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- “Integration of criminal capital from Russia into West European markets: an assessment of threat”

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Useful research

These are the Top Ten articles downloaded in Russia in the past three years …


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About Thomson Reuters (ISI)

Founded by Dr Eugene Garfield in 1962, Thomson Reuters, or “ISI” (originally the Institute for Scientific Information) provides academics with products and services that help them research and teach. ISI changed its name in 2008 to Thomson Reuters, and currently has offices in the USA, UK, Ireland, Tokyo, and Singapore. It is headquartered in Philadelphia and its database contains over 10,000 titles published in 35 languages.

What does it do?

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Emerald and ISI

Emerald currently has 40 journals ranked by ISI (see right) with an average Impact Factor of over 0.500 in 2007*

Where is it?

Thomson Reuters
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Philadelphia, PA 19104, USA
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Fax: +001 215-386-2911

- Aircraft Engineering and Aerospace Technology
- Anti-Corrosion Methods and Materials
- Aslib Proceedings
- Assembly Automation
- Baltic Journal of Management
- British Food Journal
- Circuit World
- COMPEL
- Electronic Library
- Engineering Computations
- European Journal of Marketing
- Industrial Lubrication and Tribology
- Industrial Management & Data Systems
- Industrial Robot: An International Journal
- Interlending & Document Supply
- International Journal of Clothing Science and Technology
- International Journal of Manpower
- International Journal of Conflict Management
- International Journal of Operations & Production Management
- International Journal of Service Industry Management
- International Marketing Review
- Internet Research: Electronic Networking Applications and Policy
- Journal of Business & Industrial Marketing
- Journal of Documentation
- Journal of Managerial Psychology
- Journal of Organizational Change Management
- Kybernetes
- Library Hi Tech
- Management Decision
- Microelectronics International
- Online Information Review
- Personnel Review
- Pigment & Resin Technology
- Program: Electronic Library and Information Systems
- Rapid Prototyping Journal
- Sensor Review
- Soldering & Surface Mount Technology
- Supply Chain Management: An International Journal

* Please note that data for 2007 were only published in June 2008, and are therefore the most up-to-date information available. Data for 2008 will be published in June 2009.
Mechanisms of selective laser sintering and heat transfer in Ti powder

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Keywords
Lasers, Sintering, Melting, Metals

Abstract
Coupled metallographic examination and heat transfer numerical simulation are applied to reveal the laser sintering mechanisms of Ti powder of 63-315 μm particle diameter. A Nd:YAG laser beam with a diameter of 2.7-5.3 mm and a power of 10-100 W is focused on a bed of loose Ti powder for 10 s in vacuum. The numerical simulation indicates that a nearly hemispherical temperature front propagates from the laser spot. In the region of α-Ti just behind the front, heat transfer is governed by thermal radiation. The balling effect, formation of melt droplets, is not observed because the temperature increases gradually and the melt appears inside initially sintered powder which resists the surface tension of the melt.

Introduction
Selective laser sintering (SLS) technology makes it possible to create fully functional parts directly from metals without using any intermediate binders or any additional processing steps after the laser sintering operation. That is why further study and improvement of this technology are of special interest.

In principle, metal parts can be obtained as a result of SLS processing of both single- and double-component metal powders. There are no serious difficulties in accomplishing SLS of double-component metal powders. Powders of such a type are sintered under the influence of a laser beam by the so-called liquid phase binding mechanism. According to this mechanism, during laser processing a liquid phase arises due to melting of the component possessing the lower melting point. This component plays the role of a binder and is usually supplied by the binder powder in powder mixtures and by the coating in coated powders. Usually, the heat applied to the system causes the binder to melt completely. The powder is sintered by joining the solid particles of the main component having the higher melting point by means of the molten binder material. In this case, the requirements for adjusting the parameters of laser processing are not very strict. This is explained by the fact that the necessary sintering conditions can be provided by a wide range of powder temperatures exceeding the melting point of the binder component (Agarwala et al., 1995; Bourell et al., 1992; Kruth et al., 1998; Laoui et al., 1998).

An absolutely different situation takes place in the case of SLS of one-component powders. Often it is rather difficult to realize this process in practice. The “balling” phenomenon (Morgan et al., 2001; Tolochko et al., 1995) is one of the complicated problems obstructing successful performance of single-component laser sintering. Therefore, adjustment of SLS parameters must be rather strict in order to create such conditions at which complete melting of particles is prevented. Up to now, the mechanism of laser sintering of...
single-component metal powders has been investigated insufficiently. Experiments show that these powders are sintered under the influence of the laser beam due to surface melting of particles and by subsequent joining of the solid non-melted cores of particles. The liquid phase sintering mechanism of this type seems to play a dominant role in this case (Yasuda et al., 2001). At the same time one cannot completely exclude the possibility of a solid phase sintering mechanism action (Gusarov et al., 2001). Besides, it is necessary to consider that quite often the samples formed due to laser processing of one-component metal powders possess both sintered and remelted structures. This means that SLS and selective laser melting (SLM) processes can run simultaneously.

Thus, SLS of single-component metal powders is a rather complicated process. The objective of this paper is to reveal regularities and mechanisms of this process by experimentally studying the peculiarities of the formation of sintering (or sintering/melting) zones depending on laser irradiation conditions. The results are analysed by considering the temperature distributions estimated by means of numerical simulation of heat transfer in the powder bed. Ti powders are used in the study. As is well known, Ti is a material that has elevated operating properties, in particular, high corrosion resistance. So, it is especially desirable to form Ti parts by the SLS rapid prototyping technique, for example, for medical purposes.

**Experimental procedure**

The different types of loose Ti powders used in the experiments contain particles of spherical and irregular shapes. Parameters of the powders are listed in Table I. The powder layers (10 mm thickness) are put on Al substrates. At such a thickness, the substrate is assumed to have no impact on the processing zone.

The processing of powders is accomplished with a CW- Nd:YAG laser (λ = 1.06 μm) in a vacuum. The beam axis is normal to the powder bed surface. The details of the experimental set-up are described elsewhere (Tolochko et al., 1995). The beam is kept motionless relative to the powder bed to create a sample of the sintered powder looking like a cake. The duration of laser irradiation is 10 s for all the experiments. At the same time the laser radiation power, \( P \), is adjusted to obtain cakes with different shapes, sizes and structures. It should be noted that the laser spot diameter, \( d \), increases with the increase of \( P \) as shown in Table II.

**Results**

Various cakes are formed due to laser treatment of powder. Usually, their size and structure depend essentially on the laser irradiation conditions. In different cases, the cakes are characterised by sintered or combined sintered/remelted structure. The shape of the cakes is changed too. However, as a rule, the cake shape is close to a spherical segment (Tolochko et al., 1999). This shape is typical for cakes with the sintered structure. The cakes with the combined sintered/remelted structure consist of an inner remelted zone located at the centre of the segment and an outer sintered zone surrounding the remelted one. In this case, the shape of a spherical segment is typical for the sintered region. It should be noted that on the whole, the remelted zones also have a shape similar to a spherical segment. However, this geometry is not so pronounced for the remelted zones.

**Table I** Parameters of the Ti powders used in the experiment and the corresponding parameters accepted in the modelling

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Powder 1</th>
<th>Powder 2</th>
<th>Powder 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experiment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particle shape</td>
<td>Spherical</td>
<td>Spherical</td>
<td>Irregular</td>
</tr>
<tr>
<td>Particle diameter (μm)</td>
<td>63-200</td>
<td>200-315</td>
<td>160-315</td>
</tr>
<tr>
<td>Bulk density, ( \rho ) (g/cm³)</td>
<td>3.0</td>
<td>2.3</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Modelling</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particle shape</td>
<td>Spherical</td>
<td>Spherical</td>
<td>Spherical</td>
</tr>
<tr>
<td>Particle radius, ( R ) (μm)</td>
<td>80</td>
<td>130</td>
<td>120</td>
</tr>
<tr>
<td>Relative density, ( \rho )</td>
<td>0.680 (BCC)</td>
<td>0.524 (SC)</td>
<td>0.340 (diamond)</td>
</tr>
<tr>
<td>Normalized contact conductivity, ( \Lambda )</td>
<td>1.732 (BCC)</td>
<td>1.0 (SC)</td>
<td>0.433 (diamond)</td>
</tr>
</tbody>
</table>
The visual appearance of some typical cakes formed during the laser processing is presented in Figure 1. The cakes for a powder with spherical particles are shown here just after removing them from the powder bed. Figures 2(a)-(d), 3(a)-(d), and 4(a)-(c) show the structures of the cakes formed during laser processing of powders of both irregular and spherical particles.

When the laser power, $P$, is relatively low, the samples have a sintered porous structure typical for that obtained with the SLS process. At higher values of $P$, the combined SLS/SLM process takes place resulting in a combined structure consisting of two different zones mentioned above (the remelted zone with a compact structure formed as a result of SLM and the sintered zone with a porous structure formed as a result of SLS).

Typically, the sintered structure consists of individual particles bonded to each other by necks. At the same time some particles aggregate into groups separated from the rest of the powder by relatively large pores (the so-called zonal isolation phenomenon). At higher values of $P$ the particles within the groups melt together leading to the

<table>
<thead>
<tr>
<th>$P$ (W)</th>
<th>10</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>$d$ (mm)</td>
<td>2.7</td>
<td>3.6</td>
<td>4.7</td>
<td>5.1</td>
<td>5.1</td>
<td>5.3</td>
</tr>
</tbody>
</table>

The background is the grid with 1 mm cells. Laser beam is directed at the top powder bed surface. Laser power $P$ (W): (a), (b), 20; (c), (d) 40; (e), (f), 60
formation of separated remelted microzones. In this case, a semi-sintered/semi-remelted structure is formed. As a rule, the sintered zone is inhomogeneous. Near the laser spot (for the samples fabricated by SLS) or near the remelted zone (for the samples fabricated by SLS/SLM) the necks between the particle are wider and the distance between the particle centres is smaller. As a consequence, the porosity is relatively low. Besides, in this region, the concentration of the remelted microzones mentioned above and also their sizes are highest. On the contrary, at the sample surface the interparticle contacts are very poor. As a consequence, it is rather easy to remove particles from the surface and the surface porosity is relatively high. There are no remelted microzones in this region.

Similarly, the remelted zone is inhomogeneous also. There is a completely remelted structure near the laser spot. Further
away from the laser spot the structure consists of a number of small separated zones. In other words, the remelted zone in this region has a mosaic-like structure. The possible reason for this structure formation is penetration of the melt between the surrounding particles. As a result, an intermediate zone of infiltration forms between the sintered and the remelted zones. Therefore, there is no sharp boundary between the remelted and sintered structures.

**Computer simulation**

One of the important peculiarities of laser sintering is the non-uniformity of the temperature field formed in a powder bed under laser irradiation. To better understand
the mechanisms involved within sintering, the temperature distribution is usually estimated (Bugeda et al., 1999; Tontowi and Childs, 2001). The heat transfer problem, which is to be solved, depends on the thermal properties of the sintered material. The thermal properties change as the structure of the material develops during sintering. Thus, heat transfer is essentially coupled with sintering kinetics.

**Heat transfer**

The enthalpy formulation (Ho et al., 1995) is used to describe heat transfer in material with phase transitions. The energy equation in the target is written in the 2D cylindrical frame with the $z$-axis directed along the inward normal to the surface:

$$\frac{\partial h}{\partial t} = \frac{\partial}{\partial z} \left( \lambda \frac{\partial T}{\partial z} \right) + \frac{1}{r} \frac{\partial}{\partial r} \left( \lambda r \frac{\partial T}{\partial r} \right).$$

(1)

where $t$ is the time, $z$ the axial coordinate, $r$ the radial coordinate, $h$ the enthalpy per unit volume, $T$ the temperature, and $\lambda$ the thermal conductivity coefficient. Any phase transition in the condensed state may be taken into account when specifying the function $h(T)$ (see below). The boundary condition at the target surface allows for the laser energy flux $K(t)$ and the heat loss by thermal radiation:

$$-\lambda \frac{\partial T}{\partial z} \bigg|_{z=0} = AK - \kappa \sigma T^4.$$  

(2)

**Note:** Laser power $P$ (W): (a), (d), 20; (b), (e), 60; (c), (f), 100. (a)-(c), optical micrographs of the specimens prepared by 10 s laser irradiation. (d)-(f), calculations of the relative size $x$ (on the left) and the temperature $T$ (on the right) for the monodisperse powder of spherical particles 240 $\mu$m in diameter and the radial laser beam profiles shown in Figure 7. Isotherms corresponding to the $\alpha/\beta$ phase transformation, $T_{\alpha/\beta} = 1156$ K, and to the melting point, $T_{m} = 1944$ K, are shown by broken lines. The remelted domain is filled by the black colour on the left half of the diagrams (d)-(f)
where $A$ is the absorptance, $\varepsilon$ the emissivity, $\sigma$ the Stefan-Boltzmann constant, and $T_s$ the surface temperature (at $z = 0$). Heat loss by convection is disregarded because a vacuum environment is used here. The absorption length of the laser radiation is assumed to be much less than the size of the heat affected zone and so laser energy release is neglected in the bulk material according to equation (1) but taken into account at the surface by equation (2).

**Thermal conductivity of powder**

The following principal mechanisms of heat transfer in powder are generally considered (Luikov, 1971): thermal conduction in gas filling the pores, radiative thermal conduction through the pores, and contact thermal conduction between the particles. In the considered case where the powder bed is held in vacuum, only the radiative and contact mechanisms are expected to contribute to the effective thermal conductivity, $\lambda$:

$$\lambda = \lambda_r + \lambda_c,$$  \hspace{1cm} (3)

where $\lambda_r$ is the effective thermal conductivity due to thermal radiation and $\lambda_c$ is due to heat transfer through necks.

The radiative conductivity term is estimated as that for an isotropically scattering medium (Zel’dovich and Raiser, 1967):

$$\lambda_r = \frac{16}{3} l \sigma T^3,$$  \hspace{1cm} (4)

where $l$ is the mean photon free path between the scattering events, $\sigma$ the Stefan-Boltzmann constant, and $T$ the temperature. In the case of powder, $l$ is of the order of the pore size which, in its turn, is about the particle size. In the present calculations, the mean free path $l$ is set to the particle diameter.

The contact conductivity, $\lambda_c$, is known to be proportional to the linear size of the contact between the two particles (Skorohod and Solonin, 1984). To estimate the effective contact thermal conductivity, the powder is approximated as a packed bed of equal spheres connected by small circular necks. This corresponds to the structures shown in Figures 2 and 3. The thermal resistance $S$ of a single contact is defined as the ratio of the temperature difference $\Delta T$ between the contiguous particles to the total heat flux $F$ through the contact. For the circular neck, it may be calculated from the Laplace equation describing the quasi steady-state temperature field around the neck (Landau and Lifshitz, 1960) and is given as

$$S = \frac{\Delta T}{F} = \frac{1}{2 \lambda_0 b},$$  \hspace{1cm} (5)

where $b$ is the neck radius and $\lambda_0$ the theoretical thermal conductivity of the solid material.

To calculate the effective thermal conductivity, it is sufficient to apply equation (5) knowing the detailed arrangement of contacts in a given powder structure. However, this last piece of information is unavailable from the present experiment. The type of particle packing can be judged only by the bulk density $\rho$ that is measured for the titanium powders used (Table I). By considering the solid Ti theoretical density of $\rho_0 = 4.5 \text{ g/cm}^3$, one can see that the relative density $\rho = \rho/\rho_0$ of the three powders is about the relative density of the body centred cubic (BCC), simple cubic (SC), and diamond-type packing of equal spheres, respectively (Table I). Therefore, the effective contact conductivity of the powders is assumed to be equal to that of the corresponding perfect structure with the same bulk density.

In media with cubic symmetry, such as BCC, SC, and diamond-type structures, the thermal conductivity tensor reduces to a scalar. So calculating the effective thermal conductivity along an arbitrary direction is sufficient. For example, if spherical particles of equal radius $R$ are packed in a BCC lattice (Figure 5) and the temperature gradient, $\nabla T$, is directed along the [100] axis, the heat flux through the corresponding (100) plane may
be calculated as follows: temperature
difference between the upper and lower
monolayers is \( \Delta T = d[\nabla T] \) where \( d = (2/\sqrt{3})R \) and is the interplanar spacing.
All the plane may be covered by squares
with the side length of the lattice parameter
\( a = (4/\sqrt{3})R \) shown in the figure by thin
lines. Each of them contains four contacts.
Hence, the average area per contact is
\( A = a^2/4 = (4/3)R^2 \). Therefore, the average
heat flux density is
\[
F = \frac{\Delta T}{SA} = \frac{3}{4} \frac{b}{R} [\nabla T].
\]
(6)
It is proportional to the temperature
gradient with the proportionality factor of
\( \lambda_{BCC} = \sqrt{3} \lambda_{0} x \), which is the effective thermal
conductivity of a BCC structure of equal
spheres connected by small circular necks
with the relative size \( x = b/R \). The thermal
conductivity of the SC and diamond
structures is calculated in a similar way
and is given by the general equation
\[
\lambda_c = \Lambda \lambda_0 x,
\]
(7)
where \( \Lambda \) is the normalised contact
conductivity listed in Table I for the three
structures.

Kinetics of sintering
The principal mechanisms of solid state
sintering are (Kingery, 1960) vapour
transport and grain boundary, surface,
and volume diffusion. The saturated vapour
pressure of Ti at the melting point of \( T_m = 1,944 \text{ K} \) is about 1 Pa (Gurvich
et al., 1978). This proves to be insufficient for considerable vapour transport contribution to the necks’
growth at the given conditions. As powder
melting occurs in most of the considered experiments (see the partially remelted
structures in Figures 1-4), the important
homologous temperature interval is estimated to be \( 0.7 < T/T_m < 1 \). According to Ashby
(1974), in metals, among the three diffusive
mechanisms of sintering, the grain boundary
diffusion is significant at lower homologous
temperatures, and so it is not considered in the
present numerical simulation.
Sintering kinetics affects heat transfer
in the powder bed through the thermal
conductivity’s dependence on the neck size.
According to equations (3), (4) and (7),
at low neck sizes the contact conductivity is low and the effective thermal conductivity is controlled by the radiative term (4). In contrast, at high neck size it is controlled
by the contact term (7). Therefore, at low
neck size an error in estimating the neck size
has no impact on calculating the heat transfer
while the temperature field is very sensitive to
neck size error when the neck size is high.
From the heat transfer standpoint, sintering
kinetics are more important at later stages
when the neck size is higher.
Surface and volume diffusion are assumed
to be the main sintering mechanisms in the
considered conditions. It is known (Ashby,
1974; Kingery, 1960) that surface diffusion
dominate at lower particle sizes and at early
sintering stages while volume diffusion
controls the process at higher particle sizes
and at later stages when the necks are larger.
As explained earlier, heat transfer at early sintering is insensitive to sintering kinetics.
Therefore only volume diffusion is applied in
the present calculations. According to the
Kuczynski’s (1949) theory, the relative neck
size increases as
\[
\frac{dx}{dt} = \frac{1}{t_0 x^4}
\]
(8)
with the characteristic time
\[
t_0 = \frac{N_0 k T R^3}{8 \gamma D_s}.
\]
(9)
where \( N_0 \) is the number density of solid
material, \( k \) the Boltzmann constant, \( \gamma \) the
surface free energy, and \( D_s \) the self-diffusion
coefficient.

Powder melting
When the temperature of the powder bed
exceeds the melting point \( T_m \), the particles
melt and join together. Therefore the effective
thermal conductivity is set to that of dense
material:
\[
\Lambda = \lambda_0.
\]
(10)
Powder melting leads to shrinkage resulting
in a change of geometry. However, examining
the optical micrographs shown in Figures 2-4
indicates that the surface distortion due to
melting is not large and does not exceed considerably the initial powder bed
roughness. For that reason shrinkage due to
melting is not considered in the present
model.

Simulation results
Parameters of the model used in the
simulation are listed in Tables I and III.
The emissivity of the powder bed surface \( \varepsilon \)
is set to the absorptance \( A \) at the wavelength
of 1.06 \( \mu \text{m} \) (Tolochko et al., 2000).
The volumetric powder enthalpy \( h \) is related to the enthalpy of dense material \( h_0 \) as
\[
h = ph_0, \tag{11}
\]
where \( p \) is the relative density. The temperature dependencies of the enthalpy (Gurvich et al., 1978), thermal conductivity (Ho et al., 1972), and self-diffusion coefficients (Grigoriev and Meilikhov, 1991; Lide, 1985) of titanium are shown in Figure 6.

