%	1.05%	0.45%
Capital Contribution ($\rho+\delta$)($\Delta K/y$)	2.33%	1.57%	0.76%
TFP Growth Rate (R/y)	2.97%	-0.63%	3.60%
Rate of Net Investment ($\Delta K/y$)	13.02%	10.47%	2.55%
Net Rate of Return (ρ)	12.73%	10.00%	2.73%