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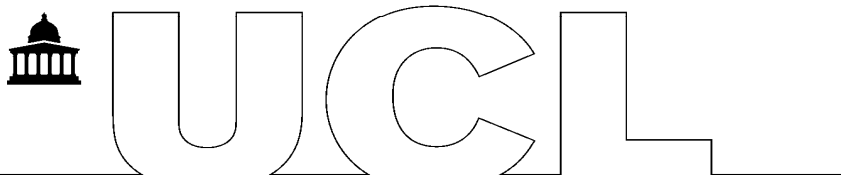

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Governance Structures in Russian manufacturing: assessment using sample survey data

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Governance Structures in Russian manufacturing: assessment using sample survey data

by *Svetlana Avdasheva and Nadezhda Goreyko*[1]

Abstract

The analysis of governance structures in Russian manufacturing does not only enable exploring the industrial organization and upgrading of companies, but also brings forefront the transaction costs faced by market participants. From this perspective, it is important to examine Russian industries, since models of organizational structure have been developing in Russia only within the last 20 years, under the influence of transaction costs associated with the transition economy.

Despite the importance of governance structures within the framework of analysis of markets, competition, and inter-firm cooperation in transition economy, the model of Russian organizational structure has been studied insufficiently. The main objective of this work is to fill the gaps in studies of alternative governance mechanisms in Russian industries, and to review organization and behavior of enterprises as a part of hierarchical, market, and hybrid models. The empirical analysis is based on the data obtained from interviews of Russia's mid-sized manufacturing enterprises.

Preliminary results show that, first, in contrary to expectation, hierarchical governance does not prevail in the manufacturing industries, and second, governance structures affect organization of corporate control, willingness to price- and non-price competition, investment decisions, incentives and possibilities to upgrade and also the assessment of contract risk and contract protection in directions predicted by institutional theory and theory of value chain.

JEL classification numbers: L14, L23, P23
Key words: governance structure, manufacturing, transition, upgrading, Russia.

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Introduction

Governance in Russian industries was developed under the influence of organizational shock on transition. In the early 1990s the socialist system of decision-making was completely broken and replaced by decentralized system of coordination. Contractual relations among market participants, in spite of the fact that they are affected by previous experience (path-dependence), were built on new grounds using new enforcement tools. The consequences of break of the stable economic ties between enterprises were so severe that they deserve a name of 'disorganization' (Blanchard, Kremer, 1997). Till now disorganization is considered as one of the important causes of transformational decline of the industrial output in 1990s. Therefore, restructuring of contractual arrangements of Russian enterprises is one of the most important parts of transition processes in Russian economy.

In this regard there is an interesting question about the comparative advantages of governance mechanisms, which arose on the ruins of disorganization. However this issue attracted surprisingly little attention in the recent studies of transition markets. Despite the understanding of important role of institutional change under transition (Pejovic, 2003) the specific features of new contractual arrangements in Russia, as many others transition economies are studies insufficiently.

Mismatch between the importance of the development of governance structures as a key feature of industrial organization and the number of empirical studies can be at least partially explained by the general opinion that transaction in transition countries, especially in the countries with less developed legal institutions like Russia are enforced mainly by informal mechanisms. Rapid development of informal institutions according to North (1990) should compensate the weaknesses of formal ones. If this is true the studies of governance mechanisms as classified by Williamson (1985) almost have no sense for countries in transition because informal enforcement tools are hardly observed by the researcher and common features of hierarchical, hybrid and market governance conceal the true enforcement which is preliminary informal.

Fifteen years ago, authors in institutional economics and management expected that the development of enterprises in transition will be based on network-type informal contracts, with specific enforcement mechanisms, which do not rely on any formal institutions (Peng et al. 1996]. This approach was employed in order to explain the unsatisfactory outcomes of privatization in transition (first of all, in Russia). The lack of advantages of Russian privatized enterprises in productivity (Brown et al., 2006) was often interpreted in such a way that private ownership in Russia do not contribute to the improvement of productivity because formal ownership rights are not important in Russian context at all since property rights in Russia are based upon complex informal agreements. However many facts about contractual relations between enterprises in transition economies (including but not only Russia) contradict the theory of this development. Many empirical results support the view that formal enforcement mechanism matters for transaction economy and therefore governance structures also matters for organization of industries.

To conclude, recent studies of governance types in Russian industries are still incomplete. The goal of this paper is to fill this gap. The structure of the paper is as follows. The second section provides brief review of the theoretical and empirical studies relevant for the subject. Next section is devoted to the data and methodology employed in the analysis. Sub-sections describe the characteristics of survey that provide the database for empirical analysis, .discuss the trends of development of governance models in the Russian industries, explains the hypothesis of the empirical analysis and variables constructed. Successive section contains the results of the hypothesis testing. The main results of the analysis are presented in conclusion.

Governance structure in the studies of transition

In spite of many empirical studies have shown extremely high role of informal in contrast to formal enforcement in transition countries both in the early stages of transition and recently (Johnson et al., 2002; Manolova et al, 2007), the idea of a greater role of informal relations and relational contracts as they described by Macaulay (1963) and Goldberg (1980) as an enforcement tool is not completely supported by neither empirical results nor the history of enterprise restructuring in Russia.

Important lines of empirical analysis in the field are studies of trust and analysis of contract enforcement Raiser and co-authors (Raiser et al., 2008) reported not only that share of prepayment in the sales of enterprises in transition countries (as a measure of distrust) is higher than in countries with market economy, but also that the share of prepayment is higher in the countries with less speed and depth of transition processes and relatively poor contract enforcement. Paradoxically under the strong impact of path-dependence in contrast to developed legal rules market participants trust each other less. The authors explained the result by delineating different types of trust, including general trust and trust in close networks and concluding that it is the lack of general trust that prevents to supply the products on the conditions of trade credit. However this is not rather consistent with the opinion that exactly in the countries with least developed formal institutions (including Russia) networks based on personal trust should be more developed and partners in the networks should be loyal towards each other (since alternative supply and shipment contract is associated with higher transaction cost). Following this line we should expect higher discounts in inter-firm ties in Russia and since the most part of enterprises should be included in the inter-firm ties, higher discounts to traditional partners in general.

Another important part of literature is devoted to enforcement mechanisms which employed by the firm in different transition countries. Studies of the *guanxi* in China are very indicative to Russia, since the system of *guanxi* is considered to be very close to the personal ties or *blat and svyazi* in Russia. During long time *guanxi* was considered as the main enforcement mechanism, of pure informal nature. However recent evidence shows that, first, *guanxi* are not very specific for modern

Chineese economy, since it is 'utilitarian rather than emotional based entirely on the exchange of favor not on emotional attachment' (Zhang et al, 2009). In this respect *guanxi* does not differ much from relational contracting in Western counttries. Second, modern empirical studies have shown that in course of business development *guanxi* is intensively replaced by formal complex contracts (Zhang et al, 2009; Zhou et al., 2008) and now for the most part of Chinese companies system of personal ties is complementary but not primarily as a tool of contract enforcement. In other words, specific enforcement tools in the most unusual transition country is not so specific that they would unable the analysis using traditional classification of governance mechanisms.