The temperature-enthalpy relation (Figure 6(a)) consists of the three monotonous segments, which represent \( \alpha \), \( \beta \), and liquid (\( l \)) phases, with the two plateaus between them corresponding to the two-phase mixtures, \( \alpha + \beta \) at the \( \alpha - \beta \) transition temperature, \( T_{\alpha\beta} = 1,156 \, \text{K} \) and \( \beta + l \) at the melting point, \( T_m = 1,944 \, \text{K} \).

As shown in Figure 6(b), the function of thermal conductivity versus temperature has a discontinuity at the melting point, \( T_m \).

The data of Grigoriev and Meilikhov (1991) and Lide (1985) on the Ti self-diffusion coefficient (see Figure 6(c)) strongly differ in \( \alpha \)-phase, but they nearly coincide in the \( \beta \)-phase. The self-diffusion coefficient of the \( \alpha \)-phase is much lower than that of the \( \beta \)-phase, therefore only \( \beta \)-phase contributes significantly to laser sintering and the discrepancy in self-diffusion coefficient of the \( \alpha \)-phase is not important here. The data of Grigoriev and Meilikhov (1991) are chosen for the present calculations.

Radial distributions of the energy flux density, \( K \), in the laser beam shown in Figure 7 are accepted to be bell-shaped. The width of the distribution corresponds to the experimentally measured laser spot diameter, \( d \), at the given power, \( P \) (Table II).

The height is chosen to fit the total energy flux to the experimental laser beam power, \( P \):
\[
P = \int_0^\infty K(r)2\pi r \, dr. \tag{12}
\]

Results for the temperature, \( T \), and the relative neck size \( x \) distributions over the powder bed after 10 s laser irradiation are shown in Figures 2(e)-(h), 3(e)-(h), and 4(d)-(f). The bottom of each diagram corresponds to the powder bed surface exposed to the laser beam. The distributions obtained are axially symmetric, and so the temperature is shown only to the right of the axis, \( r = 0 \), and the neck size is shown to the left of the axis on the same diagram.

Table III Properties of powder and dense titanium accepted in the calculations

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absorptance</td>
<td>( A )</td>
<td>0.77 (Tolochko et al., 2000)</td>
</tr>
<tr>
<td>Emissivity</td>
<td>( e )</td>
<td>0.77</td>
</tr>
<tr>
<td>Dense material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number density</td>
<td>( N_0 )</td>
<td>5.667 \times 10^{28} , \text{m}^{-3} (Grigoriev and Meilikhov, 1991)</td>
</tr>
<tr>
<td>Surface energy</td>
<td>( \gamma )</td>
<td>1.7 , \text{N/m} (Grigoriev and Meilikhov, 1991)</td>
</tr>
</tbody>
</table>

Note: Phase state is marked above each segment of the curves: \( \alpha \), \( \alpha + \beta \), \( \beta \), \( \beta + l \), \( l \). The \( \alpha-\beta \) transition temperature, \( T_{\alpha\beta} = 1,156 \, \text{K} \) and the melting point \( T_m = 1,944 \, \text{K} \) are marked by broken lines.
Discussion

Comparison between the sintered samples optical micrographs (left columns in Figures 2-4) and the corresponding temperature and neck size distributions (right columns in Figures 2-4) indicates that the calculated shape and dimensions of the sintered and remelted domains are in good agreement with the experiment. Furthermore, the simulation approximately predicts at which laser powers, $P$, remelting of the powder occurs. The apparent discrepancy in Powder 1 (see its parameters in Table I) at $P = 60$ W where the remelted zone is not seen in the micrograph of Figure 2(c) but is given by the calculation presented in Figure 2(g), is explained by Figure 1(f) revealing a small remelted zone in the top view. Thus, the remelting threshold in Powder 1 lies between 40 and 60 W according to both the experiment and the model.

The fact that the remelting threshold and the dimensions of the remelted and sintered zones are satisfactorily described by the model, proves that the model correctly estimates the temperature distribution. The neck size is not measured in the present experiment, but one can see from Figure 3(a)-(d) that the relative neck size $x$ outside the remelted domain does not exceed $\approx 0.1$. This is consistent with the calculations presented in Figure 3(e)-(h). Thus, the main mechanisms of radiative and contact thermal conduction, diffusive solid state sintering, and remelting upon which the model is based, seem to be validated.

Heat transfer mechanisms

At the temperature of $T = 1,200$ K and the photon mean free path of $l = 260$ $\mu$m accepted for Powder 2, the radiative thermal conductivity is estimated according to equation (4) as $\lambda_r = 0.136$ W/mK. This is about 200 times less than the thermal conductivity of solid titanium at the same temperature (Figure 6(b)). Taking into account that the powder contact conductivity is of the order of the solid conductivity multiplied by the relative neck size $x$ (equation (7)), one can expect that at $x$ of about $x_e = 1/200$ the radiative and the contact contributions to the total thermal conductivity (3) are of the same order. Heat transfer in the powder bed is controlled by the radiative thermal conduction at $x \ll x_e$ and by contact thermal conduction at $x \gg x_e$.

As follows from the simulation, detectable sintering starts when $\alpha$-titanium changes to $\beta$-titanium (in Figures 2-4, compare the $x$-distributions with the $T_{\alpha\beta}$ isotherms shown by broken curves). This is because the diffusion coefficient in the $\beta$-phase is several orders of magnitude greater than in the $\alpha$-phase (see Figure 6(c)). Thus, at the investigated conditions of laser sintering, heat transfer is controlled by contact conduction in the $\beta$-phase titanium powder, which constitutes the largest portion of the sintered region during the laser beam action. Radiative thermal conduction controls heat transfer only in a thin layer of $\alpha$-phase powder at the periphery of the sample. However, radiative heat transfer seems to play a key role because a temperature front is formed in that region (see temperature distributions in Figures 2-4) and radiative heat transfer determines the front propagation through the powder bed.

Powder binding mechanisms

Laser sintering of titanium powder gives sintered samples consisting of two clearly distinguishable domains: a completely remelted zone in the centre and a slightly sintered zone with a relative neck size less than $\approx 0.1$ that surrounds the remelted zone (see the optical micrographs in Figures 2-4). In Figure 3(c) and (d) one can see several contrast spots inside the remelted zone with
the size and shape close to that of a particle. Such a structure is probably formed when a solid particle is surrounded by the melt and indicates infiltration. The severely porous structure of the remelted zone shown in Figure 4(b) and (c) may also be caused by the melt infiltration into the solid powder. Thus, between the zones of complete remelting and of low sintering one can sometimes recognize the infiltration zone.

Liquid phase sintering when solid particles of high-melted phase are bound by liquid low-melted phase is generally considered to contribute to laser sintering (Anestiev and Froyen, 1999) because it is more rapid than the solid state mechanisms. In single-component materials, such as pure titanium, there is no temperature interval where the liquid and solid phases coexist, and so liquid phase sintering is possible only if the temperature is exactly equal to the melting temperature. In non-uniform temperature fields as given by the present simulation (see Figures 2-4), the conditions for liquid phase sintering might be attained only in thin layers with a thickness of about one particle. Therefore, it would be almost impossible to distinguish the liquid phase sintering structure from the infiltration one in the micrographs.

Formation of the low-sintered zone is attributed to solid phase sintering. As mentioned earlier, it is unlikely that mechanisms such as vapor transport and grain-boundary diffusion considerably contribute to sintering at the given conditions. The most probable mechanisms are volume and surface diffusion. From the present experiment it is difficult to decide which of the two processes prevails. The authors’ calculations, where only volume diffusion is taken into account, are consistent with the experiment. However, this does not actually prove that volume diffusion predominates because the effect of surface diffusion might not be significantly different from the effect of volume diffusion (Rockland, 1967).

Influence of powder parameters
Dimensions of the sintered samples are characterised by the height, \( H_s \), and diameter, \( D_s \), of the sintered domain and by height, \( H_m \), and diameter, \( D_m \), of the remelted domain. As shown in Figure 8, the calculated dimensions are in good agreement with the experiment. The model correctly describes variation of the dimensions with the laser power, \( P \), and with the type of powder. However, it is clearly seen that the model slightly overestimates the size of both the sintered and remelted domains.

The possible reasons for this may be overestimation of the powder absorptance or the laser beam width accepted in the calculations. The sintered region size is determined by the temperature front propagation, which is sensitive to the radiative
thermal conductivity. Therefore, the error in the calculated sintered region size may be introduced by the overestimation of the photon mean free path, $l_\gamma$ in equation (4). Infiltration is an additional way of heat and mass transfer, which can explain the discrepancy in size between the experiment and the model in the remelted region.

Analysing the parameters of the three powders used in the experiment listed in Table I, one can conclude that the particles’ shape and their size distribution considerably influence the bulk density $\rho$. This indicates different types of particle packing in the powder bed that may be a reason for the decrease in the size of the sintered and remelted domains with powder density (Figure 8). According to the assumption that the properties of the real powder are described by the ideal structure of regularly packed spheres with the same relative density, $p_r$, the contact thermal conductivity increases with the powder density (Table I). This is simply because the coordination number and thus the number of contacts per unit volume increases with the density.

If the sintered zone size was controlled by the contact thermal conduction, it would increase with the powder density. However, both the experiment and the simulation show the opposite tendency (Figure 8). This proves the above supposition that contact conduction does not considerably influence propagation of the temperature front. According to equation (4) the radiative thermal conductivity is proportional to the photon mean free path, $l_\gamma$, which is estimated to be about the same as the particle size. Powder 1 is the most fine of the powders used in the experiment and so has the minimum radiative thermal conductivity. This explains why this powder gives the sintered samples with the minimum size at the same laser power. Nevertheless, the correlation between the sintered region size and the particle size is not so pronounced to explain the results only by thermal radiation transfer.

The volumetric enthalpy of powder along with its volumetric specific heat increases with the density according to equation (11). Thus, the same portion of heat induced by laser, spreads over a greater volume in a powder with a lower density. This tendency is clearly confirmed by Figure 8. It seems that all the three following factors influence the sintered and remelted zones’ dimensions: increasing the contact thermal conductivity with the powder density, increasing the radiative thermal conductivity with the particle size, and increasing the volumetric specific heat with the density. The contribution of the first mechanism is the least and the contribution of the last one is the greatest.

**Balling effect**

It is known that laser remelting of a single-component powder may result in the balling effect, i.e. formation of large spherical liquid droplets at the surface, which degrade the structure of the powder due to surface tension forces (Tolochko et al., 1995): the melt tends to have a spherical shape and therefore takes contiguous solid particles from their places. In the present experiment, the balling effect has generally not occurred as shown by Figures 2-4. The only exception is the optical micrograph of Figure 2(d) where the melt exhibits a small tendency to separate from the solid powder.

The absence of the balling effect may be understood by considering that in the present experiment relatively “soft” laser irradiation conditions are used where the temperature increases gradually. Under such conditions the melt appears inside initially sintered powder. Droplets are more likely to be created at rapid heating under intense laser irradiation when the period of solid state sintering before melt formation is very short and the strength of necks between the solid particles is insufficient to resist the surface tension of the melt.

**Conclusions**

Irradiation of loose titanium powder of 63-315 $\mu$m particle diameter with a Nd:YAG laser beam ($\lambda = 1.06 \mu$m) 2.7-5.3 mm in diameter and with power values of 10-100 W during 10 s in vacuum gives approximately hemispherical sintered samples ranging in diameter from $\approx 2.5$ to $\approx 10$ mm. Generally, the sample consists of a remelted core and a low-sintered zone with a relative neck size less than $\approx 0.1$ where the most probable sintering mechanisms are solid state volume and surface diffusion. Remelting does not occur at lower laser powers. In several cases, an infiltration zone is distinguished between the remelted and low-sintered domains.

Numerical simulation of coupled heat transfer and sintering in the powder bed
indicates that a nearly hemispherical temperature front propagates from the laser spot. In the region of $\alpha$-titanium just behind the front the relative neck size is less than 0.005 and heat transfer is governed by thermal radiation that determines the front propagation velocity. Detectable sintering starts when $\alpha$-titanium changes to $\beta$-titanium, which constitutes the larger portion of the sintered sample during laser beam action. Heat transfer in $\beta$-titanium is controlled by contact thermal conduction.

Influence of the powder parameters is explained by the competition of the following factors: increasing the contact thermal conductivity with the powder density, increasing the radiative thermal conductivity with the particle size, and increasing the volumetric specific heat with the density. In the investigated conditions the contribution of the first mechanism is the least and the contribution of the last one is the greatest, so that the sintered and remelted zones’ dimensions decrease with the powder density.

The balling effect is not revealed in the present experiment because of the relatively “soft” laser irradiation conditions where the temperature increases gradually and the melt appears inside initially sintered powder which can resist the surface tension of the melt.

References


Batesonian analysis of value hierarchies and the transformation of Russia

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Abstract

Purpose – The aim is to analyse changes of mass distributed value hierarchies in the course of social transformations in Russia during the last 25 years.
Design/methodology/approach – The article’s approach is development of the model of value hierarchies within the framework of Batesonian thinking and analysis of secondary sociological and economic data on Russia.
Findings – The value hierarchy model, built within the Batesonian approach, provides a framework for analysis of the behavioural alternative choice by social individuals. Crisis events in Russia in the 1990s were related to the demolition of behavioural contexts and mass scale learning-III of the adult population. New value hierarchy structures were subsequently formed in the early 2000s. Attention of social planners to the structure of mass-distributed value hierarchies and the need to learn in changing contexts could improve the efficiency of social transformation.
Research limitations/implications – Research findings are limited by the use of secondary data. However, even in this case, the model of value hierarchies has been found a useful tool of sociological data interpretation.
Practical implications – Need for changes in epistemological grounds that underlie the design of massive socioeconomic reforms.
Originality/value – The value hierarchy model was developed as a contribution to the Batesonian tradition of epistemology. Insights were provided into value hierarchy changes as the key driver of chronic crises in Russia in the 1990s. Social scientists and social planners within the system thinking approach could benefit from this paper.

Keywords Cybernetics, Russia, Social anthropology

Paper type Conceptual paper

Introduction: transforming Russia

Between the time when Gregory Bateson summarized his key ideas, and the time when these ideas penetrated the Russian academic society, one would see a symbolic gap of approximately a quarter of a century: Steps to Ecology of the Mind and Mind and Nature were published in the mid-1970s, and their translations reached Russian readers in the early 2000s.

Dramatic changes took place in Russia during these 25 years. In the 1980s, the USSR, which seemed to be at the height of its economic and military power, was watched with fear and admiration. A few years later, the country was in the full swing
of transformation with “perestroika” and “glasnost” – and in the early 1990s the Soviet Union (“inviolable” as its anthem promised) ceased to exist. The country then sank into the largest economic and demographic crises of the last 300 years (Illarionov, 2002). In the 2000s, signs of recovery finally appeared.

The last 25 years in Russia marked a period of change, unprecedented not only for the country, but also for the world. During this period, the largest man-made social project of Communism was wound up, the Soviet Union collapsed, and endeavours to create a Western European type country failed. In the circumstances of total social transformation and the inability to find any reliable benchmarks, the population of millions tried to gather its “views of the world” and develop adequate behavioural patterns.

The current historical outcome, according to many observers, was the inability of Russia to adopt Western institutions that could establish a democratic, economically efficient, and consistently developing society. The “shock therapy” of 1992, which was supposed to cure the economy and revive the country, instead struck the deadliest blow to it. Introduction of democratic political institutions invoked chaos and disorganization.

Among the dramatic consequences of transformations were the sharp decrease in birth rates and the surge in death rates (Figure 1), the substantial aggravation of health levels, the deterioration of the quality of education and overall cultural level of the population and the decline in the wellbeing of the majority of the population. The number of births per woman has become one of the lowest in the world with 1.17 in 2001, twice below the replacement rate (The Economist, 2001). Between 1990 and 1994, the death rate among working-age men in Russia increased by 74 per cent and translated into a decline in male life expectancy from 63.8 to 57.6 years (Shkolnikov et al., 1998).

Russia has entered the top-list in alcohol consumption per capita, in the number of suicides per capita, and in the rate of deadly diseases spreading such as tuberculosis and AIDS (Powell, 1998). The quality of its primary, secondary and tertiary education deteriorated dramatically. The economic system until recently has continually decreased.
contracted, and having shrunk by the end of 1996 to half of its size in 1989 has stagnated until 2000s (Figure 2).

Many social scientists try to understand what actually happened to the country that was once considered a superpower and a role model for the developing world. Most theoretical considerations are unsatisfactory, since they account only for specific aspects (e.g. economic, political, educational, demographic) of a multi-faceted transformational process. Explanations should be sought with factors that define long-term behavioural patterns within the population of Russia. Mechanisms of social choice need to be tackled in order to analyse such patterns.

We were challenged by the editors of the present volume to consider the current situation in Russia from the Batesonian position. We then decided to apply the model of human choice to examine problems of Russian transformation and lessons which could be learnt.

It should be clarified here that the model introduced in the paper was not specifically designed for this task. Instead, it was developed and tested as tool of micro-level applied research, to study behavioural patterns of individuals and organizations. However, as we accepted the challenge, we attempted to adjust our approach in order to consider secondary data analysis of macro-level dynamics of modern Russian society.

Lack of epistemology
Transformations of Russian society were primarily catalyzed by a batch of reforms implemented after the “disassembling” of the Soviet Union. These reforms were conducted by a group of liberal politicians under the supervision of international structures (IMF, World Bank, TACIS, etc.). They intended to transform the country into a Westernized market-based society. A substantial share of studies of economies in transition attributes these reforms as the cause of the ensuing socio-economic crises (Stiglitz, 1999).

Figure 2.
Investment and GDP in Russia in 1990 constant prices, 1990 = 1 (data of UN Statistics Division)
It could be rightfully expected that a design of reforms of such a scale needed to be adjusted to cultural specificities: in particular, to the typical value systems of the given society. However, the methodology of the Washington consensus used in the Russian reform design implicitly contained assumptions of social and economic behaviour models (e.g. *Homo oeconomicus*) – models that were considered universal by reformers (Rutland, 1999). No serious survey was ever conducted or even planned, that could identify the adaptation potential of the population to the proposed radical changes (Khrushcheva, 2002). Partially, this could be explained by the relatively short interval for decision- and policy-making – but it is hard not to admit that Russian reformers had a shallow understanding of the society that they were supposed to transform, simply lacking the proper studies.

The issue of values is essential for social dynamics. It is generally agreed that the widespread value systems structure typically on mass behaviour in society (Campbell, 1975). Value, generally understood as the relative importance of specific objects, relations and processes for individuals and groups, is the key factor determining individual choices – since it introduces comparability and ranking of alternatives. Sociologists and anthropologists are aware that value orientations can vary significantly: relativity of value systems is rarely debated, as many instances of such relativity were discovered (Benedict, 1934). Anthropologic studies of G. Bateson also demonstrated that some cultures have value systems ultimately different from those of Anglo-Saxon society: e.g. the value system of Balinese is oriented towards the maintenance of social stability and the individual homeostasis of pleasurable emotions, and not the maximization of satisfaction (Bateson, 1949).

Transformations of Russia were driven by the reforms. These reforms were designed according to specific theories, obtained by scientific consensus in Anglo-Saxon countries. Theoretical models applied were designed with mathematical rigour, and they could have been mathematically correct, but their underlying assumptions, their metatheoretical basis was incorrect for the given society. Consequently, dramatic Russian crises were, in our opinion, connected to the inappropriate epistemological grounds in the orchestration of social transformations.

In order to understand the process of social reproduction and change, to recognize problems of the past (such as reform failures) and perspectives of the future, one needs to analyze the structure of widespread value systems. In other words, one demands a proper epistemology that would permit to consider value orientations. As we further argue, value systems are always structured as hierarchies, through engagement of learning mechanisms at various logical levels.

So, how can Batesonian thinking assist with a task such as this? Bateson did not provide a comprehensive view of social systems at any rate comparable with those of Durkheim, Sorokin, Parson, or Luhmann. A series of his works, however, gave a clear view of the formation and the maintenance of patterns of human behaviour. In particular, in his “Cybernetics of self” (Bateson, 1971), contesting widespread models of human action, Bateson considered behavioural patterns as “inclusions” into an organism – environment relationships.

Since various behavioural patterns are realized within the same organism, the system always faces the problem of scarcity, the problem of limited resources. This problem cannot be resolved unless a mechanism exists, which would prioritize these patterns at any given moment in time. Therefore, models of learning and behaviour need to be
complemented with the model of choice, and such a model is not provided explicitly. In this sense, the epistemology of Bateson is not complete.

At the same time, one cannot simply borrow models of choice developed in other fields such as behavioural economics, since such models use assumptions that, within the Batesonian approach, should be criticised and challenged properly. In particular, ideas of the self-interested and self-consistent behaviour resulting from rational choices have been contested (Bateson, 1971).

