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RBV and the Road to the Control of External Organizations**

Although primarily focusing on the internal resource endowment of the firm, RBV has the potential to address the firm's embeddedness in the business environment as well. At present, RBV research lacks a sound understanding of the development of competitive advantages in industries. A change regarding the unit of analysis, however, allows for considering causes and effects on the micro and the macro level as well. The paper stresses the entrepreneurial dimension of RBV and the firm's impact on the environment by comparing RBV and RDA reasoning. Using the explanatory power of the isolating mechanisms and applying system dynamic modelling, it turns out that RBV can move into the direction of a 'New IO'.

Key words: Resource-based View, resource dependence approach, structural school, process school, inter-organizational dependence, power, entrepreneurship theory, open system view, system dynamic modelling

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1. Introduction

When we regard the development of research on strategic management in the last three decades we can identify a certain kind of paradigm shift (Kuhn 1962). Whereas the 1980's were dominated by industrial organization (henceforth IO, see in particular Porter 1980), in the 1990's the so-called 'resource-based view' (henceforth: RBV) became more and more powerful and, after all, the dominant framework (Bresser et al. 2000; Foss/Ishikawa 2007). In more recent times the situation did not change at all and the RBV became an established part of management theory with a considerable impact on other sub-disciplines of business studies as well (Acedo et al. 2007). However, the state of resource-based research is not satisfactory in every regard. Basic problems as to terminology, causal structures, and grounding in the philosophy of science still exist. Moreover, the RBV seems to offer an enormous exploratory power that is still unveiled. Some scholars point to the potential to contribute to a 'new' theory of the firm (Conner 1991), others advocate the opportunity to build a new 'IO' in resource-based terms, and we argue that RBV can stand to benefit considerably from an extension that takes the embeddedness of the firm in markets, industries, and the business environment into account. At least regarding the last point little has been done so far. We argue that the very nature of RBV allows for a balanced view that considers the internal peculiarities of firms in terms of the resource endowment as well as the external circumstances. Pfeffer and Salancik (1978) developed the resource-dependence approach (henceforth: RDA). Although RDA is principally different from the RBV reasoning including the entire set of assumptions and causal structures, there is still much to learn and to consider from this prominent stream of research. A core aspect is that firms typically depend on external assets. However, a firm with an idiosyncratic resource endowment is in a position to exert power on other players in the market as well. This motivates us to formulate the basic idea of Pfeffer and Salancik (1978) the other way round: *from an external control of organizations to a control of external organizations* from the perspective of the firm. Obviously, these aspects are two sides of the same coin. This is one more argument to apply this reasoning in RBV.

Thus, it is the purpose of this paper to build a bridge from RBV to some of the basics of RDA thinking – but without trying to marry or merge these different approaches due to incommensurability issues. The research question is *how (far) firms can get control of the external environment based on the given resource endowment* in resource-based terms. The answer rests on conceptual considerations in connection with theory application and theory development. In this sense, the paper starts with a brief review on resource-based research (section 2). Section 3 directly ties in this train of thoughts when we dwell on actual problems of the RBV. These problems are obstacles of RBV's further development. It does not make sense to touch on all the given shortcomings in this paper. Thus we focus on a bunch of problems in connection with the myopic view of the RBV on the business environment. In this regard there is much to learn from RDA reasoning which is subject to section 4. The more resource-based research tries to scrutinize the firm's environment, the more important is the industry as another ontological unit. This goes along with methodological issues as to the consideration of co-evolution of the firm and the environment (section 5). A brief outlook,

focused in particular on the theoretical implications of the considerations, finishes this paper (section 6).

2. The state of the art of resource-based research

Many scholars regard the Wernerfelt (1984) paper as the ‘birth’ of the resource-based view. Although we can hardly regard Wernerfelt as the ‘father’ of RBV, he was the first one who coined this term. Many other scholars prepared the ground for a resource-based view and a dynamic capability perspective and it is well worth the effort to regard the historical roots of the current debate on resource-based management. In this context the question is still open whether RBV is rooted in economic classic or neoclassic, respectively. Given the considerable differences of these two research traditions, the recognition of the grounding is meaningful, indeed. Surprisingly, this question did not really come to an issue, yet.

Whenever scholars try to relate RBV to the neoclassical theory, they predominantly refer to the debate on superior rents in competition and sustaining competitive advantage, achievable by utilizing the potential of unique resources and enabled by factor market imperfections (Barney 1986; Conner 1991; Peteraf 1993; Foss et al. 1995). Although the rent discussion can be principally traced back to the seminal work of Ricardo (1817) as one protagonist of classic theory, many of the main RBV scholars apply neoclassical reasoning and methodology. Thus the neoclassical impact on RBV is evident. However, the point made in this paper is that this grounding can be misleading if we want to capture the very nature of resource-based and competence-based thinking. What is the problem with applying neoclassical thinking? Firstly, neoclassical theory refers to the market equilibrium in connection with the model of perfect competition – a situation where no superior rents are possible anymore. Secondly, neoclassical theory treats the external environment as given so that adaptation is the only way to survive in competition. Thirdly, evolution does not play a role since neoclassical theory assumes immediate transitions: Time does not matter. Fourthly, neoclassical theory regards firms as more or less homogenous entities and does not shed appropriate light on idiosyncrasies. All in all, a resource-based perspective with neoclassical roots allows only for a rather static (at best comparative static) and little entrepreneurial view. This does not fit perfectly to the basic ambition of the founders of resource and competence research.