Evidence of the Eastern European transition also shows that market participants extensively use enforcement tools traditional to any 'normal' country. According to Hendley and Murell (Hendley et al., 2003), firms in Romania (as an example of transition economy) rely on the protection by the law as an enforcement mechanism at least as often as on the incentives of partners to fulfil the contract (that is on pure relational contracts). Third-party enforcement (with the court as an important actor) or enforcement using legal institutions is developing and replacing informal enforcement.

Development of Russian companies also stressed the importance of formal institutions as a necessary condition for restructuring. During last fifteen years modernization of a large part of Russian privatized enterprises occurred within the so-called holding company groups, or business groups, where authority is based upon property rights. Development of holding company groups reflected the desire of Russian businessmen to buy enterprises instead of establishment and/or maintenance of close cooperation with independent partners. Investment in enterprise restructuring along value chain were justified only under a hierarchical decision-making. This idea is clearly expressed in the name of the paragraph in most popular book devoted to the history of big business in Russia: "*Property rights are the sole basis for consolidation of assets*" (Pappe et al., 2009, p.96). In the book authors stressed many times that all the attempts to exercise restructuring and modernization under organization other than large companies governed by hierarchical control revealed to be unsuccessful.

Business groups or holding company groups play an important role in re-organization of Russian industries but the development of business groups is very indicative for understanding of transactional governance and enforcement mechanism in Russia. The development of groups in Russia explains the paradox of relatively stable legal boundaries of enterprises under transition (Murrrell, 2005). Like in many other transition countries (Stark, 1997), restructuring of assets was executed under the same legal structure but under the governance of a set of newly established firms where power of control and decision-making were concentrated. Although business groups in Russia are still very heterogeneous (Avdasheva., 2009), substantial part of them are large companies under very tough hierarchical control. In spite of high degree of diversification that should increase the cost of governance, subsidiaries in Russian business group demonstrate advantages *vis-a-vis*

independent businesses (Guriev and Rachinsky, 2004; Frye, 2004, Frye, 2005, Avdasheva, 2009). This evidence is interpreted as a support for the concept of comparative advantages of hierarchical control in transition countries.

Finally, the failure of all the attempts of Russian government to support modernization based upon cooperation networks of enterprises also could be considered as justification of comparative advantages of hierarchical governance *vis-à-vis* market and/ or hybrid. Historically, the first attempt is connected with so-called officially registered financial-industrial groups (FIGs). The necessary condition for government which was promised for the FIGs, was the implementation of joint project. About 100 groups of different size and industrial specialization were registered in 1997-2001, however almost none of projects planned was executed. In many cases groups failed to support internal discipline, because incentives for opportunistic decisions dominated the incentives for cooperative ones. Recent evidence on cluster organization in Russian regions is almost the same: strong interdependence of enterprises does not ensure the incentives for cooperation; own interests of every company prevail over the incentives of common objectives.

However, it should be stressed that the failure of networks supported by government policies does not mean that relational contracts are absent in Russian economy. The ability of completely informal mechanism to support transaction revealed to be lower than it was expected at the beginning of transition, although it does not necessary mean that hybrid-type transaction governance are not employed.

This remark is necessary especially keeping in mind the heterogeneity of hybrid-type governance mechanisms. While relational contracts in Russia revealed to be in many cases unable to support contractual relationships, this conclusion does not apply to all forms of interaction between independent companies. For instance, modular organizations in many industries become the ground for effective restructuring (Avdasheva, 2007).

Another important reason to analyze contractual governance in Russian industries is that different types of governance provide different incentives and opportunities for upgrading both of enterprises and industrial clusters. Modern theory of governance type in the value chain (Gereffi et al., 2005) analyzes the link between level of competitiveness and type of governance. Market, modular and relational types of governance are available if suppliers have enough capabilities to meet the requirements of buyer (in other words they are competitive enough). In contrast, captive governance and hierarchy emerge when buyer has to be involved in the upgrading of suppliers.

In this context the study of governance in manufacturing industries can contribute not only to understanding of governance mechanisms and contract enforcement in transition but also to the broad range of research devoted to determinants of modernization in the sector of Russian economy, where producers are less competitive in the global market.

Analysis of the governance models in Russian industries: data and methodology

Survey of manufacturing enterprises

This paper is based on the results of a survey of top managers of 957 large and medium-sizes enterprises of 8 industries (manufacturing of food products, including beverages and tobacco, manufacturing of textile and textile products, manufacturing of wood and wood products, manufacturing of chemicals and chemical products, manufacture of basic metals and fabricated metal products, manufacture of machine and equipment, manufacture of electrical and optical equipment, manufacture of transport equipment) carried out in 2009 by the Analytical Centre of Yuri Levada. This survey represents the second wave of the competitiveness survey of the Institute of Industrial and Market Studies, Higher School of Economics. The first wave survey was conducted in the framework of joint project with World Bank. More than half of the respondents constitutes panel sample.

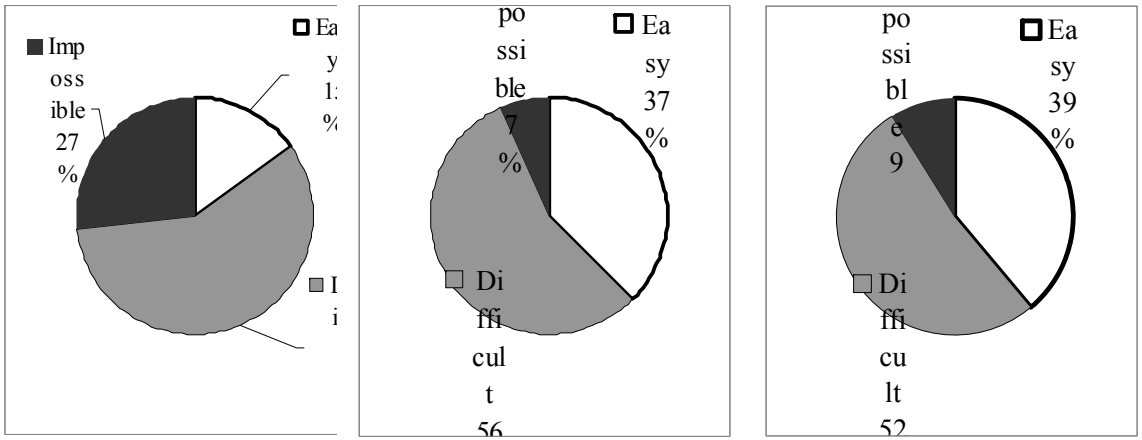
Entities with the number of employees less than 100 (in 2005) and more than 10 000 are intentionally excluded from the sample. The enterprises of the sample were employ about 8% of an average number of employees in manufacturing and produce about 6% of manufacturing product in Russia. The sample is biased towards more profitable enterprises (except those in manufacture of basic metal and fabricated metal products), but the dynamics of employment and revenue is generally consistent with trends in Russian manufacturing as a whole.