There are many hints and indications provided regarding the possible form of a Batesonian model of choice. A concept of logical levels of learning and conduct implies that behavioural patterns can be organized into hierarchies of their relative importance, or value hierarchies. We attempt to elaborate this model in more detail.

**Structure and organization of value hierarchies**

The inequivalence of different behaviour types and values is found already in many ancient philosophical and religious sources. Value hierarchies were then constructed through oppositions of the sacred and the ordinary, the divine and the human – a collection of higher values was formed as a set of moral imperatives. This approach has continued in early scientific considerations on the problem of choice, assuming that “objective”, universal (to all people) and robust value hierarchies exist (Min, 1998). Later, the non-universality of value hierarchies has been observed in anthropology and sociology, and the concept of value hierarchies was abandoned altogether.

The hierarchical structuring of valuable opportunities remains an important assumption in models of economic behaviour (Heyne et al., 2005). However, the change in emphasis towards the level of individuals was accompanied by the repudiation of analysis of the individual value hierarchy structure and origin. It could be argued that this is likely a consequence of particular Anglo-Saxon social epistemology which praises the sovereignty of individual choice and suggests that any inquiries of underlying mechanisms of choice could become a threat to such sovereignty, as choices may become manipulated.

A model of choice is appropriate to be designed in terms of cybernetic approach. The mechanism of choice regulates resource flows in the organismic system, and it therefore acts as its governor subsystem. This governor can itself be considered as a specific pattern of operation, a “connecting pattern”. Since every choice brings an action, and every action brings a new choice, the “pattern of choice” and the “behavioural pattern” continuously flow into each other.

Various behavioural patterns compete for resources of an organism, and this could lead to disorganization in the system. But life, and human life in particular, is never chaotic. Organismic systems structure behavioural patterns by their priority: those that solve organismic tasks better than others are actualized in the first turn, subject to opportunities, the available information and the inevitable shortage of time. Thus, an organism establishes an individual epistemology of means and processes that would allow it to maintain its homeostasis.

An individual organism requires this epistemology because it constantly appears at the intersection of ultimately different stimuli, markers of contexts and metacontexts, and it repeatedly has to choose proper activities. An isolated stimulus with a known conditioned response, as in a behaviourist laboratory, is never the case; even in the
Skinner box an animal has to make choices. A choice (how to act/not to act) is a pledge of survival[1].

Therefore, an individual has to concord various contexts and activities, and this process needs to be structured as a separate pattern of value-based choice, whereby behavioural patterns are organized into hierarchical systems of priorities. The emergence of a control system, as Turchin (1977) showed, is a meta-transition, and it is accompanied by the formation of hierarchies.

We suggest that values are associated with weights, or relative importance, of individual and collective behavioural patterns. Such patterns, and their connecting meta-patterns, result from individual and social learning. As recent neurophysiologic studies of learning suggest, even basic innate behavioural proto-patterns (such as drinking or food intake) are significantly altered by learning processes (Ito, 1999).

The behaviouristic approach could have been problematic in a value system consideration, as values are usually considered intrinsic and non-observable. However, at least for humans, there is a possibility to reveal the content of value systems through verbal communications; and thus, verbal markers can be used as indicators of “internal” (non-observable) states of a behavioural pattern.

Based upon the analysis of logical categories of learning (Bateson, 1972) and the concept of structural determinants of human agency in cognitive theory (Bandura, 1999), we argue that human behavioural patterns universally have the following triadic structure:

- specific individual action (activity or passivity);
- specific social and natural context of specific action (markers of “external” states of organismic system), identified by observable non-verbal markers of context; and
- corresponding “interiorized” “meaning” of action (a verbal generalization of markers of “internal” states of an organismic system), identified by observable verbal markers of context.

As Figure 3 shows, for someone observing an action (A) from outside (an external observer), some variables, which can be called markers of internal states (D), are non-observable, and these can only be revealed by naming them, using verbal

![Figure 3](Batesonian analysis of value hierarchies)

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- specific individual action (activity or passivity);
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As Figure 3 shows, for someone observing an action (A) from outside (an external observer), some variables, which can be called markers of internal states (D), are non-observable, and these can only be revealed by naming them, using verbal
markers (C); other states are pure sensory experiences which can be identified as non-verbal markers (B). For an actor herself (an “internal” observer), any action is placed into a context marked by non-verbal markers (B + D), all of which are equally “real” (sensations as well as hallucinations and dreams).

Every level of a value hierarchy (value level) is a behavioural triad. This level can be characterized by its relative importance with respect to other patterns, its non verbal markers and its verbal markers. In sociology, “value” is usually associated with the meaning of an action (an idea behind an action). “Value” in this perspective, is a verbal marker of a value level that includes this action.

A choice occurs in the presence of an alternative: another activity or passivity, or the same activity with another level of intensity (in fact, “choice” is a sensible category only if an alternative is present). Actualization of a specific value level occurs through the process of gradual specification of context, which acts like a funnel narrowing a range of possible behaviours.

Value hierarchy is a learnt hierarchy of contexts, organized by their relative importance. Sets of “internal” and “external” markers cue the most appropriate action for an individual: when in doubt about a choice, one would look for additional markers which would signal the appropriateness of an action. Presence of a non-verbal marker specifying the context can be overrun by the presence of another, more powerful marker that specifies a “higher” context.

This process can be best understood by a simple illustration. Suppose we take a basic behavioural alternative. In the example in Table I, the alternative is to wash/not to wash dishes (example derived from Andreas and Andreas, 1987). In this example, a respondent begins with relatively low value level and ends with a high (existential) value level.

Each level in this example is triggered by non-verbal markers. However, a value level can be triggered by verbal markers and internal non-verbal markers alone, even when external non-verbal markers are weak. Words are able to call behavioural patterns which they mark.

What can also be noted from Table I is that the composition of the value hierarchy is linked to the temporal aspect of individual existence: from momentary choices to those that determine large spans of life. Situational choices submit to larger ones – and in this respect value levels guiding long life spans are “higher” than levels guiding short life spans. The lowest levels concern the behaviour “here and now” and highest levels establish the style of life, the occupation, etc. they establish the “meaning of life”.

Using the inquiry methods described elsewhere (Tkachev, 2003), value hierarchy studies have been conducted by one of the co-authors. Circa 2000 interviews has been carried out across different social and organizational environments[2].These studies revealed, in particular, the typical dynamics of individual value hierarchy actualization. Lower levels of value hierarchy (“daily” tasks) are regularly actualized within the time span of a day to several months. Middle levels (“tactical” tasks) are actualized within the span of several months to one year. Higher levels of hierarchy have to be actualized within the span of several years. An individual has to believe that there are perspectives for actualization of the highest value levels within at least a third of his/her active life; otherwise, a lack of foreseeable perspectives to realize highest values becomes a personal tragedy.
<table>
<thead>
<tr>
<th>Level</th>
<th>Behavioural alternative</th>
<th>Circumstances (non-verbal markers of context)</th>
<th>Meaning (verbal markers of context)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>I will wash plates IF</td>
<td>I see plates in the sink</td>
<td>BECAUSE I wash plates daily</td>
</tr>
<tr>
<td>1</td>
<td>BUT I will not wash dishes IF</td>
<td>there are too few plates</td>
<td>BECAUSE I want to save time</td>
</tr>
<tr>
<td>2</td>
<td>BUT I will wash dishes IF</td>
<td>I know that guests will come</td>
<td>BECAUSE I want to impress guests</td>
</tr>
<tr>
<td>3</td>
<td>BUT I will not wash dishes IF</td>
<td>I will cook</td>
<td>BECAUSE I want to be perfect (in my cooking)</td>
</tr>
<tr>
<td>4</td>
<td>BUT I will wash dishes IF</td>
<td>plates are very dirty</td>
<td>BECAUSE I want to maintain my hygiene</td>
</tr>
<tr>
<td>5</td>
<td>BUT I will not wash dishes IF</td>
<td>there is an emergency in my neighbourhood</td>
<td>BECAUSE I want to try and save somebody</td>
</tr>
<tr>
<td>6</td>
<td>BUT I will STILL wash dishes IF</td>
<td>there are competent people to deal with the</td>
<td>BECAUSE I want to be helpful in crisis resolution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>emergency</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>BUT I will not wash dishes IF</td>
<td>there is a threat to my life</td>
<td>BECAUSE I value my life (terminal value)</td>
</tr>
</tbody>
</table>

**Source:** Andreas and Andreas (1987), with amendments by present authors
Every value level is defined with respect to its context, and a value hierarchy can be defined with respect to a set of such contexts, i.e. to a metacontext. Since, human individuals face a variety of metacontexts, an average individual could be expected to have more than one value hierarchy. However, since social metacontexts are typical and limited in variety, one should not expect too many different value hierarchies for an average social individual.

Individual value hierarchies differ on the level of metacontext. For a self-consistently behaving individual it is necessary that they are structured on the level of meta-metacontext, a set of metacontexts which could otherwise be called a “life landscape” unique for every individual and determined by one’s innate and acquired qualities. A normal individual requires that all higher and lower levels of all of one’s value hierarchies need to be actualized within their appropriate time spans.

To gain standard patterns of choice, individuals learn to mark contexts, to sort their own activities within these contexts given the intensity of “internal” and “external” stimuli, and to accomplish choices of behavioural patterns based on this marking and sorting. Formation and maintenance of value hierarchies engage all logical levels of learning (given limitation of this paper, we cannot argue this engagement at length). Evidently, the set of value hierarchies, specified by a variety of social metacontexts, is formed through learning-III and usually, as Bateson indicated, does not change through lifetime (it is observed that the structure of individual preferences rarely changes in adults (Caplan, 2003)).

As individuals learn their value hierarchies, a great variety of value hierarchies could be expected, related to the unique development trajectory of a specific person. The traditional “philosophical” concept of a value hierarchy universal to all humans, or to specific cultures, is therefore inappropriate. However, social experiences of different individuals are similar, due to invariants of human anatomy and invariants of a self-reproducing society. Social learning through imitation and mechanisms of social norm enhance the “standardization” of behavioural patterns. In groups with similar circumstances and trajectories of life, one should expect typical sequences of value hierarchy levels. Consequently, the typical variety of individual value hierarchies can be summarized within closed social groups (organizations, subcultures) or across large samples of respondents, permitting discussions of national-level value hierarchies and considerations of their transformation.

**Analysis of value hierarchy dynamics in transforming Russia**

In the present paper, we briefly consider transformations of mass-distributed value hierarchies during the transition from the USSR to Russia. Our interpretations are based on secondary data and do not provide a comprehensive description of factors relevant to this process. Still, even this superficial modelling may give interesting insights regarding the nature of changes that occurred in the country during this period.

**General changes of value hierarchies**

A lengthy existence of the Soviet Union and the Communist regime were not possible unless it had grounds in the basic values of Russian culture. The promise of Communism supported three axiological dimensions essential to Russian civilization (Naishul et al., 2006):
significant improvement in the quality of life ("operational" values);

- establishing social justice (popularly understood as an egalitarian society) ("tactical" values); and

- involvement in global (nation-/country-/world-wide) activities ("strategic" values)[3].

The Moral Code of the Communism Builder, published by the Communism Party after the war, regulated Communist project participant behaviour. It was, in fact, as an explicit system of value hierarchy administration for society to be constructed. However, Communism builders were supposed to act “for the good of their children and their grandsons”. Since the time of actualization of the upper levels of value hierarchy exceeded the average life longitude, for true Communism believers this led to an existential crisis.

This problem was acknowledged, and the Party leaders revised the main objective as “to build Communism within one generation”. However, the increased separation between the common citizens and “nomenkatura” (the Party elite) contrasted the social expectations for the non-verbal markers of Communist egalitarian society. Growing attention to personal well-being in the society during the decline of the USSR in the 1970-1980s testifies that higher levels of mass-distributed value hierarchies ceased to actualize.

The Soviet Union and the Communist project collapsed, arguably, not only because of economic, social and ideological controversies – although all of these factors catalyzed the process. One of the main reasons was the inability of Soviet citizens to maintain old institutes, old behavioural patterns and higher values to which the ideology assigned through propaganda and daily working routines. Propagandistic slogans (verbal markers) on their own, in the absence of non-verbal markers of context (experienced as a “non-conformity between slogans and reality”), simply could not trigger proper activities.

The state and its processes became meaningless and values devaluated, creating an “ideological” vacuum during early the 1990s[4]. The “loss of the meaning of life” was named as the key character of the periods in public opinion surveys (Ryvkina, 2001). Evidently, many of the “old” (Soviet) context markers disappeared, and the majority of population was generally unable to identify “new” markers. Existing individual value hierarchies became inappropriate.

The disappearance of a powerful state patronizing lives of common people demanded, in the first half of 1990s, to learn new patterns of self-dependent behaviour:

- self-dependent economic behaviour (entrepreneurship or participation in the labour market), which replaced guaranteed lifetime employment;

- self-dependent political behaviour (participation in elections and political parties), which replaced guaranteed (forced) inclusion into Communist ideological processes; and

- independent self-identification with cultural, ethnic, economic, and social groups, which replaced identification with de jure classless Soviet people, etc.

The majority of the Russian population managed to learn new contexts of their value hierarchies during the first decade of reforms, as confirmed by value orientation
studies: in the 1990, respondents named order in the State and personal integrity amongst their most important values, while the egoism and the individualism were reproached; but already in 1995, the entrepreneurial spirit and the personal success were called the most important instrumental values (Kudryavtsev, 2002).

However, this adaptation has not come without pain and disillusionments. The share of population in poverty increased tremendously, while a tiny group of “novy russkie” (new Russian riches) enjoyed its super-wealth. Political life was monopolized by a gang of corrupted politicians hiding behind democratic slogans. Important social strata (doctors, teachers, scientists, etc.) became unneeded, while some unprivileged strata (e.g. salesmen) and even those marginal (e.g. criminals) suddenly became “elite” (as their behavioural strategies turned to be suitable for the changing circumstances). The mode of living in 1990s was called “survival” in public surveys (Ryvkina, 2001) – which implies that only lower levels of value hierarchies were commonly actualized, while higher levels were not involved.

The Russian adult population was suddenly forced to adapt to a new and changing world. Because of the massive change of social (economic, political, ideological, etc.) metacontexts, the population had to commence, on a mass scale, the learning of new contexts of contexts (learning-III). The necessity to learn new value hierarchies became a traumatic experience for the majority of population. As Bateson (1972) indicates, first of all, this type of learning is rare among adults (usually ending by the age of seven), second, it brings learners to a situation of a steady existential paradox, when no points of reference exist which could help in the rational understanding of life – and life becomes a Zen koan.

The beginning of the 2000s was characterized by feelings of stabilization, hinting that lower levels of value hierarchies have been learnt. However, higher value levels remain disconnected with nation-wide initiatives: the majority of Russian citizens do not see them as markers of their personal life contexts. For instance, de facto revocation of free elections by the President in late 2004 (connected to the value of political freedoms) did not cause any significant protests, and about the half of the population was simply unaware of these policies (Byzov, 2004). Unlike that, the benefit monetization initiative (i.e. the decision to dismantle the Soviet-type system which supported retired and indigent citizens through natural benefit provision) in early 2005, which impacted the well-being of the retired, led to protests all over Russia.

Gradual restoration of higher levels of national value hierarchies introduces the need for actualization of one of the basic values of Russian culture: the value of justice (comparable status of various social groups). Popular opinion surveys in late 2006 confirm that moods of discontent with unjust distribution of income and privileges become widespread in Russian society (Byzov, 2006). Within the next few years, this issue can become essential for social dynamics.

Reproduction values
The mass actualization of values supporting social reproduction (value of childbirth, of education, of wealth accumulation, etc.) is necessary for the normal retention of society (Parsons, 1951). Reproductive activities relate to long-term behavioural patterns, i.e. to higher levels of value hierarchies. Reforms of the 1990s negatively influenced social reproduction in Russia. From the perspective of our analysis, it is possible to provide additional insights into these processes.
In the 1970-1980s, before the terminal crisis of the Soviet Union, the country already transited to a typical late-industrial society reproductive pattern of low birth and death rates. In the economic sphere, conservative investment programs dominated, without breakthrough investments that were typical for the post-war recovery period. Amongst the verbal markers of this period were the “stability” and the “certainty in the future” (Ryvkina, 2001) (supported by free healthcare, free education, guaranteed employment and income, state regulated prices, etc.).

In the mid-1990s, reproduction processes have declined considerably. The drop in birth rates evidently concerns changes in value orientations: the average desired number of children dropped from 2.72 to 2.33 between 1990 and 1995 (WVS, 2006). The dramatic increase of mortality in Russia after 1992 is well-documented (Shkolnikov et al., 1998). The economic sphere experienced reductions in investment activity, along with a catastrophic decline in output: investment into fixed capital in 1995 dropped to 25 per cent of its 1990 level (Fedotov, 2005).

The verbal markers used to explain low reproductive activities of the 1990s in public opinion surveys were “uncertainty” “unpredictability” and “absence of the future” (Ryvkina, 2001). Such comments provide evidence that connections between values, context and activities were broken on higher levels that regulate long-term behavioural patterns. In the absence of stable contexts, the majority of the population was deprived of key stimuli that trigger patterns of reproductive behaviour. Obviously, the “shock therapy” reform in the 1990s demolished old context markers but provided no time to learn new contexts.

The inability to actualize higher value levels usually leads to existential crises, expressed in psychosomatic diseases and self-destructive activities. Unprecedented growth in drug usage and alcoholism, a surge in deaths from suicide and blood-transmitted diseases in Russia in the early 1990s mirrors this unresolved conflict of behavioural indeterminacy.

In the early 2000s, Russia observed a reversal of trends: the birth rate increased, and the mortality rate started to decrease for younger strata (Figure 1). In the economic sphere, investment started to increase again, though still lower than pre-reform levels (Figure 2). The period of the 2000s in popular opinion is associated with the restoration of stability, “recovery of perspective” (Byzov, 2006). Such a perception of the social situation could be an indication that new behavioural patterns were learned and new value hierarchies were stabilized. The relative stability of contexts and metacontexts of social life allowed for a revival in reproductive processes in Russian society.

Periodization of Russian transformation from value hierarchy perspective
The proposed periodization of value hierarchy transformation (Table II) shows that the change in value hierarchies is an essential driver of the social dynamics in Russia. The collapse of the USSR in 1991 was to a large degree led by the degradation of value hierarchies and the cessation of higher value actualization. In the 1990s, the population faced a deficit of known contexts and metacontexts – which forced learning-III of adults on a mass-scale, an experience that the majority of the population found traumatic. In the 2000s, the gradual re-establishment of new value hierarchies allowed to revive processes of social reproduction and re-engage higher levels of value hierarchies.
### Table II.

<table>
<thead>
<tr>
<th>Period</th>
<th>Transformation of value hierarchies</th>
<th>General dynamics of value hierarchy levels</th>
<th>Reproduction (higher) values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-1980s</td>
<td>Gradual degradation of value hierarchies due to inconsistencies between verbal and non-verbal markers of activities</td>
<td>Cessation of higher level value actualization</td>
<td>Conservative reproductive processes (presence of contexts relevant to long-term behavioural patterns)</td>
</tr>
<tr>
<td>1990s</td>
<td>Collapse of value hierarchies, collective pressure for learning-III for adults due to absence of proper contexts and metacaracters</td>
<td>“Flattening” of value hierarchies</td>
<td>Sharp deterioration of reproductive processes (collapse of higher level contexts)</td>
</tr>
<tr>
<td>2000s</td>
<td>Gradual re-establishment of value hierarchies (stabilization of contexts and metacaracters, completion of learning-III)</td>
<td>Gradual “thickening” of value hierarchies</td>
<td>Gradual recovery of reproductive processes (re-establishment of higher level contexts)</td>
</tr>
</tbody>
</table>
The need to learn new value hierarchies was ultimately disregarded in the course of Russian transformations. Furthermore, even when it was admitted, the understanding of the underlying processes (dynamics of value hierarchies) was still poor. For instance, consideration of proposed reform initiatives from the Batesonian perspective could predict the disturbing outcome of forced collective learning-III in the Russian adult population. The lack of proper epistemology in social transformation design had dramatic consequences for Russian society. Many of the unwanted consequences of transformations could have been avoided, or at least softened, had the appropriate epistemological tools been present.

Conclusions

We summarize our key conclusions from the theoretical consideration and applied analysis presented in the paper:

- The value hierarchy model, built within the Batesonian approach, provides a framework for analysis of the behavioural alternative choice by social individuals. This model provides opportunities to reinterpret available sociological data on value orientation dynamics.