Regarding some cornerstones of the development of the economic classic, we can find some interesting aspects relevant to the research question of this paper. Basically, the emergence and existence of unique resources and dynamic capabilities has very much to do with the division of labour. Some firms are more competent than others because they manage the coordination of skilful employees in a better way. At first glance, this could lead us back to Adam Smith. However, to refer to the advantages of the division of labour is only an early step to an entire understanding of resources and capabilities. Dividing and alertly unifying the work seems to be a much more demanding issue, as Babbage (1832/1963) and List (1841/1909) pointed out. In particular List introduced the ‘law of the confederation of productive forces’ which implies that productivity not only depends on the division of labour but also on linking the different activities. This unification of the productive forces, carefully monitored by the entre-

preneur, is according to List the only way to fully exploit the opportunities of the division of labour. This reasoning forecloses two aspects of the recent debate on resources and competences: firstly and on a more operational level, the effectiveness and efficiency of inter-personal coordination according to the firm's objectives that causes interconnectedness and social complexity (Dierickx/Cool 1989); secondly on a more strategic level the alert and entrepreneurial behaviour navigating the firm through the tough competition – probably with the opportunity to shape the external environment rather than to adapt to it.

The points live up in later publications paving the way to RBV. Selznick (1957) pointed to entrepreneurship in the context of capabilities and Penrose (1959: 25) raised the coordination issue once again: “A firm is more than an administrative unit; it is also a collection of productive resources the disposal of which between different uses and over time is determined by administrative decision.” In her seminal work, Penrose stressed that the availability of resources is not enough to be successful. Resources need to be accompanied by the ability to make productive use of them – a standpoint that is already very close to the competence movement in the 1990's. After the growth debate, the considerations of Selznick and Penrose did not receive much attention for a longer time. However, in the 1970's organizational capabilities came into play again (Andrews 1971; Rumelt 1974; Hofer/Schendel 1978): “(...) the key building blocks of strategy (...) may be the organization's distinctive competences (...) and its ability to use these competences to create major competitive advantages (...)” (Hofer/Schendel 1978: 66). It is obvious that these contributions, at least, prepared the ground for a fertile development of both resource-based and competence-based research and the final breakthrough in management theory in the 1980's and 1990's (see in this regard e.g. Lippman/Rumelt 1982; Rumelt 1984; Wernerfelt 1984; Barney 1986; Prahalad/Hamel 1990; Grant 1991; Peteraf 1993; Teece et al. 1997).

In a nutshell, RBV's 'seed phase' consists at least of two sub-phases: a 'pre-seed' step in the 19th and 20th century and the seeding in the 1950's with a considerable impact on all steps following up. Moreover, the current state of RBV is considerably influenced by ideas belonging to the tradition of the economic classic. This goes along with significant implications:

- Disequilibria play a much more vital role.
- The business environment is not treated as given. Voluntarism pervades the relationship between the firm and the environment, although principally the firm's embeddedness may not be ignored (moderate voluntarism).
- Thus, entrepreneurship matters. Entrepreneurial thinking and action is an important driving force of bringing firms into favourable positions – including the exploration and exploitation of crucial resources and competences.
- Transformation (of inputs to produce a competitive output) and transaction are equally important when explaining performance. In this context firms have to make an alert use of both intra- and inter-organizational division of labour.

Although economic classic is in no way a homogeneous body, we can identify some important commonalities that are different from neoclassical theory. Both streams of economic theory play a role in the development of RBV. However, by scrutinizing the

impact of these two theoretical streams on the development of RBV after its ‘constitution’ in the 1980’s as outlined above, we can refer to Schulze (1994) who identified two schools of thought: the *structural* and the *process school*. We propose that the schools differ considerably regarding the basic reasoning and the grounding in economic theory. Moreover, we argue that the actually more relevant track of the process school provides us with the opportunity to understand the firm’s role in competition more comprehensively. Based on important cornerstones of the economic classic this track allows for addressing the impact of firms on external organizations and, thus, to address power relations similarly to the reasoning of Pfeffer and Salancik (1978).