The survey is not devoted to the transaction governance but to the competitiveness and it's determinants as general subjects. This fact limits the possibilities to analyze governance choices but at the same time provides opportunity to employ different performance indicators.

Is there a choice of governance type for Russian enterprises? Evidence from the sample

Before proposing and testing hypotheses about the impact of the type of governance on the behavior of enterprises in the first place, it is necessary to make sure that Russian enterprises have a choice of suppliers and buyers. An important feature of the Soviet system of production was the absence of competing suppliers and buyers for any given company. Most manufacturers were 'locked-in' the bilateral relationships, which created specific to the Soviet, and later for transition type of bargaining power. It is prevailing of stable bilateral contracts where parties are unable to change partners and therefore a risk of quasi-rent expropriation was the essence of 'specific monopoly power in Russian industries'. In the framework of stable bilateral links the very attempt to analyze the strategies of enterprises on the choice of supply and distribution channels (that is governance type) would be unproductive. Restructuring of governance both on the sides of supply and sales is complicated by the fact that it must occur simultaneously with the development of

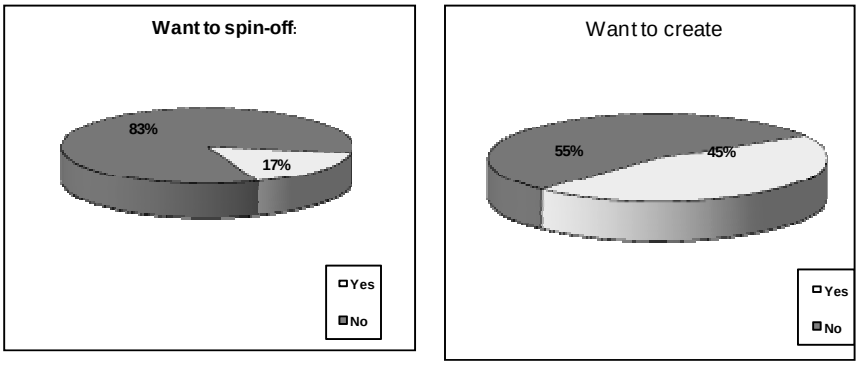
markets for technology-related stages of the value chain. This problem remains to be acute not only for manufacturing enterprises but also for their customers. In order to be able to choose the best supplier it is necessary to have competition between potential suppliers.



2002 (for respondents) 2009 (for respondents) 2009 (assessment of respondents for their customers)

Fig.1. Assessment of the difficulties to change suppliers (easy, difficult or impossible), % of respondents: white segments correspond with the answer „it is easy“, grey segment with answer „it is difficult“ and black segment with answer „impossible“.

It is unlikely that any data will allow conclusions about the level of competition sufficient to restructure the governance in the value chain. However the survey data allow us to compare the intensity of competition in the industries in 2009 and seven years before (in 2002). As we can see (Figure 1), during seven years between surveys the share of enterprises, who consider the change of suppliers impossible, decreased substantially. On the other hand, number of enterprises, for whom the change of supplier is easy, has increased more than twice. Assessment of switching cost for enterprises as buyers does not differ from the assessment of switching cost for their customers (Figure 1, right graph): less than 10% of respondents regard themselves as the only possible supplier for their customers. In general, the data on the assessment of switching cost allow us to analyze the restructuring of supply and sale channels as available for Russian enterprises and therefore the type of governance as a result of choice, but not the links inherited from allocation of production under socialism. Another result of survey important for the analysis of transactionf governance is the data of the changes in internal structure of the enterprises. As already stated, restructuring of supply and sales organization goes hand in hand with the changes of internal structure of the enterprises. Comparing the answers on the question about the plans to create or to divest any divisions from the enterprise in 2005 and 2009 we can see, firstly, that considerable part of the respondents had plan to change the bundle of the activities included in the boundaries of legal entity; secondly, that the number of respondents who want to include certain activity in the boundaries of the enterprises both in 2005 and 2009 exceeds the number of those who would like to spin-off divisions, and thirdly, that under the influence of negative demand shock the plans of divestments become more popular among the entrepreneurs. In any case, changes of the internal structure of the enterprises indicate the restructuring of the model of transaction governance.



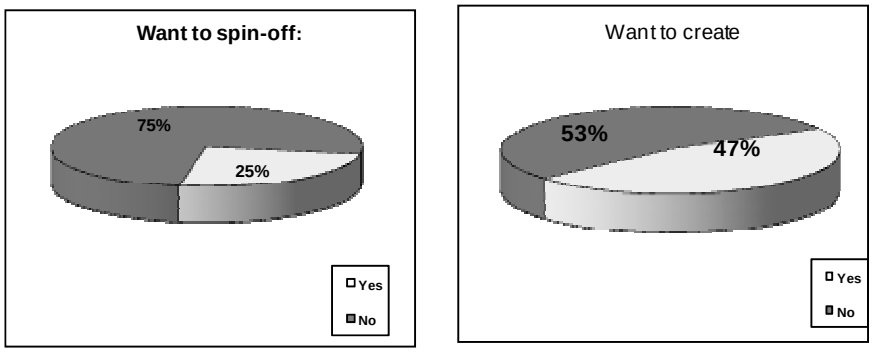


Fig.2. *Share of respondents those want to include or exclude any divisions from the internal structure of enterprises, % of respondents, for 2005 above, for 2009 below*
Source: authors' calculations based on survey data

The evidence of how Russian enterprises adjust their 'make or buy' decisions (Figure 2) shows that large part of managers are not satisfied by the combination of activities within the enterprises. As we can see, almost half of respondents want to expand set of activities within enterprise. The share of those who want to divest several activities is lower, although it grows substantially to 2009 in comparison with 2005. Of course, we should not forget that economic crisis made directors thinking about the possibilities and advantages of outsourcing. It is difficult to conclude how the development of the market contributed to the incentives to buy certain product and services instead to produce them.

At the same time, we can clearly see (Figure 3) that the plans of Russian companies to change the boundaries of the firm reflect the trend of competition in the markets and the determinants of transaction costs in the contracts (Williamson, 1985). Enterprises want to get rid of those activities, whose services are available on the markets and the purchasing of which does not involve high transaction costs. The evident examples are energy generation, construction and transportation services. In contrast, companies express a need to expand forward, to create the kinds of activities, which are associated with specific investments (design of new product for given enterprise, R&D specific for given enterprise) and at the same time which allow enterprise to move downstream in the value chain (assembling).