- Analysis of transformation processes in Russia during the last 25 years shows that crisis events in the 1990s were related to the demolition of behavioural contexts and mass scale learning-III of the adult population, with the subsequent formation of new value hierarchy structures in the early 2000s.

- Attention of social planners to the structure of mass-distributed value hierarchies and the need to learn in changing contexts could improve the efficiency of social transformation. In particular, consideration of specific value orientations of the Russian population could help to prioritize the sequence of necessary reforms and the most demanded policies.

Notes

1. Consequences of the inability to accomplish choice of a behavioural pattern are illustrated by the famous parable of Aristotle about a man placed between two vitally important alternatives (food and water) and dying of inability to choose one of them, or by the famous “ass of Buridan” described by Leibniz.

2. Including studies of: contexts that motivate studying in private schools; contexts that motivate purchase of specific goods; contexts that motivate working activities in private firms; contexts that motivate elections of specific political candidate; contexts that motivate the decision to emigrate, etc.

3. Which responds to values formed most likely in Russian Orthodox Christianity, and linked to ideas of Messianic role of Russian people (Duncan, 2000).

4. During that time, in the attempt to fill in this gap, sects and spiritual movements of all kinds invaded Russia, including odious organizations such as Aum Shinrikyo.

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Philip Kotler’s influence in the Soviet Union and Russia

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Santa Clara University, Santa Clara, California, USA, and
Irina I. Skorobogatykh and Olga V. Saginova
Plekhanov Russian Academy of Economics, Moscow, Russia

Abstract
Purpose – The purpose of this paper is to document the first major step in the dissemination of modern marketing knowledge in the Soviet Union, the publication of a heavily censored, translated, unauthorized edition of Kotler’s Marketing Management in Moscow in 1980. Kotler and his books in Russian translation have continued to inform how Russian marketers understand and implement marketing.

Design/methodology/approach – The research approach was historical, based on close comparison of texts; research in the USA and in Russia on the historical context; a comprehensive compilation of Kotler books translated into the Russian language; and interviews with key participants in the book’s preparation.

Findings – The Soviet edition of Marketing Management was widely read by Soviet foreign trade experts and guided training for Soviet foreign trade enterprise managers in the 1980s. Kotler’s book was the first – and, for a decade, the only – book on modern marketing in the Russian language. The story of the book’s selection, censorship, publication, and impact provide insights into Soviet thinking about marketing and trade, and about post-Soviet readiness to adopt modern marketing.

Originality/value – This paper presents for the first time the story behind the translation, censorship, and publication of Kotler’s Marketing Management in the Soviet Union. It documents subsequent Kotler books published in the Soviet Union/Russia and how they shaped Kotler’s reputation there.

Keywords Soviet Union, Russia, Marketing, Censorship, Publications, History

Paper type Research paper

Philip Kotler has played a major role in the dissemination of marketing knowledge through his textbooks and other writings, many of which have been translated into multiple languages and published abroad (Cunningham, 2003). Marketing Management, Kotler’s most influential book, has been translated into 25 languages, adapted into at least seven country – or area-specific versions, and read by marketing students worldwide.

Doing historical research has heightened the authors’ gratitude for the increased human lifespan, making it possible for them to interview some of the participants in the project from the 1970s that the authors report here and to benefit from the biographical information provided by Philip Kotler’s mother. The authors thank the reviewers of early versions of their manuscript for their suggestions. Natalia Alexandrova for her assistance in preparing the compilation of Kotler textbooks, and Carolyn Errington for her editorial help on early drafts of the manuscript. The authors are especially grateful to the Plekhanov Academy undergraduate students who unwittingly started them on this project. The students prepared a bibliography of all the marketing textbooks in Russian and happened to add for each book the number of pages. The number “223” started us on the authors’ search to find out why Kotler’s Upravlenie Marketingom was so short.
The story of the translation of Kotler’s *Marketing Management* and other books into Russian and their publication in Soviet Union is unique, marked by official censorship and strategic editorial misrepresentations, and by on-going piracy and plagiarism. This is the story we relate here in detail for the first time.

Kotler’s (1976) *Marketing Management* was the first Western marketing textbook to be translated into Russian and published in the Soviet Union. What is most remarkable is that any book on marketing, let alone a marketing book by a Western author, could be published in the Soviet Union at a time when the Soviet Communist Party categorically rejected capitalist economic principles and practices, and officially rejected the word “marketing” as well as marketing as an activity. Key members of the Marketing Section of the Soviet Chamber of Commerce knew English, had read Kotler’s writings, and recognized that *Marketing Management* was a leading marketing textbook in the USA. The head of the project and the book’s editor, Georgi Abramishvilli, was probably the decision maker.

Most readers would assume that a translated book, other than an adaptation, would be a complete and accurate translation of the original text. Jacobs (2001) apparently made this assumption in his review of Western marketing books published in Russian, including Kotler’s *Marketing Management*. In fact, the 1980 Soviet edition was heavily censored and drastically cut. The title *Marketing Management* was rendered in Russian as *Upravlenie Marketingom*, which translates as the “leading” or “guiding” of marketing, a substitute for the Western word “management” which did not exist in Soviet terminology.

Kotler learned of the book’s existence only after its publication and then only by chance. He wrote to the book’s Soviet editor, Georgi Abramishvilli, on December 11, 1980, that “a copy of the Russian-translated *Marketing Management: Analysis, Planning, and Control* [with the title *Upravleniye Marketingom*] came into my hands after a Prentice-Hall executive noticed it in the USSR” Kotler noted in his letter:

> My father, who reads Russian, read your preface and the kind words that you wrote about my work in marketing. I simply wanted to thank you and your colleagues for taking the time to present the essence of modern marketing thinking to the Russian audience of business executives and consumers (Kotler, 1980a).

What Kotler did not know then – and only learned from us a quarter-century later – are the events that led to the selection of the book, and the steps that significantly altered the book and enabled its publication in the Soviet Union.

**Precursor events and the role of Nikolai Smeliakov**

The 1980 publication of Kotler’s book was not a random event, but the result of a series of events initiated and encouraged by Nikolai Smeliakov (1911-1995), the Soviet Deputy Minister of Foreign Trade from 1959 to 1986. Smeliakov recognized that Soviet foreign trade ministries and enterprises – all of which were state-owned entities – had to understand capitalist marketing in order to successfully sell Soviet products and raw materials abroad, and to purchase needed equipment and goods from capitalist countries (Fox et al., 2005).

An astute and open-minded observer, Smeliakov traveled to the USA as Head of a Soviet Foreign Trade Mission in 1959 for an extended period. There he became convinced that the Soviet Union could benefit from adopting certain American
business practices. His examples were exceedingly practical – such as the New York City construction workers hosing off the tires of concrete mixer trucks leaving a work site, to keep surrounding streets clean. Smeliakov (1967) presented his observations in his book *Delovaya Ameriki (Business in America: Notes of an Engineer)*, which captured wide popular readership, impressing Soviet readers with American practices unheard of in the Soviet Union at that time.

Next, Smeliakov urged and supported the translation and publication of a collection of Western marketing articles, edited by Kostyukhin (1974), including a 44-page glossary in which each marketing term in the Russian translation was presented along with a carefully crafted definition comprehensible to Soviet readers. Prior to this publication, only professionals with command of a major foreign language and with permits to enter restricted “special” reading rooms could have access to Western publications. This Kostyukin collection became a virtual marketing textbook and guide for Soviet foreign trade experts for the next six years. (Curiously, the names of the authors of the original articles were omitted so we do not know their names, and yet each translated article includes the complete original footnotes and references.)

The following year, 1975, Smeliakov was an adviser on economic and trade matters to General Secretary of the Communist Party Leonid Brezhnev at the Helsinki Conference, the international meeting to discuss cooperation in mutual security, economics, science, technology, and human rights. While the Helsinki Accords (1975), signed by 35 countries, are best known for their statements on human rights, another “basket” (component) called for “international cooperation in the field of trade promotion, including marketing” and for an agreement that exporters in the signatory countries should “develop further the knowledge and techniques required for effective marketing”. On Smeliakov’s advice, Brezhnev signed for the Soviet Union in support of the agreements on trade and marketing.

On his return from Helsinki, Smeliakov encouraged nine like-minded, highly-educated professionals to join him in founding the Marketing Section of the USSR Chamber of Commerce in February 1976. The purpose of the Marketing Section would be to disseminate information about marketing to Soviet foreign trade professionals. It was the members of the Marketing Section who took steps to publish a Western marketing book in Russian translation.

**Shaping the soviet edition of *Marketing Management***

The project to translate and publish Kotler’s *Marketing Management* in Russian involved an astute editor, five skilled translators, and KGB censors, and resulted in a book half the length of the original.

*The editor and translators*

Georgi Abramishvilli (1938-1995) was the editor of the Soviet edition of *Marketing Management* and he was without doubt the central figure in the project. According to Igor Kretov (2004), Abramishvilli chose *Marketing Management* as the book to translate, selected the translators for the project, and personally wrote the introduction and footnotes with commentary.

Abramishvilli was ideally prepared to be the editor of this book. He was at the time the Deputy Director of the Marketing Section, and he possessed splendid academic credentials. Educated at prestigious Moscow State University, he was a Professor at the equally-prestigious Moscow State Institute of International Relations (MGIMO).
His first advanced degree (kandidatskaya) was in Marxist-Leninist political economy. His subsequent “full doctorate” (the highest academic degree, in Russian called doktorskaya) was awarded for his 1973 dissertation, “Marketing in Foreign Trade” the first Soviet dissertation on marketing and the first with the word “marketing” in the title. Through his academic position Abramishvilli had access to Western marketing books and articles that were unavailable to others (due to censorship policies which kept these materials in restricted reading rooms), and his fluency in English enabled him to read original sources.

Abramishvilli selected the translation team – consisting of B.A. Goldberg, A.A. Goryachev, E.A. Zhukova, I.I. Kretov, and O.V. Yurygin – which produced an excellent translation in just a few months. (In contrast, several later Kotler texts suffered from poor Russian translations.) Goldberg and Zhukova were professional translators (Kretov, 2004). Goryachev, Kretov, and Yurygin were economists knowledgeable about marketing (an interesting parallel with Kotler’s background), which accounts for the sophistication of their translation (Fox et al., 2005):

Goryachev (1938-) completed a “full doctorate” in economics and was a professor of economics at Moscow State Institute of International Relations (MGIMO). Goryachev briefly served as chairman of the Marketing Section. This status suggests that he had opportunities to travel and become well acquainted with modern marketing outside of the Soviet Union. (From 1988 to 1996, Goryachev was a member of the Executive Council of the European Marketing Academy (Coopman, 2005).)

Kretov (1931-) had a background in both linguistics and economics: he graduated from the Moscow Linguistics University as a specialist in translating from German, English, and French into Russian; then he studied at the All-Russian Academy of External Trade, the academy that trained specialists for Soviet foreign trade and export organizations. He traveled abroad, where he became familiar with new marketing ideas. He worked closely with Nikolai Smeliakov, and was a founding member of the Marketing Section. Kretov authored several articles and books about marketing in Soviet export activities. (In 1987 Kretov defended his kandidatskaya and in 1991 he became Head of the Marketing Department at the All-Russian Academy of Foreign Trade, and this is where he continues to teach. He also serves on the Educational and Methodological Board which develops curriculum guides and educational standards in marketing nationwide.)

Yurygin (1932-) was an economist, a graduate of MGIMO with a good command of English. He was an executive at VNIKI, the All-Union Scientific Research Institute of the USSR Ministry of Foreign Trade, which was directed by Nikolai Smeliakov. VNIKI carried out research relevant to foreign trade and foreign markets, to assist in Soviet foreign trade efforts. (Now retired, Yurygin works part-time as a translator for VNIKI, which has been transformed into a commercial research firm, and he edits special issues of the Bulletin of Foreign Commercial Information for the Russian Ministry of Trade.)

The translation work was divided up among the five translators, who exchanged and reviewed each other’s work and discussed any questions that arose (Kretov, 2004). Consistency of marketing terminology was assured by using the glossary of marketing terms prepared for the 1974 Kostyukin volume.

The censors at the KGB
Soviet censors affected both omissions and inclusions in the Soviet edition. According to Kretov (2004), editor Georgi Abramishvilli delivered a full photocopy of the American edition to Glavlit, the Main Administration for Safeguarding State Secrets in the Press. Operating under the auspices of the KGB (the Committee for State Security),
Glavlit’s thousands of censors reviewed all information before it was disseminated by publishing houses, editorial offices, and broadcasting studios. Foreign books – especially books on economic or political matters – received particular scrutiny. Furthermore, restrictions imposed by Glavlit were mandatory, not advisory.

Glavlit returned the photocopy with marks striking out what was to be omitted in the Soviet edition (Kretov, 2005). While the team did translate the entire US text, only the pages and content approved by Glavlit appeared in the published volume. (The full translation did enable the members of the Marketing Section to read the entire book in Russian, and they were the major disseminators of marketing training to state enterprises.)

As soon as Kotler (1976) had the book in his hands, he realized that Soviet edition was much shorter than the original. The third US edition of *Marketing Management*, the shortest edition of the book ever published, contained a total of 529 pages; the Soviet edition, including Abramishvilli’s lengthy introduction, was only 223 pages long. An experienced English-Russian translator would know that a Russian translation would be approximately one-third longer than the English source.

Clearly the Soviet edition was incomplete – but what was missing? And why? Kotler (2000) presumed that the Soviet editor included those marketing topics deemed most important for Soviet readers, for example, international marketing and sales management. In 1982 Kotler met Georgi Abramishvilli and another Marketing Section member, Piotr Zavialov, at a marketing conference in New Delhi, and they presented Kotler with a copy of the book. Kotler (2004) recalls telling the conference audience that “there is hope in the Soviet Union. They want to learn more about marketing. They have picked out the most important topics to include in the Russian translation of my book.”

What he – and most others – did not realize until recently was the drastic nature of the omissions and the explanations for them.

Kotler presumed that the Soviet edition’s content was selected for its practical relevance to Soviet conditions; in fact, the Soviet edition included only what the official censors would allow. When we informed Kotler (2005a) of the exact contents of the Soviet edition, he commented:

I had guessed that the translators removed chapters having to do with the primacy of the consumer. I thought that they cared mainly about featuring practical skills such as sales and international marketing. I was so wrong. It was a revelation to learn that the book was shortened because of censorship. How awful to live under a regime prescribing what one can think and express.

We do not know the specific criteria the KGB censors applied to Kotler’s *Marketing Management*, and we are unable to determine which specific cuts were required by KGB censors and which were editorial decisions by Abramishvilli. But we have the word of Igor Kretov, a marketing specialist and one of the original translators, that censorship affected what was cut from the book, and also what Abramishvilli added to increase the acceptability of the manuscript.

To understand KGB censorship pressures on Abramishvilli and his colleagues, it is instructive to consider the case of the 1964 Russian translation and publication of Paul Samuelson’s famous textbook *Economics: An Introductory Analysis*. In 1978 Harvard Economic Historian Alexander Gerschenkron (who emigrated from Russia in 1917) wrote a detailed analysis of the Soviet edition of Samuelson’s book.
Published shortly before the Kotler book project began, Gerschenkron’s article pointed out editorial and censorship alterations to the Samuelson book’s original intent and discusses the likely pressures on the book’s Soviet editor (Gerschenkron, 1978). Specifically, he states that Article 70 of the Soviet Penal Code provided for imprisonment and exile for “diffusion of slanderous cogitations disparaging the Soviet political and social system” (Penal Code, 1970). Kotler’s book was being translated in this climate, which suggests that Abramishvilli included certain comments to be sure that his project would be published.

The book’s content: the “Shortened Edition”
The Soviet edition of *Marketing Management*, as *Upravlenie Marketingom*, was positioned as a handbook “for specialists working in planning organizations and for top-level managers in manufacturing and trade companies” (Abramishvilli, 1980, inside back cover)[1]. Of course, these “organizations” and “companies” were all state entities, not commercial enterprises, where Western capitalist marketing was unknown.

Abramishvili stated in his introduction to the Soviet edition that it was important for the USSR to know “all that business practices can provide to improve the planning, organization, and management of the national economy” (p. 7). He presented the following rationale for the book’s publication in the Soviet Union:

> Among economic issues of the development of our country in the present conditions is the modernization of planning systems, and the organization and management of all the modern sectors of business. This task is part of the long-term plan of the Communist Party to improve the material and cultural life of the Soviet people (p. 7).

Since, the aim was to assist top specialists and to modernize the Soviet economy, why then were the book’s contents so heavily cut and edited? Would not all the content be valuable?

At their 1982 meeting in New Delhi, Kotler commented to Abramishvilli and Zavialov about the book’s smaller size. The Soviets explained that the book had been abridged because they had lacked sufficient funds to publish the entire text. Kotler told them that, had he been notified of the plan to publish a Russian translation, he might have been able to locate financial support to enable them to publish the book in its entirety (Kotler, 2004; the same account was repeated by Kretov, 2004, who heard it from Abramishvilli). Kretov (2004) said that in fact Abramishvilli and Zavialov were embarrassed by the cuts and were in no position to tell Kotler the true reason for the shortened book – official government censorship – and thus used “lack of funds” as a polite explanation to a person they held in high esteem. Of course, Abramishvilli and Zavialov were aware that the full content of Kotler’s *Marketing Management* had already appeared in thousands of copies in other countries in other languages.

What was cut...
What then was omitted? Table I shows the side-by-side comparison of the US edition and the Soviet edition. The deepest cut was the omission of nine entire chapters of the original 22 chapters. The nine omitted chapters were not on peripheral topics: they addressed fundamental aspects of marketing, including market segmentation and targeting; product, brand, and new-product strategy; pricing and channel decisions; sales force decisions; and international marketing.
Author’s Preface by Philip Kotler

*Section I. Conceptualizing marketing management*
Chapter 1. Tasks and philosophy of marketing management

Chapter 2. The marketing system and environment

Chapter 3. Strategic marketing

*Section II. Analyzing marketing opportunities*
Chapter 4. Consumer markets and buyer behavior

Chapter 5. Producer, reseller and government markets

Chapter 6. Demand measurement and forecasting

*Section III. Planning marketing programs*
Chapter 7. Marketing segmentation and targeting

Chapter 8. Marketing planning and budgeting

*Section IV. Formulating product strategy*
Chapter 9. Product mix and brand strategies

Chapter 10. New product development strategies

Chapter 11. Product life cycle strategies

*Section V. Assembling the marketing mix*
Chapter 12. Price decisions

Chapter 13. Channel decisions

Chapter 14. Physical distribution decisions

Table I.
The omission of three of the “four Ps” – product, price, and channels – is stunning. While the Russian title page notes, in tiny print, that the book is a “shortened version” Soviet readers were probably unaware of the enormity of the cuts, and that the book was less than a comprehensive introduction to marketing as it was done in capitalist countries. Furthermore, the omission of international marketing remains acutely puzzling as Soviet export organizations faced serious competition in real markets, and greater knowledge of marketing would have helped them to improve trade with capitalist countries. Nikolai Smeliakov, in his role as Deputy Minister of Foreign Trade, was at that time actively seeking to improve the competitiveness of Soviet exports, and was entering into agreements with Western experts for that purpose. For example, during the 1970s Smeliakov was directly involved in signing agreements with French-American industrial designer Loewy (1973-1976, p. 76) to design an improved Moskvich automobile that might, it was hoped, be sold in the USA and Europe as well as in the Soviet Union.

Despite the drastic cuts, the Soviet edition of *Marketing Management* did provide its readers with a window on capitalist marketing and for a decade after its 1980 publication it remained the only Western marketing textbook in the Russian language published in the Soviet Union.

Examining the omissions and changes in the Soviet edition sheds some light on the mindset and concerns of the book’s editor and translators. For the chapters that were
included, the chapter titles were occasionally altered in the Russian translation. For example, in the translated titles of Chapters 8, 9, and 10 (Chapters 14, 15, and 16 in the US edition), the word “decisions” was eliminated. Thus, “Physical distribution decisions” became “Physical distribution management” and “Communication-promotion decisions” became “Problems of making contacts with customers and sales promotion” and “Advertising decisions” became “Advertising in the marketing system.” The reason? Decisions in these areas were not made by individual enterprises in the Soviet planned economy.

All section headings and section introductions from the US edition were omitted in the Soviet edition, along with all chapter opening vignettes, overviews, concluding summaries, and review questions. These omissions were presumably more in keeping with the Soviet edition’s positioning as a handbook for professionals. Another possible explanation for omitting the section headings and introductions is the fact that the extent of chapter omissions would then have become more obvious. For instance, in Section V of the US edition there are six chapters addressing the entire marketing mix, but only three in the Soviet edition.