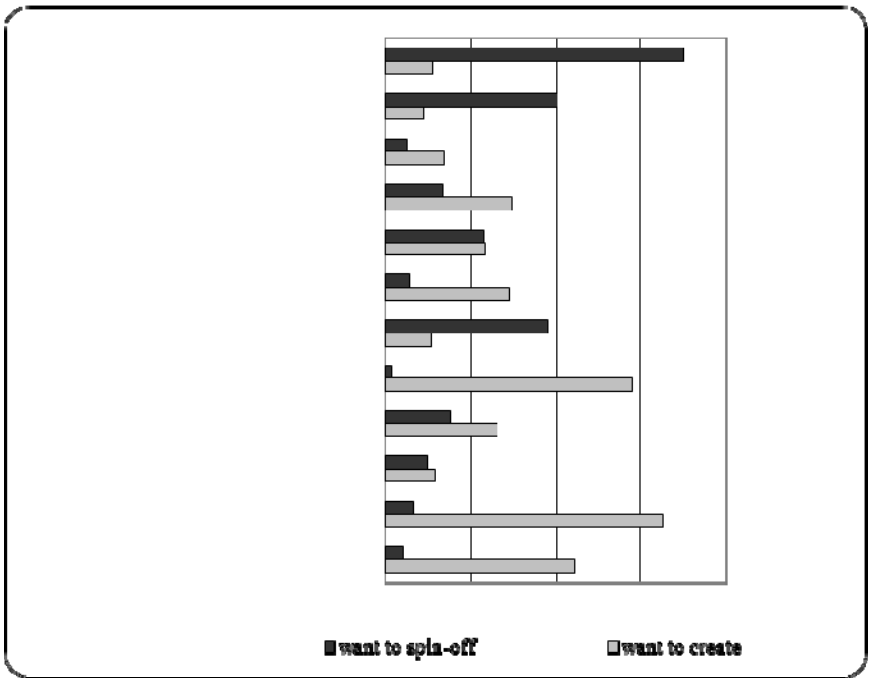


Fig.3. *Divisions (activities) inside the enterprise, which respondents want to include or exclude, % of respondents*
Source: authors' calculations based on survey data

In summary, sample surveys showed on the one hand, increasing competition in Russian markets, on the other hand, changes of the internal structure of enterprises. Both processes, in our view, indicate that lock-ins in the traditional relations are replaced by the possibility of consciously building new value chain. This enables us to analyze the incentives of choice of governance arrangements, considering their impact on behavior and performance of enterprises.

Classification of the governance types

For classification of governance types (Figure 4) we used set of characteristics of enterprise, including:

- the company's structure (a set of enterprises of different types of activities, from production of raw materials to retailers);
- the share of shipments of enterprise within the company (inside the same business);
- the share of largest buyer in the volume of shipments;

- type of relationship with suppliers of raw materials.

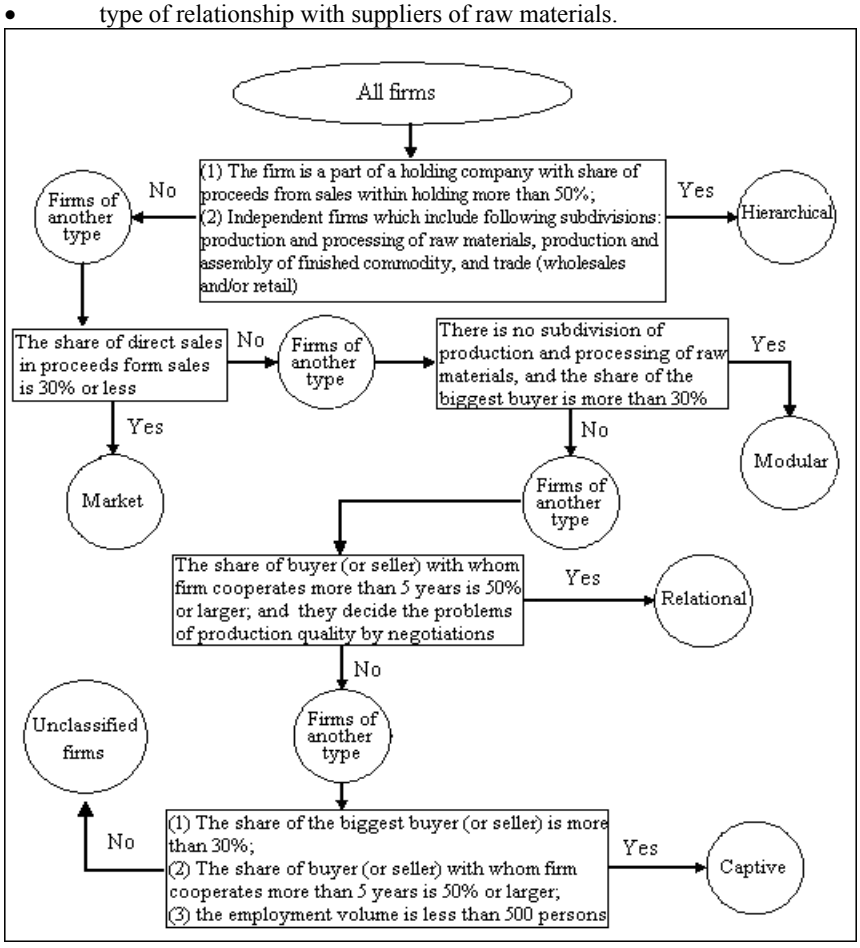


Fig. 4. *Classification of governance types*

All the characteristics of enterprises are drawn from the answers on questions of sample survey. The classification used several simplifying assumptions. The first assumption was that we can qualify governance type using the responses of one participant in the transaction. The second was that one enterprise can be attributed only to one type of governance in the chain. To reduce the errors associated with the second assumption, relatively rigid criteria to identify the type of governance were employed. As a result, we could not accurately identify a group of companies involved in the captive governance, while allowing a good representation of this

group. That is why we abandoned the investigation of this type of governance in further analysis. Summing up, the classification employed in the research is in great extent arbitrary. To diminish the possible mistakes we use a number of hypotheses to check that enterprises using given type of transaction behave according the implication of institutional economics. If enterprise classified as governed in the hierarchical transaction exhibit the typical feature of the participant in hierarchical transaction this would support the reliability of our classification.

Hypotheses on the role of different governance types in Russian industries and impact of governance types on strategies and performance of enterprises

The literature review shows that it is worthwhile to discuss six hypotheses regarding the role of different governance types in Russian manufacturing:

H1. The structure of Russia's manufacturing sector, in terms of governance types, is bipolar: the majority of enterprises is involved in market transaction or hierarchy. The share of hybrid-type transaction is not significant, including both transaction supported by buyer (modular governance) and supported by mutual incentives to behave cooperatively (relational governance). This hypothesis is based both on studies of largest Russian companies in the extractive sectors, and on the experiences of industrial policy both on federal and regional level, which requires co-operation between enterprises.