Kotler’s preface was omitted. Also excluded were many quotations and examples, perhaps because these would not be have been recognized and understood by Soviet readers. And, in a pattern typical of Soviet-era translations, there are virtually no footnotes to identify the information sources Kotler used – and footnoted – in his original edition. Occasional paragraphs were omitted, usually those which explained or clarified new content. The editor presumably believed there was no need to make things simple and clear. Besides, even if considered as a textbook, this was no defect: Soviet textbooks were written in a dry “academic” style, were filled with complex scientific language, and contained few examples. That was what Soviet readers expected.

In numerous instances a few words or paragraphs were omitted. For example, a mention of nonprofit organizations (Kotler, 1976, p. 31) was cut: such organizations did not exist in the Soviet Union. Mention of a company’s “government relations department” (Kotler, 1976, p. 32) was omitted for the same reason. The section about “objectives sought by consumer buyers” (Kotler, 1976, pp. 74-80) was drastically cut. The discussion of roles in the buying process (Kotler, 1976, pp. 81-3) was retained, but all the examples are omitted in the Russian version. The translated chapter on physical distribution is much shorter than the original. In its discussion of types of inventory decisions (Kotler, 1976, p. 314), the paragraphs about what to order and how much to order were omitted because in the Soviet Union such inventory decisions were made at the center, not at the enterprise level.

Some content omissions may reflect embarrassment over comparative inadequacies in the Soviet marketplace. Kotler devoted a separate chapter to market segmentation for the first time in his third edition. The Soviet editor (or censor) might have deemed market segmentation to be irrelevant for a nation with limited choices of consumer goods, and believed that the concept would be relevant only where goods are plentiful enough that consumers can seek differentiated offers. For example, the US edition mentions husbands and wives making joint decisions about the color of an automobile to be purchased. But such characteristics as color were irrelevant to Soviet consumer decision making for automobiles: there was a shortage of cars, and Soviet consumers
wanted to buy a car, any car, regardless of color or model. Jacobs (2001, p. 150) provides another rationale for downplaying or omitting marketing segmentation:

Since, Soviet society was dedicated to the economic and social convergence, and ultimate merging, of different classes and groups, western-style market segmentation was usually rejected as serving to strengthen the differences between these groups.

While these rationales may at least partially explain the omission, we know that researchers at VNIIKS, the Soviet Institute for Consumer Research – including an author of this paper – understood segmentation and were carrying out segmentation research in the early 1980s.

...And what was added
Abramishvilli wrote a lengthy introduction and added extensive commentary in footnotes to the text. While Kotler’s (1980a) letter to Abramishvilli thanked the editor for his “kind words” in fact Abramishvilli’s editorial additions pointedly criticized Kotler’s views on many topics. Some of these criticisms suggest that Abramishvilli simply did not understand what Kotler was writing about. Although one of the most advanced people in the Soviet Union in his knowledge of marketing, Abramishvili was heavily influenced by his education in Marxist-Leninist political economy. His comments throughout the book suggest that he resisted and thus criticized some of Kotler’s points because he himself did not see how a planned socialist economy could be transformed to incorporate marketing.

Soviet economists were schooled to believe that state enterprises were not capable of planning their economic activities independently, but could only adapt production and distribution plans received from ministries. When an enterprise did decide to undertake some limited marketing-related activities – for instance, some form of promotion – the enterprise would need to ask the relevant ministry for permission to make the expenditure. Part of the resistance to enterprise-level decision making was defensive: if the system of central planning were eliminated, Gosplan (the State Committee for Planning, the national central planning authority) and other planning agencies would have lost their reason for existence.

But a close examination of the Soviet edition provides compelling evidence of something more: some of Abramishvilli’s copious criticisms were part of his strategy to get the book past censorship and into publication. According to Soloviev (2004a) and Kretov (2004), without Abramishvilli’s editorial comments the book “would not have seen the light of day”. These comments may be viewed today as indicators of what official Soviet policy found troubling about capitalist marketing, and as evidence of how marketing advocates sought to maneuver around these concerns.

Abramishvilli’s footnotes also aim to clarify the text for the Soviet reader and to imply some room for accommodation. For example, on page 16 Abramishvilli explains the role that marketing could play in a socialist economy:

Marketing under socialism should be understood as a complex economic activity in the market sphere. Marketing under socialism does not replace central planning, but is a collection of methods and means (market research, planning assortment of goods, distribution of goods in the market, including after-sale services, etc.) providing rationality of planned objectives, managerial decisions, and at the same time a means of effectively fulfilling plans. Marketing under socialism only superficially resembles capitalist marketing,
being basically different in its socio-economic essence, place and role in the system of management of public production [italics ours].

Such observations – and choice of words – were characteristic of Soviet writings on the political economy of socialism. Did Abramishvilli believe everything he wrote? We cannot say.

Abramishvilli also instructs Soviet readers about terminology. After giving an exact Russian translation of the definition of the term “product” the editor adds the socialist distinction:

[I]n Marxist literature goods are understood as products of labor meant for exchange or sale. They have two features: the ability to satisfy people’s needs (consumer value) and the ability to be exchanged for other goods in a certain proportion (exchange value). It is important to bear in mind that goods produced by a capitalist enterprise are not just products of labor, but also product capital which includes surplus value (p. 17).

In the political economy of socialism, “surplus value” should not be retained by the owners of capital as profit, but should be distributed to the workers who created it in the form of pay and/or social benefits such as education, health care, and housing.

Abramishvilli dismissed Kotler’s comment that a company might employ countermarketing to meet its responsibility to society and to consumers (p. 24). The editor notes that this is not realistic in a system based on private property, since the company’s main goal will be profit. He states that in capitalist marketing corporate business interests and consumers’ interests are in conflict: “That is why marketing in the exploitative society should be viewed as a means of exploitation of workers as consumers.” On page 27 he writes that it is not only within a capitalist economy that consumers have a choice of goods to satisfy their needs. (In reality, however, Soviet consumers often had few or no choices of consumer goods.) He criticizes the “monopolistic practice of pricing and other facts prove that under capitalism the consumer faces increasing difficulties to satisfy his material and – what is even more important – social needs (finding employment, health care, and social insurance).” In short, Abramishvilli expresses the conviction that socialism was better than capitalism in providing citizens with more security and a higher quality of life.

Abramishvilli underscores the same point in response to Kotler’s statement that the economy is an important aspect of the company’s environment because consumers’ purchasing power depends on their savings, their incomes, and the availability of credit (p. 46). In describing purchasing power, Kotler is using “a typical bourgeois approach” which ignores the social-class character of demand: (In capitalist countries) “the working masses have to limit their current expenditures and save money for possible illness, job loss, or their children’s education.” Abramishvilli’s criticism would have squared with the typical Soviet citizen’s understanding of the failings of capitalism. Few had ever visited capitalist countries, and most believed what they were told: that socialism was preferable to capitalism in providing citizens with guaranteed employment and a good standard of living, including free education and medical care, as well as substantial sick pay and pensions.

Other editorial footnotes criticize capitalist marketing in a manner likely to please the censors. Presented on page 27 of the US edition and on page 36 of the Soviet edition is a diagram of the marketing system for a company. The US edition illustrates the diagram with the example of a candy company producing chocolate. Kotler makes the
point that, since the company aims to realize a profit, the company needs to consider costs, sales, and consumer response. The Soviet edition eliminates the company example entirely, but Abramishvilli takes advantage of the marketing system diagram to insert a footnote on page 39 that “this approach shows that the objective of capitalist marketing is not to satisfy consumers’ needs, but rather to make profits.” Abramishvilli pointedly observes that readers can see this same orientation – the centrality of profits – in other parts of Kotler’s book. Despite the tone and regularity of his criticisms of capitalist marketing, Abramishvili could not fail to understand that a commercial (non-state-owned) firm would have to strive for profits in order to stay in business, and that the profit motive and satisfying customer needs are interrelated.

Publication and distribution
The single 12,000-copy printing of the Soviet edition was usual for this type of book (Kretov, 2004). The copies were quickly sold and, despite this evidence of demand, the book was never reprinted. We do know that the book reached specialists far from the capital, as well as in Moscow, because Kretov (2005) reported that he saw copies of this book not only in the libraries of his Moscow colleagues, but also in the collections of colleagues in far-flung areas of the Soviet Union.

Natalia Ivashkova was a purchaser of this book. Ivashkova was then carrying out consumer research on demand for durable goods at VNIKS. Now a Professor of marketing, Ivashkova said that the Kotler book presented a logical interpretation of marketing theory and made clear use of marketing terminology. She said that the book was particularly valuable for specialists like her who were involved in demand analysis for various goods (Ivashkova, 2004).

According to Kretov (2005), Kotler’s book provided the structure and content for faculty preparing lectures on marketing during the 1980s, when marketing became a standard course in Soviet institutes preparing foreign trade experts. Shishkin (2004), now a Marketing Professor at Plekhanov Academy of Economics in Moscow, bought his copy in order to learn how economic systems worked in the West, and he relied on *Upravlenie Marketingom* as a valuable teaching resource.

The book’s reach was further extended when members of the Marketing Section traveled throughout the Soviet Union, conducting training programs on marketing for senior professionals in state enterprises. According to Kretov (2005) and Soloviev (2004a), outside of Moscow there was little or no knowledge of marketing. At the All-Russian Academy of External Trade, where specialists were prepared for positions in the Ministry of Foreign Trade and for Soviet export companies, faculty in political economy (Marxism-Leninism) were often critical of those teaching capitalist marketing. The pragmatic importance of preparing Soviet experts to deal effectively trade with capitalist countries clearly won the day, however, and marketing courses continued, with professors often relying on their copies of Kotler’s book through the 1980s.

Kotler never received royalties for *Upravlenie Marketingom*. While the Soviet Union became a signatory of the 1952 Universal Copyright Convention in 1973, adherence to the convention was spotty, particularly in the case of foreign authors. Soviet publishing houses, all state-owned, frequently published foreign titles with no formal permission, no payment of royalties, and no notification or the original publisher and author. Kotler (2005a) wrote on several occasions to Moscow publishing houses, asking
about payment of royalties on anticipated forthcoming translations of his books (some of which were never published), and received no replies.

Western marketing books in the post-perestroika period


We are unable to determine why *Marketing Essentials* was chosen for publication in the Soviet Union in 1990. We may presume that a Kotler title was favored due to his reputation and the success of his earlier book in the Soviet Union, but by 1990 Kotler had authored and co-authored several basic marketing textbooks, any one of which might have been chosen for translation. As with the publication of *Marketing Management*, no permission was sought from publisher Prentice-Hall, and no royalties were ever paid. Therefore, financial considerations were not a factor in the selection process. Perhaps, *Marketing Essentials* was chosen because it was the shortest of Kotler’s textbooks and appeared under his sole authorship, or perhaps because someone involved in the decision happened to own a copy. In fact, *Marketing Essentials* was one of Kotler’s least successful textbooks in the US market. Targeted for American students at “less-demanding colleges and universities” the book “did only fairly well because there were many competitive books slicing up the lower end of the market” (Kotler, 2004, December 22, e-mail). (It was retitled and relaunched in the USA in 1987 as *Marketing – An Introduction*.)

When the first Soviet edition of *Marketing Essentials* appeared with the title *Osnovy Marketinga* in 1990, it arrived at a convergence of opportunity and audience, and found a ready market. Gorbachev’s policy of *perestroika* – restructuring of the economy – got underway in the mid-1980s and was in full swing in 1990. Making money and “doing business” were valued, and guides to business success were in great demand. Moscow professor Irina Skorobogatyykh, an author of this paper, recalled that when *Osnovy Marketinga* arrived in the book stores, her department colleagues took up a collection so that one person could rush to the book store to buy copies for all. They anticipated that copies would sell out right away, and be difficult or impossible to obtain later. Jacobs (2001, pp. 150-1) describes the book’s reception similarly:

Kotler’s 1990 book was an immediate success and was hard to obtain, causing the advertising journal, *Reklama*, to publish short excerpts over three issues. Its subscribers, numbering over 56,000, were thus exposed to an unbiased trenchant exposition of western marketing theory and practice by one of its leading exponents. Moreover, the selections were chosen in such a way as to familiarize Russian readers with western marketing terminology, even if they would never be able to obtain the book.

Elena M. Penkova was then the editor of the aforementioned journal *Reklama* and was considered an expert on marketing. Penkova (1990) wrote a 38-page introduction to *Osnovy Marketinga*, entitled “Opening Up Marketing” in which she gives an account of the 1974 Kostyukin collection of translated articles and of several other Soviet books on marketing published during the 1980s. She fails to mention that, other than the Kostyukin collection, Soviet books during that period all presented marketing as ideologically incorrect and evil. Her introduction includes a quotation from Marx and
Engels, an expected “nod” to Soviet correctness that was also required even in dissertations on topics as far from socialism and political economy as statistics and cell biology. Penkova’s lengthy introduction also goes into copious – some Russians would say, excessive – detail on the content of each chapter of the book.

Kotler’s Marketing Essentials was not the only Western marketing textbook to appear in Russian in 1990. The Ekonomika Publishing House published a Russian translation of the third (1987) US edition of Marketing by Evans and Berman (1987) that same year. By coincidence, Ekonomika was the publisher of Kotler’s Marketing Management (Upravlenie Marketingom), and the editor of the Evans and Berman book was A.A. Goryachev, one of the five translators of Kotler’s book.

Evans (2005) reports that the Soviet edition of the Evans and Berman book contained only 20 of the 25 chapters in the US edition:

Most notable was the fact that our four chapters on consumers had been reduced to two. Omitted were the two chapters that dealt with final consumers (one on consumer demographics and the other on consumer lifestyles and decision making). Yet, they kept the chapter on organizational consumers, as well as the chapter on developing a target market strategy.

The book’s appendices were omitted: the glossary, information on careers in marketing, and marketing mathematics. But Evans and Berman did have the advantage of a 1987 agreement between the US publisher Macmillan and the Russian publisher, to receive a fixed sum in rubles for the rights to translate and publish 40,000 copies. By the time the book finally appeared in 1990, the agreed-upon amount was worth about $400 US (Evans, 2005).

Thus, in 1990 Soviet readers could compare the poorly translated, less complex Osnovy Marketinga by Kotler with the marketing textbook by Evans and Berman (1990). Soviet specialists comparing the two books favored the Evans and Berman book over Kotler’s, because the Evans and Berman book contained quantitative examples and was deemed “more scientific” “more logical” and “more advanced” than Kotler’s. Also in its favor, the Evans and Berman book was similar in length and format to most Soviet textbooks. According to Evans (2005), the Russian text was about 350 pages in approximately 5 × 8-inch format, with tiny print. In comparison, since copies of the 1980 edition of Kotler’s Upravlenie Marketingom were no longer available, most Soviet readers would have considered Kotler’s Osnovy Marketing to be marketing “according to Kotler” and compared it against Evans and Berman’s book.

The end of the Soviet Union began to change the norms for translating and publishing foreign books. Some books were translated and published under formal publishing agreements which provided royalty payments; other books were published without the knowledge of their copyright holders abroad, as during the Soviet period. In some cases, a Russian publisher would appropriate and publish – pirate – books originally published by another Russian publisher. Kotler only began receiving royalties on Russian translations with the 1998 publication of the translation of the 9th US edition of Marketing Management.

During the 1990s significant errors of attribution occurred, some of which were subsequently repeated in print, proliferating the confusion. We have gone to great lengths to unravel and correct the bibliographic record, cross-checking Kotler titles in Russian libraries and private collections, with books in Kotler’s personal library at his home in Glencoe, IL USA, as well as online bibliographic sources in English and in Russian.
We provide for each book – Russian and US – its correct International Standard Book Number (ISBN), the unique ten-digit number assigned to every printed book. (The ISBN system was not used in the Soviet Union, so ISBNs are given only for post-Soviet editions. For books published in 2007, the new 13-digit ISBN is given.) We present all the known Russian editions of *Marketing Management* in Table II, and all the known Russian books based on *A Framework for Marketing Management* in Table III. Table IV presents the various Russian books with the title *Osnovy Marketinga*. Table V presents the Russian editions of specialized Kotler titles, illustrating the breadth of publication interest and the speed with which Russian editions of them have appeared.

A grand source of confusion is the fact that three different Kotler books were given the same title in Russian, *Osnovy Marketinga*. The title was first applied to *Marketing Essentials*, the 1990 Soviet edition previously discussed. Later, when Kotler and Armstrong’s undergraduate textbook *Principles of Marketing* was published in Russian, it too was titled *Osnovy Marketinga*. Then two translations of *Marketing: an Introduction* were published in 2000 and 2007, and were also titled *Osnovy Marketinga*.

Here, is a specific example of the *Osnovy Marketinga* confusion: the 2002 book *Osnovy Marketinga* states that “this is the first legal translation of the popular book by Kotler, which was first published in 1990 by Progress, and all rights are protected by Williams Publishing House, the copyright holder, and Prentice-Hall, 1984.” The introduction states that “the book you hold in your hands today is the only legal publication of this attractive best-seller.” But the 2002 book is not a translation of *Marketing Essentials* at all, but rather a translation of *A Framework for Marketing Management*.

A later edition of *A Framework of Marketing Management*, published as *Marketing. Menedzhment: Ekspress Kurs* in 2004, contains an introduction by Natalia Volkhova which further confuses the Soviet/Russian history of Kotler publications. Volkhova writes that Kotler’s book *Upravleniye Marketingom* (*Marketing Management*) was first published in Russian in 1976 – and we know that the publication date was 1980. (It was a translation of the 1976 third US edition, perhaps the source of her error.) She further errs in stating that the 1990 *Osnovy Marketinga* was a shortened version of the previously published *Marketing Management*, when in fact the 1990 edition of *Osnovy Marketinga* was a full translation of *Marketing Essentials*. Jacobs (2001), in his review of Western marketing textbooks, makes a different error when he states that the 1990 *Osnovy Marketinga* was a translation of the 1984 US edition of *Principles of Marketing*.

This rampant confusion of titles and books persists. An August 2007 search, in Russian Cyrillic, in Google Scholar for the words “Kotler” and *Osnovy Marketinga* yielded a link to the “electronic library” of the Faculty of Sociology of Moscow State University (http://lib.socio.msu.ru). The image shown on the web page is the cover of the Russian translation of the second European edition of *Principles of Marketing*, which was published as *Osnovy Marketinga* in 2002. The text on the web page links to complete text files of Penkova’s introduction and all the chapters in the 1990 *Osnovy Marketinga* which was a weak translation of a completely different book, *Marketing Essentials*. In addition to the confusion of books with the same Russian title, it is interesting that the web site of one of Russia’s most prestigious universities makes available an outdated book on marketing, complete with Penkova’s Soviet-era quotation from Marx and Engels! (A complete, differently-formatted text zip file of *Osnovy Marketinga* –
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M. Бугаев, Е. Бугаева, А. Вихрова, С. Жильцов, С. Зимин, Т. Карасевич, Л. Корпан, В. Мисник, Н. Мальгина, Ю. Писаренок, Д. Раевская  
| Маркетинг менеджмент. 2-е издание Marketing menedzhment. 2-e izdanie ISBN 5-8046-0048-6 | PITER                        | 2000  
| Маркетинг менеджмент Marketing menedzhment ISBN 5-272-00172-9 | PITER                        | 2003  
| Маркетинг менеджмент Marketing menedzhment ISBN 5-94723-311-8 | St.Petersburg, Moscow, Kharkov, Minsk: PITER | 2003  
A. Железниченко С. Жильцов  
| Маркетинг менеджмент Marketing menedzhment ISBN 5-94723-311-8 | St.Petersburg, Moscow, Kharkov, Minsk: PITER | 2005  
A. Железниченко С. Жильцов  
| Маркетинг менеджмент Marketing menedzhment ISBN 5-469-00989-0 | PITER                        | 2006  

Philip Kotler’s influence

Table II. Versions of Kotler’s *Marketing Management* translated into Russian, 1998-2007

**Kotler and more Kotler books appear in Russia**

In 1998 another edition of *Marketing Essentials (Osnovy Marketinga)* was published. But the signal publishing event was the first full Russian translation of *Marketing Management* (the US 9th edition), with the Russian title *Marketing Menedzhment* (Kotler, 1998). For the first time a complete translation of Kotler’s most influential book was available to Russian readers.

When the new edition of *Marketing Management* went on sale in September 1998, some skeptics said the new book was not needed since other Kotler books – including the 1980 “best-seller” *Upravleniye Marketingom* and 1990 *Osnovy Marketinga* – had already been published in Russian, and that Kotler had “outlived” himself (Volkhova, 2004).

But Kotler’s thick and expensive (about $10 US) *Marketing Menedzhment* sold very well. Russians were reeling from the mid-August financial meltdown that hammered down the value of the ruble in a few days, causing their purchasing power to skid. Russians engaged in business recognized that they needed modern marketing knowledge and that Kotler’s new book could provide it.

The new *Marketing Menedzhment* solidified Kotler’s reputation in Russia as a leading marketing guru. That same month, September 1998, Kotler visited Russia for the first time, as a guest of the Russian Marketing Association. Alexander Braverman, President of the Russian Marketing Association, and Alexander Izhorsky, the organization’s Executive Director, had met Kotler earlier that year, when the American Marketing Association brought the directors of marketing associations from other
Table IV.
Introductory marketing textbooks by Kotler (and co-authors) translated into Russian, 1990-2007

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<td>Основы маркетинга</td>
<td>ISBN 5-01-001816-8</td>
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(Continued)
countries together in Chicago. Braverman and Izhorsky invited Kotler to come to Moscow to speak at the Russian Marketing Association’s second annual conference ‘Marketing in Russia’ on September 22-23. The decision to invite Kotler was based on a growing interest in marketing among Russian companies and individuals. Russian companies began to grasp that they needed marketing in order to survive, maintain their customer base, and recover from the financial crisis. Kotler’s keynote speech,
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<td>Гостеприимство.</td>
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<td>Маркетинг в третьем тысячелетии</td>
<td>Ast</td>
<td>2003</td>
<td>Т. Гутникова</td>
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<td>Маневры маркетинга. Современные подходы к прибыли, росту и обновлению</td>
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<td><em>Marketing po Kotlu. Kak sozdat, zavoevati i uderzhat rynok. ISBN 5-94599-096-5</em></td>
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<td>Маркетинг по Котлеру.</td>
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<td>Как создать, завоевать и удержать рынок</td>
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<tr>
<td><em>Marketing ot A do Ya. 80 konceptacji, kotoriy dolzhen znat kazhdy menedzher. ISBN 5-7654-2780-4</em></td>
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Table V. Additional books by Kotler (and co-authors) translated into Russian, 1998-2007 (Continued)
titled “Marketing at the threshold of the twenty-first century,” was received with great interest by an audience of about two hundred, including the two Russian authors of this paper.

Kotler returned to Moscow in October 2003 and in May 2006 to present simultaneously-translated seminars for Russian businesspeople, in each instance at a per-person fee of over €1,000, beyond the reach of Russian academics and most businessmen. Kotler’s 2003 seminar, “Making marketing work in the new century” drew an audience of 200 business executives at Moscow’s Radisson Hotel (Milashenkov, 2004). Kotler returned to Moscow in 2006 and co-presented a seminar with Martin Lindstrom on “Tomorrow’s Rules of Brand Building” to 150 participants, including (as guests) the two Russian authors of this paper.

Conclusion
Soloviev (2004b), a founding member of the Marketing Section, has divided Soviet and post-Soviet Russian marketing into four stages:

1) 1960s. Official criticism of marketing as a bourgeois economic concept.

2) 1970-1990. The introduction of marketing in foreign trade activities. The inception in 1976 of the Marketing Section of the Soviet Chamber of Commerce and its activities to spread information about marketing applied to foreign trade.
Kotler’s books contributed to the movement from Stage 2, with the introduction and some adoption of marketing in foreign trade activities, to Stage 3, *perestroika*-era businesses, through to Stage 4, the modern stage at which Russian firms, including very large corporations, are putting modern marketing into practice. Kotler’s translated books on marketing became the most important sources of marketing information for Soviet economists, businesspeople, professors, and students and continue to be influential.

Hundreds of Russian professors, trained during Soviet times in Marxist-Leninist political economy or in applied economics, have attempted to reposition themselves as professors of marketing since 1991. A major aid has been the availability of affordable marketing textbooks in Russian reflecting the most current marketing knowledge (Skorobogatykh et al., 2001). In many instances the only textbook is in the hands of the professor, used as the basis for lectures. Kotler’s *Marketing Management* and his other books in their Russian editions have played a major role in supporting Russian faculty in teaching contemporary marketing. The transformation of marketing instruction in Russia has also been aided by faculty development programs for Russian professors (Fox et al., 2001). During the 1990s many Russian marketing professors participated in extended academic programs at European business schools where they were exposed to a variety of schools of thought in marketing.

On his first visit to Russia in 1998, Kotler was welcomed as a marketing guru – in fact, as the world’s foremost expert on marketing. His books dominated the Russian market for marketing knowledge.

What is Kotler’s position today? Russian marketers, especially in Moscow, are continually seeking out what is “new”. Russian readers of marketing publications are now aware of many marketing authors besides Kotler, and they can readily find translated books on marketing management, integrated marketing communications, positioning, consumer behavior, branding, and marketing research by leading American and European authors. A completely “Russianized” marketing textbook based on the US sixth edition of *Marketing* by Berkowitz et al. (1999) was prepared by a group of Russian marketing professors, and published with their names along with the US authors (Rudelius et al., 2001). To respond to interest in the European as well as the American perspective on marketing, Kotler’s publisher Pearson has sold publication rights for Russian translations of both the original US edition and the European version of Kotler’s *Principles of Marketing* text; the Russian translations of both versions can be found side by side in major Russian book stores.

Through reading books, travel, and business exposure, sophisticated Russian marketing academics and businesspeople are now becoming global in their sensibilities and critical in their appraisals of marketing orthodoxy in general and of American marketing orthodoxy in particular. In 2005 in the USA, AMACOM published *According To Kotler: The World’s Foremost Authority on Marketing Answers Your Questions* (Kotler, 2005b). To stand out and to appeal to novelty seekers, Kolontay (2005),
a Russian consultant and seminar presenter, advertised his seminar that same year as “Marketing NOT According to Kotler”.

One further measure of influence is that Kotler’s books have frequently been pirated and plagiarized in Russia. In May 2006, Kotler received an e-mail from a Russian stating that sections of his book Marketing Essentials had been plagiarized in three specific books published in Moscow between 1999 and 2004. Jason Hand, international rights manager for Pearson Education, confirms this claim:

Several third-party publishers have informed me separately, on different occasions, that almost all marketing texts published in Russia in the 1990s (and previously the Soviet Union) are based on Dr Kotler’s works, and may be deemed as unauthorized derivates or “rip-offs” of Dr Kotler’s works (2006).

The legal office of Pearson, the publisher of most of Kotler’s textbooks, “has sent official cease and desist letters requesting the immediate termination of and destruction of pirated editions” but Pearson has no legal standing in Russian courts because it is not an official corporate entity in the Russian Federation. Pearson has intensified its efforts with the four Russian publishing houses holding licenses to publish specific Kotler books, encouraging these Russian publishers to work “to eliminate or reduce this unauthorized competition” (Hand, 2006).

We have presented in detail the history of Kotler’s publications and their influence in the Soviet Union and Russia. But there is an unexpected coincidence that adds poignancy to our account: Kotler is the eldest son of parents who emigrated from the Russian Empire in 1917. Fearing a resurgence of anti-Jewish pogroms in the wake of the Bolshevik revolution, Maurice Kotler (1905-1980) and Betty Bubar (1909-) fled from their predominantly Jewish towns near Kiev in present-day Ukraine.

Kotler’s parents’ fears of persecution in their native towns proved well founded: not for the first time, Nezhin experienced a pogrom in 1918, Berdichev in 1919. In 1941 the nearly 20,000 Jews who remained in Berdichev were rounded up into a ghetto. On October 5, 1941, they were taken out of town to pits that had been prepared in advance, and shot.

The Kotlers met in Chicago, married, and raised their five sons there. They never returned to Russia. Through an inconceivable twist of fate, it was their American-born son, through his writings, who went on to contribute to the revival of capitalist marketing in the country of their birth.

Note
1. All Abramishvilli (1980) quotations and references relate to his introduction, comments, and other aspects of Kotler’s (1980b) Upravlenie Marketingom and are referenced in this paper by page number only. All quotations from the 1980 Soviet edition of Kotler’s Marketing Management were translated from the Russian by the Russian authors of this paper.

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Abstract

Purpose – The purpose of this paper is to analyze the domestic anti-money laundering (AML) regime in Russia in its prevention pillar with the aim to test its compliance with the international standards.

Design/methodology/approach – The comparative approach is used to analyze domestic regulations with the focus on the four key elements of the prevention pillar of any AML regime – customer due diligence, reporting, regulation and supervision and sanctions – for compliance with the main international documents regulating AML activities of the countries.

Findings – The domestic AML regime in its prevention pillar which was created in 2002 has undergone significant changes. It is still far from complete and is being improved over time. No matter how the regime functions in reality, it mostly formally complies with the international AML requirements.

Research limitations/implications – In using a comparative approach it has been necessary to see how compatible the created regime is with the international norms.

Practical implications – The compliance is, however, conditional. The formal legislative compliance does not characterize the efficiency of the existing regime. How this legislation is applied in practice is the topic of the next step of our analysis.

Originality/value – The efficiency of the global AML regime is a summarized efficiency of the domestic AML regimes. The most difficult part is to measure such efficiency. The more regimes are analyzed the more conditions are created for the assessment of the global regime efficiency.

Keywords Money laundering, Financial institutions, Russia, International cooperation

Introduction

Money laundering (ML) has, undoubtedly, become a significant issue not only in international community but also in domestic jurisdictions. The key element in the fight against ML is international cooperation in creating international anti-money laundering (AML) regulations which would help to evaluate and monitor the countries’ financial systems. However, the measures taken by the governments on the domestic level seem not less important. To fight the system of illegal finance governments use different tools. One of them is cooperation of the investigators with financial institutions through their reporting to the governments about suspicious transactions and clients which can be involved in ML or terrorist activities. The banks being part of any financial system are the primary actors, most possibly influencing prevention of ML. This particular paper is devoted to the survey on the fight against ML in the Russian Federation (RF). To be more specific, the paper mainly focuses on the compliance of the Russian AML legislation in its prevention pillar with the international standards and norms. To briefly summarize the aim of the research the following research question is formulated: to what extent does Russian AML legislation comply with the accepted international norms and standards?
Domestic AML regime in Russia as part of international AML regime

The global AML regime consists of domestic regimes and it is evident that domestic legislation on its own would be inadequate as ML has global nature. It is interesting enough that the regimes created in different countries are far from uniform. Analyses of the development of domestic regimes are important in assessment of the efficiency of the global regime. Table I chronologically lists the major developments in the domestic regime since the year of 1990 and allows the reader to follow the author’s analysis of these developments.

One of the most significant steps towards creating domestic AML regime was ratification of the main conventions and international documents that constitute the global AML regime. The first document which was paid attention was the UN/International Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances which was ratified with the Decision of the Supreme Court No. 1711-I in 1990. This fact for the first time showed a shift towards understanding of the necessity to participate in the fight against ML. However, the start in creation of the domestic AML regime was far much later than one of the global regime. The next step after ratifying the above convention in 1990 was taken only in 1997 and was expressed in the Article 174 of the Criminal Code which designated ML as a criminal offence. The amended Article 174.1 entered into force only in 2002 – the year which can be assumed as the starting point of Russian AML legislation development. The Convention ETS 141 – Convention on Laundering, Search, Seizure and Confiscation of the Proceeds from Crime – was ratified in 2001 together with the creation of the project of the new Federal AML law, particularly, Federal law No. 115-FZ “On Countering ML and the Financing of Terrorism” which entered into force from the 1st February 2002.

Up to the year of 2002 most international Conventions which are considered to be the documents expressing the international AML standards had been ratified and attempts to implement their provisions had been made (Table I). The main document which received significant attention from Russian legislators elaborating the AML legislation was FATF Forty Recommendations. FATF Annual report 2002-2003 already highlighted the compliance of the domestic regime with “essential FATF recommendations” (FATF, 2003 a) and expressed the content to the attempts of elaborating proper legislation which allowed the country to be de-listed from the FATF NCCTs list. As soon as Russia became a FATF member, it took an active position in collaborating to the new legislative AML initiatives. The 2003 revised Forty Recommendations brought significant changes to Russian legislation including identification of not only customers, but also beneficial owners, spreading the requirements of defining and reporting suspicious activities on non-financial organizations and paying more attention to the “politically exposed persons” (in terms of FATF). Thus, the new 40 Recommendations facilitated amendments to the AML legislation in the Russian Federation and the Ordinance 173 was issued to publish the FATF list of NCCTs by the intelligent body. The FATF NCCT list was widely used in the currency control regulations as well.

The important international organization to rely on is considered to be the Council of Europe with its main document mentioned above – Council of Europe Convention on Laundering, Search, Seizure and Confiscation of the Proceeds from Crime and on the Financing of Terrorism which was amended in 2005 with the dimension of financing terrorism (FT). This document put significant emphasis on strict requirements of internal control rules for financial institutions with the purpose of customer identification and
<table>
<thead>
<tr>
<th>Year (1)</th>
<th>Major developments (2)</th>
</tr>
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<tbody>
<tr>
<td>1990</td>
<td>Ratification of the UN/International Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (Decision of the Supreme Court No. 1711-I)</td>
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<tr>
<td>1997</td>
<td>Article 174 of the Criminal Code enacted</td>
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<td>1998</td>
<td>Federal Law No 130-FZ on combating terrorism (now not into force)</td>
</tr>
<tr>
<td>1999</td>
<td>ETS 141 – Convention on Laundering, Search, Seizure and Confiscation of the Proceeds from Crime, Strasbourg is signed</td>
</tr>
<tr>
<td>2000</td>
<td>FATF First review of NCCTs identified Russia as NCCT RF signed UN/International Convention for the Suppression of the Financing of Terrorism of 1999</td>
</tr>
<tr>
<td>2001</td>
<td>ETS 141 – Convention on Laundering, Search, Seizure and Confiscation of the Proceeds from Crime is ratified (Federal law No 62-FZ) Amendments to Federal Law 395-1 “On banks and banking” about sanctions applied to the banks for non-observance of the AML law enacted (121-FZ) but not entered into force Federal law No 115-FZ “On Combating Legalization (Laundering) of Criminally Gained Income and Financing of Terrorism” is signed but not entered into force</td>
</tr>
<tr>
<td>2002</td>
<td>Article 174 and 174.1 of the Criminal Code entered into force Federal law No 115-FZ “On Combating Legalization (Laundering) of Criminally Gained Income and Financing of Terrorism” entered into force Amendments to Federal Law 395-1 “On banks and banking” about sanctions applied to the banks for non-observance of the AML law adopted (121-FZ) entered into force Financial Monitoring Committee of Russian Federation (FMC) is established as a predecessor of FFMS (Presidential decree No. 1263) The Statute of the FMC is adopted (Ordinance No. 211 of the Government of RF) The Regulations on submitting the information to the FCM by the organizations involved in operations with monetary funds and other assets are adopted (Ordinance No. 245 of the Government of RF) The Regulations on submitting the information to the FCM by governmental organizations (Ordinance No 425 of the Government of RF) The Recommendations on elaboration of internal control rules by organizations (Ordinance No. 983-R of the Government of Russian Federation) FMC elaborated the model agreement of cooperation with the competent foreign authorities in combating ML (Ordinance No. 1405-R) RF is removed from the FATF list of NCCTs Federal law No 130-FZ amended Article 15.27 of the Code of Administrative Offences Russia becomes a member of EGMONT Group RF ratified UN/International Convention for the Suppression of the Financing of Terrorism of 1999 (Federal law No. 88-FZ) Federal law No 114-FZ “On suppression of extremist activity” is adopted</td>
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<tr>
<td>2003</td>
<td>All the regulations were amended by adding the dimension of “financing of terrorism” by adding the dimension to 115-FZ The Regulations about defining of the list of natural and legal persons participating in extremist activities (Ordinance No. 27 of the Government of RF) The Regulations on registering in FMC of the organizations involved in operations with monetary funds and other assets and have no supervisory body and reporting (Ordinance No. 28 of the Government of RF) Russia becomes a member of FATF Ordinance No. 173 is signed to define and publish the FATF list of NCCTs by the FMC Ratification of the Shanghai Convention on combating terrorism, separatism and extremism</td>
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Table I.
Evolution of the AML regime in Russian Federation

(continued)
reporting of the suspicious transactions, stricter rules and regulations concerning confiscation of the criminally gained income. Article 13 of the Convention emphasizes the necessity of developing national AML regimes in their prevention pillar through developing comprehensive legal and institutional frameworks according to “applicable international standards” (Council of Europe, 2005). Particular attention in the document is addressed to FATF Forty Recommendations and as long as the Convention considerably coincides in its provisions with FATF Forty Recommendations, joining it was not followed by significant changes in Russian AML legislation. The important place of the Convention in the global AML regime is obvious in terms of defining the principles of international cooperation not only for prevention but also for the enforcement pillar. Chapter IV of the Convention emphasizes the essence of mutual cooperation, mutual assistance of domestic jurisdictions in prevention through sharing information, elaborating common principles and following international norms, in investigation, provisional measures such as seizing and freezing of assets, in confiscation, as well as considers the provisions connected with the refusal and postponement of cooperation (Council of Europe, 2005).

Wolfsberg principles seem to have been recognized and familiarized with by the banking community in Russia. First of all, the regulator tried to help the banks to pay attention to the international document by issuing the letter 105-T about Wolfsberg principles in which the Central Bank of the Russian Federation recommended the banks to familiarize themselves with the existence of the document. Moreover, after the attention to the principles was drawn, the eight biggest banks in Russia in 2004 concluded the mutual convention on the AML legislation compliance and cooperation in this field (Vasilyeva and Abramov, 2005). The convention expressed the willingness of the banks to follow the main tendencies in the international AML activities as well as the recognition of the necessity to preserve good reputation of the banking community in the country.

<table>
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<tr>
<th>Year (1)</th>
<th>Major developments (2)</th>
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<tr>
<td>2004</td>
<td>EAG (Eurasian Group) is founded by Belarus, Kazakhstan, Kyrgyzstan, China, Russia, Tajikistan</td>
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<td></td>
<td>Decree No 314 transformed FMC to the FFMS (Rosfinmonitoring)</td>
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<td></td>
<td>Ordinance No 186 of the Government of the RF defined the authority of the Ministry of Finance to control Rosfinmonitoring</td>
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<td></td>
<td>The Statute of Rosfinmonitoring is ratified (Ordinance № 307 of the Government of RF)</td>
</tr>
<tr>
<td></td>
<td>Amendments to 115-FZ on the right to refuse to open bank account (88-FZ)</td>
</tr>
<tr>
<td>2003-2005</td>
<td>MOLI-RU project fully financed by the European Commission</td>
</tr>
<tr>
<td>2005</td>
<td>The Regulations on submitting of the SARs to Rosfinmonitoring by lawyers, notaries, other individual professionals and accountants is adopted (Ordinance No. 82 of the Government of RF)</td>
</tr>
<tr>
<td></td>
<td>The concept of national strategy on combating legalization (laundering) of criminally gained income and financing of terrorism is worked out and signed by the President of RF for the next five years</td>
</tr>
<tr>
<td>2006</td>
<td>Federal Law No 35-FZ “On Suppression of Terrorism” is adopted</td>
</tr>
<tr>
<td>2007</td>
<td>MOLI-RU-2 co-financed by the European Commission and Council of Europe. 3d round of mutual assessments</td>
</tr>
<tr>
<td>2008</td>
<td>Federal law 275-FZ introduced “politically exposed persons” into 115-FZ</td>
</tr>
</tbody>
</table>

Table 1.
Thus, described above international norms reflect the main tendencies in the development of Russian AML legislation in accordance with globally accepted standards in this sphere. Compliance with these international norms is the universal criteria of assessment of the effectiveness of national AML regimes. According to the international expert assessments, Russian Federation has created an effective domestic AML regime (FATF, 2003a) including institutional and legal frameworks. In the FATF Annual Report 2002-2003 the substantial progress in the development of the domestic AML regime having enough possibilities of accepting the country into the FATF network was emphasized as well as the recommendations on the further development of the regime were made. It is arguable, however, that the substantial development of the prevention pillar of the domestic regime started only after the year of 2002.

Institutional framework

The institutional framework development included creation of the Federal Financial Monitoring Service (FFMS) as the Financial Intelligence Unit (FIU) which is the main player in the AML regime actively cooperating with international bodies in building the effective system of combating the legalization (the term legalization is widely used in Russian AML legislation and refers to ML) and terrorism financing since 2002 when the country became the member of Egmont Group (Federal Financial Monitoring Service, 2005). Thus, in elaborating its principles and aims, identified in the main legislation documents such as Decree No. 314 which transformed Federal Monitoring Committee created in 2002, to FFMS (Rosfinmonitoring), Ordinance No. 186 of the Government of the Russian Federation was adopted which defined the authority of the Ministry of Finance of the Russian Federation (MF) to control Rosfinmonitoring, The Statute of Rosfinmonitoring which was ratified by Ordinance No. 307 of the Government of the Russian Federation (Table I), Rosfinmonitoring relies on international practices and tendencies.