H2. There is a connection between the type of transaction governance and model of governance in the company. The higher is the role of disciplining mechanisms using by the buyer towards supplier, the less is room for opportunism of managers towards the owners in the company the more profitable divergence of management from ownership in given company. This means that share of participants in relational governance (where it is hard or impossible to codify transactions between participants), which employ model of management converged with ownership should be higher than in the companies participating in modular relationships (where codification of transactions is relatively easy).

H3. Participants in different types of transactions have different attitudes towards price and non-price competition:

H3.1. Market governance implies relatively low transaction cost for the participants. That is why the share of prepayment as a measure of distrust (Raiser et al., 2008) under market transactions should be the lowest.

H3.2. In every type of governance there is a transaction cost associated with confirmation of quality. However, the preferred tool to confirm quality depends on the type of buyer. Suppliers in modular transactions should prefer ISO certification in contrast to brand name.

H4. The enterprises within hierarchies have higher investment on the level of enterprises (with high level of specificity). The hypothesis is based on institutional theory of integration as a mean to protect specific investment (Williamson, 1985).

H5. Enterprises within hierarchies should have higher probabilities to upgrade, however not higher competitiveness. The hypothesis reflects the theory of governance in the value chain (Gereffi et al., 2005), where strong control of buyer over suppliers is a condition for upgrading, when suppliers capabilities are not high enough.

H6. Hierarchies protect enterprises from the uncertainty and risks, and therefore the participants in hierarchical transactions have lower assessment of adverse events in the future. This should be true both for opportunism of partners in transactions and for trends in performance. Participants in relational (but not modular) transactions evaluate risks of partners' opportunist as highest. The hypothesis is based on the conclusion made by Williamson (1990) that hybrid mechanism of transactional governance is most vulnerable for opportunism and on the findings of studies of Russian companies that affiliation to business groups (i.e. big companies) protect participants from transaction cost (Frye, 2004; Frye, 2005).

Variables employed in the analysis

For analysis we employed a range of variables, mostly based on the answer of the respondents in the survey. The most important groups of variables are:

1. *Industry variables*. Industry variables reflect eight industries listed above. In all the regression base industry is manufacturing of food products, including beverages and tobacco.
2. *Size variable.* For size variable in the subsequent analysis we use variable defined as LN of number of employment in 2008 (annual average).
3. *Ownership variables.* Many empirical studies have shown that ownership structure (especially the presence of state among the owners) is very important to explain many features of enterprise performance and behavior in transition economy. In the analysis we employ the variable ST_OWN that takes value 1 if state (on federal or regional level) possesses the shares of the enterprises and 0 otherwise. Correspondingly, enterprises of other organizational forms than incorporations are excluded from the analysis.
4. *Model of corporate control.* Important feature of Russian corporate sector is widespread participation of controlling owners in day-to-day management of the enterprises. Model of corporate control (conversions and correspondingly divergence of ownership and management) provides strong impact on organization and strategies of companies (Dolgopyatova, 2009). To reflect the corporate control organization we used indicator proposed by Dolgopyatova (2009). The indicator DIVERG takes the value 0 if there is no sign of ownership and control convergence (owners do not participate in management, managers do not own share of company) and 1 otherwise.
5. *Age of enterprises.* In the transition economy like Russia the age of enterprises is more important to explain organization and behavior. We can assume that enterprises founded before liberalization reform are under the stronger influence of path-dependence. That should affect many aspects of organization and behavior of business. We use indicator NEW_ENT that takes the value 1 if

enterprise is founded after 1990 (that is in the period of liberalization) and 0 otherwise.

6. *Location variables.* Location is important feature of business in every country. But in Russia the influence of location on the organization and behavior of enterprises is higher because of the uneven impact of competition and globalization across big country. Several papers have shown that location in agglomeration (and competition associated with wider market and more competitors) forced enterprises to restructure rapidly. We employ indicator AGGLOM which takes the value 1 if enterprise is located in agglomeration and 0 otherwise. Enterprise was defined as it belongs to agglomeration if it is located in the city or not far than 50 km from the city.
7. *Competition and switching cost variable.* We employed two variables those to our mind reflects competition. The variable COMPET takes the value 1 if enterprise responds in the survey that it is affected by competition on the market and 0 otherwise. The variable SW_C is constructed using the answers of respondents on the question how is difficult for customers to find new suppliers. The value 0 corresponds to the answer "easy", the value 1 to the answer "difficult" and 2 – "impossible".
8. *Terms of shipment variable.* The variable is constructed on the base of the answers of respondents about the share of trade credit in shipment (in percent) and the share of prepayment correspondingly. To measure the willingness for price competition (or alternatively, transaction cost or trust for customers, see below) we use the variable NET_CRED difference between the share of trade credit and prepayment (in percent).
9. *Quality confirmation variables.* We use two variables those reflect quality confirmation as a tool of non-price competition and they are brand name (BRAND) and certification of production and management according to international standards (ISO). Variable BRAND takes value 1 if enterprise developed brand name (according to respondent) and 0 otherwise. Variable ISO takes value 1 if enterprise certified processes or products according to international standards and 0 otherwise.
10. *Investment variables.* As investment variables we take several indicators which reflect cost of enterprises in order to upgrade technologies. Common feature of all the variables is that investment cost on the level of enterprise exhibit some degree of irreversibility, they are sunk cost at least partly. Corresponding variables are: LEAN (takes value 1 if enterprise introduced system of lean production and 0 otherwise); INV (according to respondent, enterprise undertook investment in 2005-2008 substantial investments (value 2), minor investments (value 1) or no investments (value 0); R&D (takes value 1 if enterprise spent money on R&D in 2005-2008 and 0 otherwise); EQUIP (takes value 1 if enterprise purchased equipment in 2005-2008 and 0 otherwise); TECH (takes value 1 if enterprise purchased technologies in 2005-2008 and 0 otherwise); TRAIN (takes value 1 if enterprise spent money in 2005-2008 for training of employees in order to improve or renew product and 0 otherwise).

11. *Upgrading benchmarking variables.* Upgrading variables are constructed based on the answers on the question "Please assess, how did competitiveness of the enterprise change during 2005-2008 in comparison with the main competitors" with variants "lagged behind and the gap increased" (0), "lagged behind but the gap reduced" (1), "gap with the competitors remained to be the same" (2) and "we kept leading positions" (3). The benchmarking questions were asked about domestic (ΔCOMP_S_D) and foreign competitors (ΔCOMP_S_F).
12. *Contract risks and contract protection variables*. To assess estimations of contract risks respondents were asked a question "Please evaluate the importance of the unfair competition as a threat to your business". Variable UN_C takes the value 1 if the problem of unfair competition is serious or likely serious and the value 0 if this problem is of minor importance or is not important at all. To assess contract protection respondents answered the question: "Do you agree that in the case of disputes with other commercial organizations you [enterprise] can protect your rights in the court". Variable CON_PR takes the value 1 if respondent agrees or almost agree with the statement and 0 if respondents disagrees or almost disagrees.
13. *Risk of adverse performance variable* was constructed using the answer on the question "How do you assess the probability of bankruptcy of the enterprise in nearest two-three years?" The variable takes the value 2 if according to respondent bankruptcy according to respondent is very likely, value 1 if bankruptcy is possible and 0 if bankruptcy is impossible.