The next important actor in the preventive pillar of the AML regime is a supervisory body which regulates financial institutions. As the paper mainly focuses on the financial institutions and their role in the prevention of ML, it must be pointed out that the Bank of Russia (or Central Bank of the Russian Federation – CB) received the authority of supervision over the financial institutions. CB functions as a regulator building the legal framework for the financial institutions (mainly banks) in all of the four elements of the prevention pillar – it defines the characteristics of suspicious transactions, issues regulations on customer identification and reporting of the suspicious transactions by the banks, as well as it is involved in the application of sanctions towards the banks for non-observance of the federal AML legislation. Although it is the prerogative of Rosfinmonitoring to improve the legislation framework, the regulations and rules issued by CB and regulating the AML activity of the main actors – banks – have neither been adjusted nor approved by the authorized body – Rosfinmonitoring. Until the year 2007, this collision was the main reason of the debates and conflicts between the banking community and the regulator.

The banks are recognized as the next actors logically appearing in this AML chain. “It seems clear that the role of financial intermediary as concerns ML must be carefully scrutinized in order to develop a coherent and effective anti-money laundering regime” (Salva, 2001). The successful fight against ML is impossible without closer cooperation between Rosfinmonitoring as FIU, CB as a supervisory body and banks as financial institutions in Russia. This main perception of the necessity of the cooperation of all
the actors taking part in the AML activities was expressed by these organizations at the third international conference held in 2005 on contemporary tendencies in the development of the AML regimes – international and domestic (Sukharenko, 2005). This thesis was also assumed as the main principle of The Concept of the National Strategy on Combating Legalization (Laundering) of Criminally Gained Income and Financing of Terrorism which was worked out and signed by the President of Russian Federation in 2005 (Pavlov, 2005).

Legislative framework

The internal legal framework was created by the joint efforts of the main regulators of the domestic AML regime – the President and the Government of the Russian Federation, Rosfinmonitoring, CB and MF. The basis of the Russian AML legislation is the Federal Law No. 115-FZ “On Combating Legalization (Laundering) of Criminally Gained Income and Financing of Terrorism” (115-FZ) which entered into force in 2002. The law, however, has been subject to several amendments, such as:

- 2003 amendments on adding the dimension of “combating of the financing of terrorism” to 115-FZ and all other legislative documents;
- 2004 amendments on the right to refuse to open bank account (88-FZ);
- 2006 amendments about the rules of identification of natural persons (147-FZ) and amendments concerning changes caused by the adoption of the Federal law No. 35-FZ “On combating terrorism” (153-FZ); and
- 2007 amendments concerning the rules and regulations elaborated by CB as a supervisor and a regulator of financial institutions to be approved by the authorized body responsible for the AML/CFT measures – Rosfinmonitoring (51-FZ).

(115-FZ, 2001) The 2007 amendment became the result of the debates between CB and financial institutions represented by interest groups caused by the numerous discrepancies in the regulator’s legislative documents. The last amendment introduced in 2008 concerned politically exposed persons which have been ignored in the Russian AML legislation so far.

Apart from the Federal law, the supervisor issues numerous rules and regulations for the financial institutions. This subordinate legislation created by the regulator and based on 115-FZ concern the financial activities which can be connected to ML. Concerning banks, the main legislation was adopted by the regulator shortly after enforcing of 115-FZ and is a focus of analysis of one of the next articles.

Compliance of the prevention pillar of the domestic AML regime with international standards

“All preventive anti-money laundering measures adopted at an international level are focused on the role of financial institutions” (Stessens, 2000). It is also true taking into consideration domestic regimes. The role of financial institutions in prevention of ML in Russia is paramount. The strictest requirements apply to the core financial institutions such as banks. All the banks are required to have compliance with the AML legislation in customer identification, suspicious transactions reporting, internal control rules elaborating, record keeping; they are subject to supervision and regulations, and to
sanctions for non-observance of the AML legislation. Keeping the above key elements of the prevention pillar in mind, the paper uses comparative approach to discuss the obligations imposed by the international standards and domestic legislation on financial institutions.

As mentioned in the previous section, the cornerstone of the Russian AML regime is the Federal law No. 115-FZ “On Combating Legalization (Laundering) of Criminally Gained Income and Financing of Terrorism”. The law is applied to individuals and legal entities that deal with money or other property and is a base for the secondary legislation which is created by the regulators. The provisions of 115-FZ are to be tested in this paper for their compliance with the international standards and norms.

The key concept of Russian AML legislation is legalization (laundering) of proceeds of crime which is defined in the Article 3 of the law as a process of bringing a legal appearance to the possession, use or disposal of money or other property, received as a result of committing an offence. The scope of the law concerns all kinds of offences, except, surprisingly, several offences, specified in the Criminal Code of the Russian Federation. The offences that are not subject to AML measures are specified in Articles 193, 194, 198, 199, 199.1, 199.2 of the Criminal Code due to articles’ own responsibilities established by the code. These excluded offences include failure of repatriation of currency from abroad, evasion of customs or tax payments by natural or legal persons, dereliction of duties by a fiscal agent to calculate, deduct or transfer taxes, and hiding money or other property assigned to pay taxes or fees, correspondingly. The law provides a list of measures for countering ML such as compulsory control, compulsory internal control procedures, a ban on informing clients and third parties about the measures taken to counter ML, and “other measures provided by federal laws” (115-FZ, 2001). Banks as financial institutions are included in the list of organizations dealing with money or other property (further organizations) by the Article 5 of the federal law.

With respect to customer due diligence (CDD), most international AML documents contain obligations for the banks to identify their customers “before or during the course of establishing a business relationship or conducting transactions for occasional customers” (FATF, 2003b). FATF Forty Recommendations define the occasions or situations in which the CDD should take place. This statement shows the pure preventive nature of this measure which can also avoid the involvement of the financial institution in the process of ML itself. The preventive customer identification should be applied not only to identifying of customers but also to identifying the beneficial owners. The requirements of identification should be applied by the financial institution to all new clients, both legal and natural persons.

Customer identification is expressed in Basel Committee Statement on CDD for banks with a reference to the obligation to create a comprehensive “Know-Your-Customer” (KYC) system (Basel Committee, 2001). In its document Basel Committee recommends to apply a risk-management approach to the bank’s customers and their transactions. It states that “The inadequacy or absence of KYC standards can subject banks to serious customer and counterparty risks, especially reputation, operational, and legal and concentration risks.” The same issues of customer and beneficial owner identification are addressed in Wolfsberg principles with the necessity of keeping and updating of the information (The Wolfsberg Group, 2000). The Article 13 of the 2005 Council of Europe Convention on laundering, search, seizure and confiscation mentioned above contains
general provision of customer identification with the reference to the FATF Forty Recommendations.

The Article 7 of Russian AML law requires the organizations to identify their customers as well as beneficial owners. It provides the list of client data that should be collected by the organizations concerning both legal and natural persons. The rules to identify beneficial owners, however, are limited by the requirement to “undertake sound and available in the given circumstances measures” (115-FZ, 2001). According to the law, financial institutions are required to collect personal information about the customers for all transaction except those designated in items 1.1 and 1.2 of the Article 7. According to these articles client identification can be ignored in case of occasional client operations conducted without opening of a bank account, such as tax payments, payments for municipal services or such if the payment does not exceed 30,000 rubles or currency cash operations (purchase or sale of foreign currency) in the amount under 15,000 rubles (According to the currency exchange rates established by CB on a daily basis, 30,000 rubles/15,000 rubles equals to USD 1220/610 correspondingly). The identification is, however, required in case of any suspicion of ML of illegal earnings arouses. On the regular basis, financial institutions must inquire customer information when opening new accounts.

According to the international norms, if a financial institution is unable to identify its customer it should refrain from establishing business with it. Item 5 of the Article 7 prohibits the banks to open anonymous accounts (this requirement complies with Basel Committee CDD for banks, Article 2.1-30, and FATF Recommendation 5), open accounts without physical presence of a client (this requirement complies with Basel Committee CDD for banks, Article 2.2.6-45), refrain from relationship with the banks outside the Russian Federation which do not have physical presence in the territories they are registered (“shell banks” in terms of FATF Forty Recommendations Glossary (this requirement complies with FATF Recommendation 18)). Moreover, according to item 2 of the Article 7 financial institutions have the right to refuse opening bank accounts when there is no possibility to properly identify the customer (this requirement complies with FATF Recommendation 5.)

In spite of reflecting the idea of the customer identification in the Russian AML legislation, the concept of KYC is not mentioned in the Federal law. Although the term KYC is not used in the main AML law, the principles of the customer identification are grasped and further developed by the regulator. Particularly, giving CB a role of AML regulator and supervisor for financial institutions, the federal law transmitted the task to further clarify the main concepts of international norms to the domestic AML regime. Identification programmes suggested by CB in its Regulation 262-P contain the regulatory rules on customer identification as well as risk assessment procedures.

The financial institutions are also required under item 4 of the Article 7 of 115-FZ to maintain the records of their clients identity for a period of 5 years from the date of termination of the relationship between the client and the financial institution. This requirement corresponds with FATF Recommendation 10, Basel Committee 2-26, and Article 9 of Wolfsberg AML Principles on Private Banking. The record-keeping for transactions is required by the Article 7 of the federal law as well as the requirement to provide information about the transactions that are subject to compulsory control and suspicious operations upon the inquiry of the authorized body. These requirements do
not concern transactions and operations conducted before enforcing of the federal law
(Federal law 115-FZ entered into force on the 1st February 2002).

Concerning politically exposed persons the 2008 amendments to 115-FZ introduced
the concept of foreign politically exposed persons and defined them with the reference
to the international documents such as Wolfsberg AML Principles, FATF Forty
Council. The requirements for the financial institutions towards politically exposed
persons are rather vague. First of all, the terminology differs from that of international
one and includes the term of “foreign public official” to be exact in translation. In
connection with that, the interpretation of the new norm of 115-FZ is ambiguous and
includes only citizens of any foreign country who are or have been entrusted with
prominent public functions. However, analysis of the above mentioned international
standards shows that only in FATF Forty Recommendations politically exposed
persons are defined as:

[...]

as well as family members or close associates (FATF, 2003a). None of the other
documents specifies a foreign country as a parameter in identifying politically exposed
persons. According to 115-FZ, practical implementation of the norm concerns banks’
relationship only with citizens of foreign countries who are entrusted with prominent
public functions.

Turning to reporting requirements, in order to increase the probability of success in
ML cases investigations, the AML regulations impose obligations on financial
institutions to file and report money transactions which attain the prescribed amount
as well as to report suspicious transactions that can be found related to ML. In Russian
AML law all transactions fall into two categories – those that exceed designated
amount and thus, are subject to compulsory control, and those that can be identified as
suspicious, mostly irrespective of amount or with a certain threshold.

The approach taken by Russian legislators in the AML prevention is a combination of
a threshold approach and prudential offences approach as defined by FATF (FATF,
2003a). Thus, the obligations of controlling the transactions depend on the amount of
money as well as the type of a transaction. Compulsory control transactions are listed in
item 1 of the Article 6 of the AML law. As a threshold for these transactions Russian
AML law requires an amount in excess of 600,000 rubles in one transaction or series of
transactions conducted during one day, except for the transactions with immovable
assets the threshold for which is 3,000,000 rubles (the amount of 600,000 rubles/3,000,000
rubles equal approximately USD 24,500 or EUR 16,800/USD 122,500 or EUR 84,000
correspondingly (in 2002 when the law was adopted this amount equaled USD 20,000 or
EUR 22,000/USD 100,000 or EUR 110,000 correspondingly). Besides, the threshold
requirement the transactions that are subject to compulsory control are listed in the law
and include quite a wide range of operations such as operations in cash, certain
transactions via banking accounts (special attention is paid to the first operation
conducted by a legal entity via its bank account within the first three months after its
opening), transactions with securities, precious metals, jewellery or such, money from
lottery or gambling participations, provisions of loans, etc. Moreover, a transaction of
any amount is subject to compulsory control if at least one of the parties is involved in extremist activities according to the official list established by the government of the Russian Federation. The Article 6 requires compulsory control transactions reports to be submitted by the financial institutions directly to the authorized body (FIU) no later than the next working day after its accomplishing.

For the second group of transactions – so-called suspicious transactions, the financial institutions decide, what an unusual or suspicious transaction is according to the compulsory internal control rules, which must be elaborated by the financial institutions together with the programmes for their implementations according to the Article 7 of the federal AML law. Within these programmes the financial institutions collect the data about transactions which have unusual character, have no apparent economic or obviously lawful purpose or can be suspected as being accomplished with the purpose of ML, and report them to the authorized. The internal controls as a part of programmes against ML elaborated by financial institutions besides the requirements of customer and transaction identification, record-keeping, and reporting of suspicious transactions should include on-going training programmes, appointment of compliance officers and internal audit functions (these requirements comply with FATF Recommendation 15).

Concerning transactions identification and reporting requirements it is obvious that they are concurrent with international norms, which are, particularly, expressed in FATF Recommendation 19, Wolfsberg Principles, and Council of Europe Convention. However, a weakness of a threshold approach can be seen. Thus, international norms establish suspicious transaction threshold as USD/EUR 15,000 for a single operation or series of operations that appear to be linked (Global Programme Against Money Laundering, 2007). It is obvious that such a requirement is vital to be harmonized between different jurisdictions. The discrepancy is that it can be possible that a transaction that can be considered an offence in one jurisdiction, fails to pass Russian monetary threshold. The monetary threshold in the US, for example, is USD 10,000 (Lindner, 2007).

As a part of ML prevention, core financial institutions such as banks are subject to substantial supervision that includes examinations according to different regulations. According to FATF Recommendation 23, the regulators should apply the same regulatory and supervisory measures to the phenomenon of ML as they apply for prudential regulation. To reach this aim, supervisors should elaborate guidelines and “provide feedback which will assist financial institutions . . . in applying national measures to combat ML and terrorism financing, and, in particular, in detecting and reporting suspicious transactions.” (FATF, Recommendation 25). Moreover, supervisors should have “adequate powers to monitor and ensure compliance by financial institutions with requirements to combat money laundering . . . including the authority to conduct inspections” (FATF, Recommendation 29).

In Russian AML regime, CB is a supervisor and a regulator for the financial institutions. As a sole supervisory body for the financial institutions CB has powers for prudential regulation and supervision according to the Federal law 86-FZ “About Central Bank of the Russian Federation (Bank of Russia)”. Concerning AML, according to the Article 7 of 115-FZ CB has powers to work out the rules for elaborating internal controls by financial institutions, the programmes of the AML implementation, training of personnel, client and beneficial owner identification, and transaction reporting by the financial institutions. Speaking about reporting, CB plays the role of some kind of an intermediary
between the FIU and the financial institutions. In spite of the fact that suspicious transactions reports are sent by the financial institutions to Rosfinmonitoring, CB establishes the rules and guidelines on this issue. Speaking about sanctions, if an institution failed to comply or implement AML regulations, rules, guidance procedures it can be subject to informal or formal administrative actions by the regulator. “They [supervisors] should be authorized ... to impose adequate administrative sanctions for failure to comply with such requirements” (FATF, Recommendation 29).

Conclusion
The paper describes the approach taken by Russian government to control ML by creating the preventive framework which has undergone significant changes over the past six years. With respect to the key elements of prevention pillar of AML regime, the discussion involves a review of international standards and norms which constitute the global AML regime. It analyzes the preventive pillar of the domestic AML regime in Russia in comparison with the global standards. It concludes that the federal law, which is the cornerstone of the domestic AML regime, as well as institutional framework created in Russia, both formally comply with the international norms.

The test of the practical implementation of Russian AML legislation in the financial institutions is needed and constitutes the next step in the AML regime analysis. It has to focus on legislative base for the regulated, behavioural patterns of the banks in the AML prevention, and the conflicts and debates, lately emerged within the domestic AML regime. This analysis aims to show how new regulations have influenced both domestic AML regime and its main actors.

Summing up this paper, several conclusions can be drawn. First of all, the four important elements of the AML prevention are distinguished in Russian federal AML legislation. Second, the main AML law that lies in the basis of the domestic AML regime is, in general, formally compatible with the internationally accepted AML norms and standards. It, nevertheless, has its own specifics in terminology, ways of expressing its provisions, style and approach. It is seen from the comparative analysis that most provisions are in formal compliance with the international documents and most requirements of international organizations are reflected in the federal law. The difference in terminology, however, entails incompleteness of understanding of the international norms and, as a result, failure to comply with them. Thus, interpretation of international norms concerning politically exposed persons arouses questions about its practical implementation.

Third, it is important to note that core financial institutions are not directly regulated by the federal law, but mainly through the secondary legislation adopted by the regulator. Being subject to prudential regulation the banks have CB as a supervisory body in the AML field as well. CB as the supervisory and regulatory body for financial institutions besides creating AML legislation has the powers to monitor compliance and apply sanctions for non-observance of the federal (and, particularly, its own) AML legislation. As follows from the analysis the supervisor’s powers seem to correlate with the requirements of the international regime. Adequate supervision of financial institutions is an important element in ML prevention. The principle of adequacy is expressed by international norms as well, as it was mentioned above. It is, however, arguable that adequacy of powers or sanctions of a supervisor is something universally perceived and, moreover, something that could be assessed as such.
References


Further reading

About the author
Natalya Subbotina is a former Master's student in International and European relations at Linköpings Universitet in Sweden. Now she is an AML practitioner in one of the banks in Russia. her job is connected with measures taken by the banks to comply with anti-money laundering legislation and thus, to prevent ML. The research topic is inspired from Her own experiences and the desire to contribute to the legal improvements in the AML legislation through better understanding of existing both international and domestic laws and practices. Natalya Subbotina can be contacted at: natochka@rocketmail.com
The development of mutual fund market in Russia

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Abstract

Purpose – The purpose of this paper is to describe development of Russian mutual fund (MF) market, to suggest and apply methodology of statistical analysis of management quality, to evaluate profitability and risks of the market.

Design/methodology/approach – Statistical research applies: descriptive statistics, correlation analysis, regression analysis, cluster analysis, ratings, transition probability, optimal portfolio theory.

Findings – Russian mutual market is growing both in number and in aggregate value of net assets. Profitability and risks of the market are high.

Research limitations/implications – Statistical research was fulfilled on the data for 2004-2006.

Practical implications – The results of the investigation are useful for investors and for managers of the funds.

Originality/value – The paper represents an attempt of statistical investigation of Russian MF market, its profitability and risks, classification and rating of MFs and analysis of rating stability.

Keywords Investment funds, Financial markets, Financial risk, Russia

Introduction

In recent years, mutual funds (MFs) have been rapidly developing in Russia, growing both in number and in the aggregate value of their net assets. This growth is accounted for by the fact that investors are showing constantly growing interest in investing in MF securities, purchasing the equities of different investment funds.

The main objective of the paper is to describe the Russian MF market, to investigate management quality, to evaluate profitability and risks of this market, to analyze correlations between profitability of MFs and stock indices, to estimate stability of profitability rating of different MFs, to construct the optimal portfolio, to classify MFs, to construct ratings on the basis of Sharpe ratio and investigate their stability.

As of 1 January 2007, the number of Russian MFs was 641, compared to 142 as of previously in January 2004, thus, having grown 4.51 times within the past three years. The aggregate value of net assets during the same time-period has grown 5.58 times, the number of stockholders reaching 330 thousand (Investfunds, 2007).

MF classification

A classification of MFs is necessary for better specification of particular MF management strategies and tactics and to make the structure and principles of MFs management clearer to the potential investor. Investment funds in Russia can be classified by their organizational legal form into joint-stock investment funds and unit investment funds. The first are separate legal entities. As for MFs, they are not legal entities but “standalone property complexes” consisting of property placed by promoters under trust management by management company. Joint-stock investment funds have not enjoyed considerable development in Russia (among the reasons, one
can single out additional expenses compared to regular joint-stock companies as well as absence of tax benefits provided for unit investment funds).

According to the Federal Law on Investment Funds, all unit investment funds in Russia are divided into open, interval and closed ones (Consultant, 2007).

Open unit investment funds provide for the right of investment fund owners on any working day to recall all their equity interest or any part of it. Under the trust management of such MFs only monetary assets can be placed.

In interval unit investment funds, equity interest owners have this right only within certain time intervals the duration and periodicity of which is set by the rules of MF trust management. As in the case of open MFs, the trust management promoters can place under trust management only monetary assets (Investfunds, 2007).