Descriptive statistics for variables employed is presented in the Table 1. Unfortunately response rate is different for different questions and this explains the uneven numbers of observation for different variables and regressions.

Variables	N	Mean/proportion	Median
Industry variables (proportions of enterprises in the following industries)			
food products	754	0.25	0
textile & textile products	754	0.10	0
wood & wood products	754	0.08	0
chemicals & chemical products	754	0.10	0
basic metals & fabricated metal products	754	0.10	0
electrical & optical equipment	754	0.12	0
transport equipment	754	0.09	0
machine & equipment	754	0.16	0
Average number of employees	754	607	300
Proportion of enterprises with state ownership (ST_OWN)	632	0.32	0
Proportion of enterprises with diverged ownership and management (DIVERG)	668	0.42	0
Proportion of enterprises founded after 1990 (NEW_ENT)	754	0.27	0
Proportion of enterprises located in the	656	0.33	0

agglomerations (AGGLOM)			
Proportion of enterprises mentioned competition in the product markets (COMPET)	754	0.78	1
Assessment of customer's switching cost (SW_C)	753	0.72	1
Share of trade credit in shipment minus share of prepayment in shipment	734	-5.73	0
Proportion of enterprises developed brand name (BRAND)	754	0.34	0
Proportion of enterprises certified processes and products under international standards (ISO)	754	0.49	0
Assessment of investments made by enterprises during 2005-2008 (INV)	739	1.13	1
Proportion of enterprises developed lean production (LEAN)	754	0.23	0
Proportion of enterprises spent money on R&D in 2005-2008 (R&D)	754	0.74	1
Proportion of enterprises bought equipment during 2005-2008 (EQUIP)	754	0.62	1
Proportion of enterprises bought technologies during 2005-2008 (TECH)	754	0.23	0
Proportion of enterprises trained employees in order to improve or renew product (TRAIN)	754	0.52	1
Proportion of enterprises estimated the problem of unfair competition is serious or likely serious (UN_C)	754	0.43	0
Proportion of enterprises consider themselves to be able to protect their interests in the disputes with other commercial organizations (CON_PR)	720	0.27	0
Assessment of probability of bankruptcy in the nearest two-three years (BABK)	676	0.93	1

Tab 1. *Descriptive statistics for selected variables*
Source: authors' calculation using the survey results.

Variables which reflect type of governance mechanisms are explained in the previous sections.

The role of governance type in Russian manufacturing

Distribution of manufacturing enterprises across types of governance

We managed to classify 771 of 957 enterprises, representing 81% of the initial sample. The results do not support hypothesis H1 (Figure 5). The enterprises in the sample were found to be involved in different types of governance mechanisms. The largest group of enterprises participates not in hierarchical, but in market model of transaction (that means that enterprises do not sell products to final consumers, and sales are distributed among many buyers). This finding contradicts to the wide-spread notion that vertically integrated companies (either one legal entity or

organized as a group of separate legal entities under common control) prevail in Russian industries. Conclusions on the share and role of vertical integrated businesses should be adjusted in respect of manufacturing (in contrast to extracting) industries. On the other hand, evidence contradicts to the suggestion that any hybrid transaction is considered by Russian enterprises as unprofitable and as associated with high risk of quasi-rent seizure.

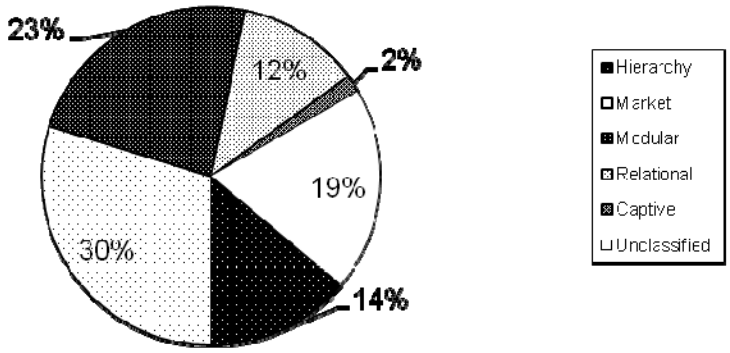


Fig.5. *Distribution of manufacturing enterprises across different type of governance*
Source: authors' calculations based on survey data

Transaction and corporate governance

The data supports the hypothesis H2. Within the group of enterprises participating in hybrid transaction a statistically significant difference is observed between the enterprises involved in the modular and relational type of governance (Figure 6): in the first sub-group the convergence of ownership and control is observed in 56% of the respondents, whereas in the second - in 70% of the enterprises. The enterprise, whose management is carried out under modular mechanism of transaction governance, a set of managerial decisions is limited and therefore the scope for principal-agent problem and agency cost are also limited. In contrast, for enterprises involved in relational-type transactions the managerial decisions are more difficult because they should take in account not only the goals of the owners but also interests and incentives of partners. As a result, the control of owners over managerial decisions requires more resources and convergence of ownership and management becomes more advantageous.

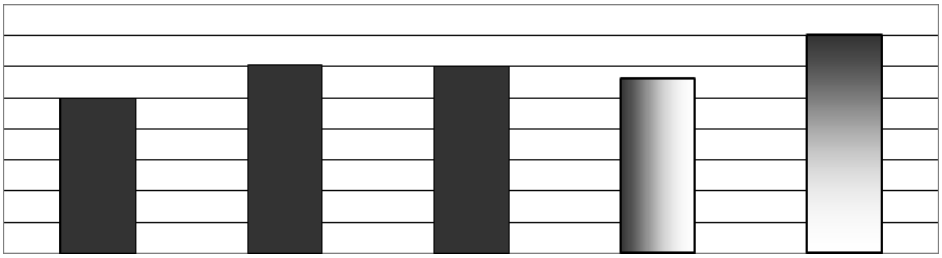


Fig.6. *Share of enterprises with converged ownership and management, % of respondents*

Transaction governance and price competition

The hypothesis H3.1 is supported. Participants of market transactions have substantially higher share of trade credit and lower share of prepayment in sales than participants of every other type of transaction (see Table 2). However this result should be interpreted in two ways: as an evidence of lower transaction cost and higher abilities to enforce contracts (the same characteristics of transaction which make market coordination preferable), and as an evidence of more intense competition. It should be stressed that these two explanations do not exclude each other.

It is interesting to compare results obtained with those reported by Raiser (Raiser et al, 2008). Using BEEPs data for 2002 authors revealed a lower share of trade credit that in our sample. According to BEEPs data in 2002 the difference between share of trade credit and prepayment in sales of Russian enterprises was about -20% (about 40% of sales on the terms of prepayment and 20% - trade credit). In our sample for 2009 the average share of prepayment was almost the same however the share of trade credit is much higher – about 35%. Comparing the data we should keep in mind the difference of macroeconomic environment. For Russian manufacturing 2002 was the year of rapid growth and therefore less intensive competition, while 2009 is the period of production decline and increasing competition. Prepayments and trade credits are explained by trust (i.e. transaction cost) as well as by many other determinants. However the sharp difference between participants in different types of transaction takes place and illustrates the impact of transaction cost on the choice of governance model.

Sample	*All enterprises*		*Independent enterprises*		*Subsidiaries of holding companies*	
CONSTANT	26.10* (1.93)	26.51** (1.96)	19.11 (1.17)	19.91 (1.22)	55.81** (2.22)	54.60** (2.16)
HIERARCHY	2.53 (0.39)	3.82 (0.59)	0.74 (0.08)	0.80 (0.09)	5.74 (0.54)	5.28 (0.50)
HYBRID	-10.26* (-1.93)		-12.27** (-2.02)		5.42 (0.49)	
MODULAR		-13.45** (-2.30)		-14.66** (-2.20)		0.01 (0.00)
RELATIONAL		-2.00 (-0.48)		-7.33 (-0.88)		17.30 (1.05)
SIZE	0.12 (0.06)	0.10 (0.05)	1.37 (0.53)	1.29 (0.50)	-6.58 (-1.64)	-6.39 (-1.59)
INDSUTRIES	Yes	Yes	Yes	Yes	Yes	Yes
ST_OWN	-14.73* (-1.95)	-15.43** (-2.04)	-11.12 (-1.28)	-11.60 (-1.33)	-21.58 (-1.37)	-23.03 (-1.46)
NEW_ENT	13.18 (1.53)	14.34* (1.66)	17.72* (1.73)	18.46* (1.80)	1.96 (0.12)	4.17 (0.25)
COMP	16.15*** (2.90)	15.52** (2.78)	13.91** (2.08)	13.29** (1.98)	31.32*** (3.05)	30.84*** (2.99)
N	622	622	443	443	179	179
F-statistics	15.01***	14.08***	9.98***	9.31***	6.74***	6.32***
R^2 adjusted	0.23	0.23	0.21	0.21	0.30	0.30

Dependent variable: share of trade credit minus share of prepayments in shipments
t-statistics are reported in parentheses.
***: significant at the 1% level, **: at the 5% level, *: at the 10% level.

Tab. 2. *Terms of sales of product produced: impact of governance type (OLS regression)*

Governance type and confirmation of quality

The hypothesis H3.1 is also confirmed (see Table 3). The ways to confirm quality are selected depending on the type of buyer: enterprise targeting only a qualified buyer makes the choice in favor of ISO certification, as opposed to the development of the trademark. It is typical for participants in modular and partially in relational transactions. Within the hierarchies the need to confirm or to signal quality is lower, since parties under the same control have direct means to provide the necessary quality of products. In turn, modular governance is characterized by high ability to codify terms of transaction by buyers and that is why ISO certification represents not only important tools to comply with established standards of quality but also more preferable in comparison with brand name. Moreover, under modular transactions brand name is kept by buyer not by suppliers, and this is the way to prevent upgrading of suppliers and to re-distribute the incomes towards governing element in the chain (Gereffi et al., 2005).

Dependent variables - way of quality confirmation	BRAND name (1 – yes, 0 – no)		ISO certification (1- yes, 0 – no)	
HIERARCHY	-	-	-	-
HYBRID	-***		+**	
MODULAR		-***		+*
RELATIONAL		-		+*
SIZE	+***	+***	+***	+***
COMP	+**	+*		
ST_OWN	-**	-**		
INDUSTRIES	Yes	Yes	Yes	Yes
N	631	631	753	753
-2Log likelihood	751.34	749.02	903.44	903.34
R^2 Nagelkerke	0.12	0.13	0.23	0.23
Test of the model χ^2	58.25***	60.58***	140.33***	140.43***

Only signs of coefficients and significance (according to Wald-statistics) are reported
***: significant at the 1% level, **: at the 5% level, *: at the 10% level.

Tab. 3. *Investments in brand name and ISO certification: impact of governance type (binary logistic regression)*

Governance type and investments

The analysis also confirmed the hypothesis H4. Whatever the indicator of investment at the enterprise level has been used - such as assessment of amount of investment by respondents (no investments/minor investment/ significant investment during the period 2005-2008), introduction of lean production, R & D funding in 2005-2008, purchase of new machinery and equipment in order to introduce new products, purchasing new technology or training personnel in order to introduce new products during the same period – participants in hierarchies have higher chance to implement these costs (see Table 4). We interpret this result as an evidence of specific investment protection, since investments on the level of enterprise are rather specific. It should be stressed that the comparative advantages of participants in vertical integrated companies in the survey correspond with the results of many other survey reporting higher productivity and better economic and financial performance of enterprises within holding company groups in Russia (see Avdasheva, 2009 for survey).

Dependent variables - sunk investments indicators	LEAN[a]	INV[b]	R&D[a]	EQUIP[a]	TECH[a]	TRAIN[a]
Hierarchy	+***	+***	+*	+*	+**	+**
Hybrid	+	+	-	+	+	+
SIZE	+**	+***	+***	+***	+***	+***
COMP			+**	+*		
ST_OWN		-*				
DIVERG		-**				
INDUSTRIES	Yes	Yes	Yes	Yes	Yes	Yes
N	753	568	753	753	753	753
-2Log likelihood	786.10	1137.19	716.75	953.23	758.98	989.54
R^2 Nagelkerke	0.06	0.14	0.27	0.09	0.11	0.09
Test of the model χ^2	30.40***	77.22***	154.98***	49.60***	57.51***	54.04***

[a] *Binary logistic regression*
[b] *Ordinal regression*
Only signs of coefficients and significance (according to Wald-statistics) are reported
***: significant at the 1% level, **: at the 5% level, *: at the 10% level.

Table 4. *Specific investments: impact of governance type*

Governance mechanisms and upgrading of the enterprise

Hypothesis 5 is also confirmed. Table 5 reports the result of ordinal regression, where dependent variables reflect the probability to upgrade. Benchmarking both with domestic and foreign competitors shows the progress of participants in hierarchies and relational transaction.