In closed unit investment funds, the mechanism is somewhat different. While in open and interval MFs, the number of equity interests is unlimited, in the closed ones, it is strictly defined at the time of setting up the fund and remains unchanged until its expiration date. Equity interest owners in this case have no right whatsoever to recall from the management company any of their equities. Under the trust management of a closed MF, not only monetary assets can be placed but also any property specified in investment declaration. If provided for by the trust management rules, equity interest owners in closed MFs, unlike those in open and interval ones, can be paid proceeds from MF management.

Thus, from the point of view of the possibility of investment funds redemption, the most liquid are the equities of open unit investment funds and the least liquid are those of closed ones. However, the transfer of assets even out of an open unit investment fund can take over two weeks, but there is a market of investment equities secondary circulation which enables to increase their liquidity. The possibility for equity interest owner to exit a MF at any time in the case of non-approval of the fund management quality is one of open MFs’ principal advantages. In the case of a closed MF, there is no such possibility, but equity interest owners can render some influence on the policy of fund management through participating in general meetings of equity owners.

In interval unit investment funds, equity owners usually do not participate in property management; limiting the owners’ right of recall by the framework of intervals creates an additional risk factor for investing in such MFs (Abramov, 2005).

A Classification of MFs by investment policy types
In accordance with the provision “On the Composition and Structure of Joint-Stock Investment Funds Assets and Unit Investment Funds Assets”, investment funds in the Russian Federation are divided into the following types:

- monetary market funds;
- bond funds;
- stock funds;
- mixed investments funds;
- direct investments funds (except open and interval MFs);
- funds of especially risky (venture) investments (except joint-stock investment funds and open and interval unit investment funds);
- fund funds;
- real estate funds (except open and interval unit investment funds);
mortgage funds (except joint-stock investment funds and open and interval unit investment funds); and
index funds.

Among the purposes pursued by this classification, one can single out transparency of fund assets management strategy, degree of investors’ risk and profitability.

Investments in monetary market funds are rather similar to investments in bank deposits, but profitability in monetary market funds is usually higher as they do not have the necessity to reserve part of the assets which on the other hand eliminates all investment guarantees.

Figure 1 shows the distribution of MF net asset value segments by types and kinds.

Methodology
A variety of statistical analyses is applied in this study each showing some insightful characteristic of the Russian MF market. Included among these statistical approaches are (Aczel, 1989):

- descriptive statistics;
- correlation analysis;
- regression analysis;

![Figure 1. Value segments of net assets of different type MFs as of May 2007](image)
Development of MF market in Russia

Return and risks

Calculation of interest rates

Daily figures have been collected on the dynamics of investment equities value and net asset value of a number of open MFs of shares, open MFs of bonds, open MFs of mixed investments, open index MFs, open monetary market MFs and open fund of MFs for the period from 2004 to 2006. This work analyses only the profitability of open MFs, therefore, hereafter, the word “open” is not always used. Almost all open MFs which came into existence before 1 January 2006 are analysed.

We first calculate the profitability of investment equities value for 21 working days (which roughly corresponds to a calendar month) from 2004 to 2006. Profitability will be expressed in the form of interest rates per annum.

The calculation formula of monthly rate of return per annum calculated in moving windows of 21 working days is as follows:

\[ i = \left( \frac{p_1}{p_0} \right) \frac{t_0}{t} \times 100\% , \]

where \( p_0 \) is the value of investment equity at the beginning of the period, \( p_1 \) is the value of investment equity at the end of the period 21 working days, \( t_0 = 21 \) working days, \( t \) is the number of working days in a year (252 days).

In Russia, the most popular stock indexes are Russian Trading System (RTS) and Moscow Interbank Currency Exchange (MICEX). Regression analysis has shown a close relation between their monthly profitability \( R^2 = 0.9386 \). Therefore, hereafter, for the sake of brevity, we will be giving calculations using either the RTS or the MICEX index.

Some positive correlation between the profitability of MFs and stock market does exist. For example, we provide three diagrams of monthly yields: MICEX and RTS indexes and one of the open MFs of shares – “AVK Fund TEK”, shown in Figure 2.

Figure 2 also shows that monthly return vary from -300 to 300 per cent (per annum). Hence, the risks of Russian markets are very high.

Descriptive statistics of MF monthly profitability

Basic descriptive characteristics were calculated for the profitability of MFs under study: means, variances and SDs. These were calculated for the period 2004-2006 and separately for each year. Comparison was carried out of average interest rates by MF types and their volatilities. The general conclusion is that expectations and volatility most often change both from year-to-year and by unit fund types. The ratio of expected profitability to volatility (Sharpe ratio) is exactly the criterion by which investor is usually motivated when choosing a certain MF.
As another measure of risk let, we evaluate the probability of investment equity profitability to be less than the risk-free rate which we adopted at the level of 10 per cent, and <0 per cent (in annual rate for 21 days) for each analyzed MF. We will estimate all probabilities numerically, i.e. by histogram. As an example (Figure 3), we provide an

**Figure 2.**
Monthly profitability of stock indexes and of the MF “AVK Fund TEK”

**Figure 3.**
Empirical distribution of monthly profitability in the annual rate by the example of “AVK Fund TEK” MF
empirical distribution of monthly profitability in the form of an annual rate for “AVK Fund TEK” MF for the period 2004-2006.

For this MF, the possibility of profitability to be <10 per cent = 0.3748 and <0 per cent it is 0.3269. As we can see, the risk of low and even negative profitability is considerably high. Figure 3 also shows an adjusted normal distribution curve. It should be noted, however, that not all studied MFs have normal profitability distribution.

Table I provides values for characteristics averaged by MF types.

Expectations of the probability of profitability to be <0 per cent for the groups of shares MFs, index MFs and mixed investments MFs have no significant differences, while between each of these MFs and bond MFs and monetary market MFs this difference is significant at \( \alpha = 0.05 \). This result can be accounted for by the fact that different MF types are oriented at different investors (i.e. at different profitability and risk levels). The probabilities of profitability being <10 per cent are also different.

**Profitability correlation analysis**

Let us calculate the matrix of paired correlation coefficients of MFs investment equities profitability, stock market profitability (MICEX, RTS and Rux-Cbonds indices), profitability of investments in gold and silver was completed and resulted in a 188 \( \times \) 188 matrix. For brevity’s sake, we will only include the overall results. We found that 98.44 per cent of the correlation coefficients between profitability of different open index MFs exceed 0.75, which shows a strong positive correlation. All correlations between monthly profitability of different fund MFs against each other are high and positives, 96.30 per cent of correlation coefficients between the earning powers of index MFs and fund MFs are over 0.75. In general, it can be concluded that high positive correlation is especially characteristic between profitability of investment equities of open shares MFs and the profitability of investment equities of open index MFs, between the profitability of open shares MFs and stock indices (MICEX and RTS). Besides, the profitability of all investment equities of open index MFs are closely correlated with profitability of stock indices MICEX and RTS at which they are inherently oriented.

Low positive correlation within the range 0-0.3 was found between the profitability of investment equities of monetary market against each other and profitability of investments in gold, profitability of securities of mixed investments MFs, index MFs, shares and bonds MFs, profitability of MICEX and RTS indices. Low correlation was found between the profitability of RUX-Cbonds and investment equities of index MFs and fund of MFs.

<table>
<thead>
<tr>
<th>MFs</th>
<th>Number of MFs</th>
<th>Average monthly return, % per annum</th>
<th>Profitability SD</th>
<th>Probability of profitability to be &lt;10 per cent</th>
<th>Probability of profitability to be &lt;0 per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shares</td>
<td>57</td>
<td>37.95</td>
<td>79.06</td>
<td>0.33</td>
<td>0.29</td>
</tr>
<tr>
<td>Bonds</td>
<td>48</td>
<td>10.76</td>
<td>15.10</td>
<td>0.56</td>
<td>0.14</td>
</tr>
<tr>
<td>Mixed investments</td>
<td>64</td>
<td>25.42</td>
<td>50.81</td>
<td>0.37</td>
<td>0.28</td>
</tr>
<tr>
<td>Index</td>
<td>8</td>
<td>55.04</td>
<td>94.17</td>
<td>0.28</td>
<td>0.26</td>
</tr>
<tr>
<td>Monetary market</td>
<td>3</td>
<td>4.35</td>
<td>4.11</td>
<td>0.94</td>
<td>0.10</td>
</tr>
<tr>
<td>Fund</td>
<td>3</td>
<td>23.18</td>
<td>43.57</td>
<td>0.36</td>
<td>0.28</td>
</tr>
<tr>
<td>Total</td>
<td>183</td>
<td>26.39</td>
<td>51.25</td>
<td>0.41</td>
<td>0.24</td>
</tr>
</tbody>
</table>

Table I. Averaged statistical characteristics of MFs
The percentage of negative correlations is also interesting. The highest is the percentage of negative correlations between the profitability of monetary market MFs investment equities and the profitability of investments in commodities (gold and silver). Around 11 per cent of correlations between the profitability of securities of index MFs and monetary market MFs are negative.

Strong negative correlations (correlation index \( r < -0.5 \)) occur only between the profitability of investment equities of some bond MFs (0.27 per cent). Similar correlation analysis of monthly profitability was carried out separately for the years 2004, 2005 and 2006. This enabled to make a conclusion of steadiness of correlation coefficients between the profitability of different MF types.

**Evaluation of \( \beta \)-coefficients for investment equities profitability**

We estimated simple regressions between time series of MF profitability and market profitability calculated according to stock indices: RTS and MICEX. Out of these MFs, several bond funds had non-significant \( \beta \)-coefficients. It should be pointed out that all obtained \( \beta \)-coefficients are <1, which means that the funds are “defensive”.

The study revealed one more interesting dependence. Figure 4 shows points corresponding to MFs with different markings for different types. The character of dependence is apparently linear.

We now regress the MF \( \beta \)-coefficient dependence on MICEX index from its SD of 21-day profitability. For this analysis, we will use data from 2004 to 2006.

The regression equation is as follows:

\[
\hat{y} = -0.0638(-7.10) + 0.0089(58.92) \cdot x,
\]

where \( \hat{y} \) is the evaluation of \( \beta \)-coefficient on MICEX index and \( x \) is the evaluation of SD of MF 21-day profitability. In brackets, \( t \)-values are given for the coefficients.
The equation and the coefficients are significant at $\alpha = 0.05$; $R^2 = 0.9510$; $F(1,179) = 3472.4$. This result implies that the higher the volatility the more sensitive is MFs investment equity profitability to stock market fluctuations. The obtained equation in fact shows the linear relation between two risk indices: $\beta$ and $\sigma$.

From Figure 4, it is clear that MFs are grouped by types. Tests at significance levels of 0.05 showed that for different MF types average values of $\beta$-coefficients are different. Index MFs are the most sensitive to stock market fluctuations, whereas bond MFs are the least sensitive out of all considered fund types.

A general conclusion from comparing descriptive statistics can be made that the division of unit investment funds into different types is reasonable as all the indices studied in the work significantly differ depending on the fund type for the exception of negative profitability probability which all investment funds try to avoid.

**Cluster analysis and MF classification**

Figure 5 shows how MFs are grouped by types. Let us carry out cluster analysis of MFs investment equities in the axes of expectation evaluation, SD and the possibility of 21-day profitability being < 10 per cent. We clearly see that the number of monetary market, fund and index MFs is small compared to the number of other types of MFs. It is most likely they will not be singled out into separate clusters. We will be carrying out the calculation on the basis of initial data for 2004-2006 using Euclidean distance squared as a closeness measure and Ward method for combining clusters. Before proceeding with cluster analysis, we normalized index values. Three clusters which are shown in Figure 5.

The first cluster is composed of share MFs, index MFs and half of mixed investments MFs. The cluster is characterized by high profitability and high risk. The second cluster represents a mixture of bond MFs and mixed investments MFs and is half-way between the first and the third ones. The third cluster is characterized by low

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**Figure 5.**

Clusters of MFs
profitability and low risk and is composed basically of bond and monetary market MFs.

**Ratings and their stability**

*Probability of transition from one quartile interval to others*

To complete a MF placement stability analysis in the corresponding quartile interval, we determine profitability separately for 2004, 2005 and 2006, using the following example expression.


where $p$ is net asset value;

We divide the totality of MFs by profitability quartiles and evaluate the transition probabilities.

(1) Probabilities of MF transition from one quartile profitability interval to others in 2004-2005 are shown in Table II.

Table III can be characterized as four discreet distributions. Each of them was compared with even distribution using as criterion $\chi^2$. The hypothesis of a similarity of empiric distribution with equal distribution in each case was rejected at the significance level of 0.05.

(2) Probabilities of MF transition from one quartile profitability interval to others in 2005-2006 are shown in Table III. Empirical probabilities of transition from one profitability interval quartile into another were compared with even distribution. All hypotheses of a similarity of two distributions were rejected. Let us note, however, that the revealed criterion values are substantially higher than at transition from quartile interval in 2004 in the corresponding interval in 2005. While in 2004-2005, the probability of a MF staying in the same quartile

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### Table II.

| Transition probabilities from 2004 quarters to correspond quarters in 2005 |
|-----------------------------|------------------|-----------------|------------------|
| Quartile interval in 2004   | 1        | 2               | 3               | 4               |
| 1                           | 0.05     | 0.26            | 0.42            | 0.26            | 1.00 |
| 2                           | 0.42     | 0.37            | 0.11            | 0.11            | 1.00 |
| 3                           | 0.42     | 0.11            | 0.32            | 0.16            | 1.00 |
| 4                           | 0.11     | 0.26            | 0.16            | 0.47            | 1.00 |

### Table III.

| Transition probabilities from 2005 quarters to correspond quarters in 2006 |
|-----------------------------|------------------|-----------------|------------------|
| Quartile interval in 2005   | 1        | 2               | 3               | 4               |
| 1                           | 0.91     | 0.06            | 0.03            | 0.00            | 1.00 |
| 2                           | 0.09     | 0.54            | 0.30            | 0.07            | 1.00 |
| 3                           | 0.00     | 0.32            | 0.29            | 0.39            | 1.00 |
| 4                           | 0.00     | 0.09            | 0.38            | 0.54            | 1.00 |
interval was low, in 2005-2006 such stability was already manifest: 29-91 per cent of MFs, depending on the initial quartile interval, stayed within the same interval. This is a proof of forming a more or less stable pattern of MF management. Unfortunately, the highest percentage of MFs “anchored” in the first quartile interval with the lowest profitability. However, in the fourth quartile interval which is the most gainful, the formation of a more or less stable group of leaders is also observed.

MF ratings

MFs ratings by the Sharpe ratio (ratio of additional profitability compared to risk-free rate or risk premium to risk) were constructed separately for 2005 and 2006. We further analyzed the stability of MFs ratings in 2006 compared to 2005 with the help of Spearman $\rho$ coefficient. The coefficient is significant at $\alpha = 0.05$, with a $\rho = 0.450$, which demonstrates the existence of a weak correlation between ratings for two years and sufficient flexibility of ratings.

Optimal portfolio formation

The basis of portfolio optimization theory was put forward by Markovitz in 1959. As a rule, when optimizing the portfolio one is guided by two factors, expectations of securities profitability and their volatility. As a criterion either the adherent point of indifference curve and efficient portfolio line or maximizes the ratio between profitability and risk is chosen (Sharp et al., 1995). We will choose the latter.

We determine the optimum portfolio of investment equities on the basis of data just for 2006 while imposing the condition of non-negativity of MFs weights in the portfolio. Gold and silver are also included in list of assets. At present, annual rates on ruble deposit “Sberbank of Russia Deposit” in Sberbank are fluctuating depending on the sum and term of deposit from 4.25 to 10.5 per cent per annum (sbrf, 2007). In formation of an optimal portfolio, we will use 10 per cent rate as a risk-free one.

Figure 6 shows all studied investment equities, gold, silver, risk-free asset and the optimal portfolio (square) which represents the adherent point of efficient portfolio line

Figure 6. Optimal portfolio formation based on the data for 2006
with the tangent drawn from the point corresponding to risk-free asset. An optimal portfolio will be any portfolio on the straight line going through this point and the risk-free rate (increase of profitability to risk will be maximum), the composition of this portfolio will be made of risk-free asset and a set of optimal portfolio securities.

Evaluation of expectation of optimal portfolio monthly profitability \((\hat{E}(R))\) gave 20.9533 per cent per annum. Volatility evaluation (SD) is up to 9.2967 per cent.

The portfolio includes 14 investment equities, basically bond MFs (71.47 per cent) and silver. The distribution of 21-day profitability of optimal portfolio is normal at significance level 0.05.

An interesting finding is the rather high share of bond MFs notwithstanding their low profitability. This is an indication of their stabilizing role in the portfolio due to their low volatility.

In the composition of a portfolio evaluated based on data for the past three years, the evaluation of expectation of optimal portfolio monthly profitability \((\hat{E}(R))\) made 21.9206 per cent per annum. The volatility evaluation (SD) is up to 10.5545 per cent. The portfolio includes 16 investment equities and also basically bond MFs (72.90 per cent).

**Value at risk**
Under the hypothesis of a normal distribution, we calculate the monthly Value at risk (VaR) (Rogov, 2001; Porokh and Lobanov, 2001), which is characterized by the extent of optimal portfolio maximum possible damage within a month with the pre-set probability of 95 per cent based on data for 2006.

\[
VaR = 1.645\sigma = 1.645 \cdot 9.2967 = 15.2931\%.
\]

This result means that optimal portfolio profitability with probability 0.95 will not be 
\(\leq 20.9533 - 15.2931\) per cent = 5.6602 per cent per annum for the interval of 21 working days.

**Conclusion**
The rapid growth of Russian MF market observed during the past three years can be explained by investors’ increased interest in it. In 2006, three interval share funds managed to double the capital of their sharers. We completed a number of statistical evaluations of the Russian MF market and arrived at a number of findings. Including the following:

- in the Russian MF market, four types of funds dominate: closed share MFs (35.95 per cent of net assets), closed real estate MFs (15.40 per cent), open share MFs (13.37 per cent) and closed direct investments MFs (12.58 per cent);
- monthly return of MFs vary from –300 to 300 per cent per annum;
- the dynamics of the profitability of shares MFs corresponds to the movements of profitability of RTS index, bonds MFs show a considerably lower variation of profitability compared to stock index.
- strong positive correlation was found between profitability of investment equities of open shares MFs and the profitability of investment equities of open index MFs, between the profitability of open shares MFs and stock indices (MICEX and RTS);
• basic descriptive characteristics were calculated for the profitability of MFs: mean values, SDs, the probability of investment equity rate of return to be less than the risk-free rate, which we adopted at the level of 10 per cent per annum, and <0 per cent;
• coefficients β were estimated. It was found that β for all MFs were <1 and coefficients β were approximately linearly related with volatilities (σ);
• statistical analysis of stability of profitability rating was provided. The probability to stay in the same quartile interval of profitability in 2006 was higher than in 2005 varying from 29 in third-quartile interval to 91 per cent in the first one. It indicates that the market becomes more mature; and
• ratings of MFs were constructed on the basis of Sharpe ratio for 2005 and 2006 years. The Rank coefficient Spearman rho was calculated to be ρ = 0.450, which demonstrates the existence of weak correlation between ratings for two years and sufficient flexibility of ratings.

We also found that the optimal portfolio was composed on the basis of MFs, silver and gold. The portfolio includes 14 investment equities, basically bond MFs (71.47 per cent) and silver. The high share of bond MFs can be explained by their low volatility. Optimal portfolio monthly profitability was 20.95 per cent per annum. VaR analysis showed that optimal portfolio profitability was expected not to be <5.66 per cent per annum for the interval of 21 working days with probability 0.95. Cluster analysis of MFs was also fulfilled. All MFs were divided into three clusters with clear interpretation.

Our calculations demonstrate that the best thing is not to give preference to one single fund or even fund type, but to diversify investments by investing a part of the capital in shares and a part in bonds. Bond funds are becoming attractive to investors during the periods of market decline. When choosing the fund by the Sharpe ratio, it makes sense to look at the preceding period as we have noted certain relative stability of ratings, though leaders constantly change and the high risk stays.

References

Further reading
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Yurij Lukashin, DPhil in economics heads the section of economic modeling in the Institute of World Economy and International Relations of the Russian Academy of Sciences and heads the chair of Mathematics, Econometrics and Statistics in the Moscow International Higher Business School “MIRBIS” (Institute). He has more than 100 scientific publications. His research interests are devoted to development of adaptive approaches in time series analysis and econometrics. His recent monographs (issued in recent years in Russian) are: “Adaptive methods of short-term forecasting of time series” (2003), “Testing of hypotheses in econometrics” (2002). Yurij Lukashin is the corresponding author and can be contacted at: loukashin@rambler.ru

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