	ΔCOMP_S_D		ΔCOMP_S_F	
HIERARCHY	+***	+ ***	+*	+*
HYBRID	+**		+*	
RELATIONAL		+ ***		+
MODULAR		+		+**
SIZE	+*	+*	+*	+*
INDUSTRIES	Yes	Yes	Yes	Yes
DIVERG	-***	-***	-**	-***
N	538	538	368	368
-2Log likelihood	930,82	967,31	774,33	801,97
R^2 Nagelkerke	0,16	0,17	0,14	0,14
Test of the model χ^2	85,63***	89,78***	52,18***	52,97***

Only signs of coefficients and significance (according to Wald-statistics) are reported
***: significant at the 1% level, **: at the 5% level, *: at the 10% level.

Table 5. *Assessment of upgrading: impact of governance type (ordinal regression)*

The first result perfectly corresponds to the theory of value chain governance (Gereffi et al, 2005): hierarchies serve to promote upgrading when capabilities of suppliers are limited. The second result (higher probability to upgrade of participants in relational transactions) requires further analysis and interpretation.

It should be stressed however that the results of comparison of *directions of competitiveness changes* and *obtained level of competitiveness* differ. Participants in market transactions have higher share of sales abroad (+7-8 percentage points in comparison of enterprises within hierarchies and +10 percentage points in comparison with participants in modular and relational transactions) , as an indicator of competitiveness. Other interesting result in the survey is that under negative macroeconomic shock in 2008 enterprises involved in market governance was the only group that demonstrates substantial increase of production in comparison with previous year. This finding again supports the concept of dependence between level of competitiveness obtained and the choice of governance mechanisms. Participants in market transactions appear to be more resistant to negative demand shock and more competitive in the international markets. This result is especially interesting because in general manufacturing industries in Russia demonstrate relatively low competitiveness and enterprises rarely sold something abroad.

Governance mechanisms and contract risk assessments

Assessment both of contract risks and probability of bad performance by respondents does not perfectly support the hypothesis H6 and underlying theory (see Table 6). Perfectly consistent with Williamson (1985) participants in relational (but not in modular) transactions assess the chances to suffer from unfair competition as highest. This result reflects the trade-off for participants in relational exchanges: the concept of quasi-rent means both large surplus from transaction with given party (that serves to discipline participants of transaction) and probability of high losses when partner behaves opportunistically. According to the results obtained directors of enterprises understand this trade-off well.

The assessment of probability to protect contract rights in the courts also supports the concept of hierarchical and hybrid transactions as a forms of contract precautions. Enterprises participating in hierarchical and hybrid mechanisms consider their chances to protect contract rights in the courts higher, than participants in market transactions. At the same time this result contradicts to the opinion that participants in market transactions feel more trust to the buyers and\or their contracts are associated with lower transactions costs (Raiser et al., 2008). According to our results higher trade credit rate in the revenue reflects not higher trust but just more intensive competition the participants in market deals face.

One of significant results is that hierarchical mechanism are associated with highest chances of firm's bankruptcy in the midterm. This results can be interpreted in different ways: one is that high assessment of probability of bad performance and

bankruptcy reflects relatively low competitiveness of suppliers, as it is articulated under value chain theory (Gereffi et al., 2005).

	UN_C[a]		CON_PR[a]		BANK[b]	
HIERARCHY	-	-	+**	+**	+*	+*
HYBRID	+		+***		-	
MODULAR		+		+**		-
RELATIONAL		+***		+**		-
INDUSTRIES	Yes	Yes	Yes	Yes	Yes	Yes
SIZE	-	-	+**	+**	-*	-*
AGGL	-	-	-***	-***	-**	-*
SW_C	-**	-**	-	-		
ST_OWN					-**	-**
N	668	668	644	644	527	527
-2Log likelihood	882.57	876.17	713.73	713.73	761.02	793.66
R^2 Nagelkerke	0.05	0.06	0.07	0.07	0.08	0.08
Test of the model χ^2	25.28**	31.68***	33.74***	33.74***	36.66***	36.70***

[a]*Binary logistic regression*
[b]*Ordinal regression*
Only signs of coefficients and significance (according to Wald-statistics) are reported
***: significant at the 1% level, **: at the 5% level, *: at the 10% level.

Table 6. *Assessment of contract risks and probabilities of bad performance: impact of governance type*

Conclusions

Results of the analysis of governance types based on the data from a sample survey of companies showed the following:

1. In Russian manufacturing there are all types of governance between suppliers and buyers. The hypothesis on the larger share of enterprises involved in hierarchies is not confirmed. Moreover, increasing competition and modernization of internal structures of enterprises allow to hope that diversification of governance structures will also increase.
2. Model of governance of external (inter-firm) contracts and model of governance on the level of company are interrelated. The question requires further analysis. Empirical results show that disciplining tools in the relations between firm and within the firms can substitute each other. In enterprises, which participate in transaction with high disciplining role by buyer, the conditions for divergence of ownership from management arise.
3. Market governance is associated with lower transaction cost and more trust in relations with buyers, if we interpret prepayments as an indicator of distrust, in contrast to trade credits.

4. The way to confirm quality of product depends on type of governance. When transactions allow codification and buyer plays important role in setting a quality standards (i.e. under modular governance) certification according to international standards is preferable in comparison with investment in brand name.

5. Hypothesis on protection of investments within hierarchies are fully confirmed. Enterprises in the hierarchies demonstrate higher probabilities to carry specific investments during 2005-2008.

6. Enterprises under hierarchical control within value chain demonstrate higher chances to upgrade in comparison with both domestic and foreign competitors. At the same time they do not outperform participants of market governance in terms of comparative competitiveness obtained, judging by the share of sales abroad in the volume of shipment. This result confirms both the notion of hierarchies as an instrument to ensure upgrading when both capabilities of suppliers and ability of buyer to codify transactions are low, and numerous results of analysis of subsidiaries in the business groups in Russia, which more often show increase of productivity but do not outperform enterprises outside business groups in terms of productivity achieved (Avdasheva, 2009).

7. Assessment of short-run and medium-run risks by the enterprises is only partly predicted by institutional theory as well as theory of value chain. Completely in line with institutional theory, enterprises in hybrid transactions (more precisely, in relational one) are expected to suffer from opportunism in the form of unfair competition more likely. Enterprises in the market transactions consider the chances to protect contract rights in the court as lowest in comparison with other groups. Surprisingly, companies in the hierarchies expected the probability of bankruptcy as the highest among all other groups.

To conclude, empirical analysis generally supports the hypotheses developed by value chain analysis as a theory of competitiveness and firms' behavior under different models of governance. We can therefore expect that the classification of the Russian enterprises according to the models of governance structure and assessment of shares of different models of governance are more or less reliable. One important for both theoretical discussions and further research result is the deep difference between 'modular' and 'relational' sub-types of hybrid governance mechanism. Another result is that mechanisms of contract enforcement which can be observed by the researchers affect the organization and strategies of the enterprises.

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