What precisely do the above mentioned schools of thought look like? Schulze (1994) argues that the structural school focuses on the problems of identifying resources that can generate rents, whereas the process school touches on creating resources to bring firms in favourable positions. In more detail, the *structural school*, building on the work of e.g. Barney (1986, 1991), Dierickx and Cool (1989), Wernerfelt (1984), is consistent with neoclassical theory, as Schulze (1994) points out. Following this way of thinking, the sources of change are assumed to be exogenous and managers are well advised to look for valuable resources that do not lose their value in situations close to equilibrium and help to realize land or Ricardian rents. The well-known ‘VRIO’ (value, rareness, imperfect imitability, organizational specificity) criteria (Barney 1991) apply to those resources. In such cases, managers cannot actively create these resources since they are bound to market conditions. It turns out that this school of thought is predominantly deterministic, focuses on the exploitation of valuable resources, and is less entrepreneurial. However, one entrepreneurial task that should not be ignored is the (manager’s superior ability of) recognition of valuable resources based on accumulated knowledge and experience. Mirroring this school of thought against the Burrell and Morgan (1979) taxonomy of organization (and management) theories, the functionalist orientation transpires: The functionalist paradigm according to Burrell and Morgan (1979) rests on objectivism and the “sociology of regulation” (not the sociology of radical change). The main objective is to optimize the utilization of resources in a ‘given’ environment. Order and stable structures surround this viewpoint.

The *process school* (e.g. Prahalad/Hamel 1990; Grant 1991; Teece et al. 1997; Eisenhardt/Martin 2000) is different in many regards: Most important, this view is not deterministic. Although firm’s embeddedness in markets cannot be ignored, the firm itself is equipped with power to change situations in favourable ways. Insofar we can assign this viewpoint to moderate voluntarism. Accordingly, entrepreneurial action is possible in many ways and, as practiced, has an impact on competition. Since many entrepreneurial firms make different moves in competition, competition itself is less predictable and market dynamism becomes a pervasive feature of economic life. Although history matters we cannot definitely say how far valuable resources of the past will be relevant in present and future markets as well. Inversely, core competences can turn to core rigidities (Leonard-Barton 1992) – in particular in case of high commitments, specific resources and low levels of flexibility. Core task is, thus, the development of resources and capabilities that respond to present and future market challenges. A proactive resource building provides the firm with the opportunity to gener-

ate options and to increase strategic flexibility. Schulze (1994) refers to three big managerial issues: (1) learning new ways to manage the available resources, (2) developing the resource endowment and, in particular, new resources and capabilities, and (3) achieve a (dynamic) match between the external conditions and the resource endowment. This goes along with the need to invest just in those assets that are, at present, not valuable in terms of Barney's (1991) 'VRIO' framework. It is rather obvious that entrepreneurial thinking plays a vital role in this school. It turns out that this school of thought has not much to do with neoclassical thinking. The impact of the economic classic on this school, however, is highly visible. Insofar we should, apart from Schulze (1994), avoid using the rent metaphor in this reasoning since the entire rent debate stems from neoclassical roots. When analyzing the positioning of the process school in the Burrell and Morgan (1979) taxonomy, certain differences to the structural school are evident: The focus is more on dynamics and, in particular, on a subjectivist point of view that stresses voluntarism instead of determinism. In sum, the process school belongs to the 'interpretive paradigm' which implies a different theoretical background and typically the use of other methods (more qualitative than quantitative methods). Table 1 provides an overview of the most striking differences of the process school compared to the structural school.

Table 1: Structural versus process school of RBV

Criteria	Structural School	Process School
Reasoning & methodology	closeness to neoclassical theory	closeness to parts of the economic classic
Market process versus market equilibrium	equilibrium orientation	disequilibrium orientation (market process)
Relationship between the firm and the environment	rather deterministic	rather voluntaristic
Research paradigm	functionalist paradigm	interpretive paradigm
Focus	identification & exploitation of resources	creation & exploitation of resources
Role of entrepreneurial action	moderate	decisive
Managerial issues	striving for resources with 'VRIO' attributes	striving for flexible and valuable resources

While we have already introduced the prehistory of RBV with the pre-seed and the seed phase, the differentiation according to Schulze (1994) is – although rather sketchy in character – useful to understand the further development. The structural school dominated RBV's early years whereas the process school became more powerful in recent times. Thus, the structural school can be regarded as third step in RBV's development while the process school is step four. Both schools are important for an entire understanding of the RBV although they are rather different in character. This conclusion already leads us to another question: What is state of the art of resource-based research and what are the most pressing problems and challenges?

3. Blind spots and terra incognita of the Resource-based View

In the last years many scholars critically examined RBV's state of the art (e.g. Foss 1993 & 1997; Priem/Butler 2001). In this section we intend to briefly summarize the most important points and to add some open questions to the discussion that pave the way to the core issue of this paper. When responding to the current problems of RBV research, we firstly need to address the issue of RBV's fragmentation. RBV seems to represent a very 'broad church'. Scholars formulated many different views in the past, such as: resource-based view, resource advantage theory (Hunt 2000), dynamic capability view (Teece et al. 1997), competence-based view (Sanchez et al. 1996), and knowledge-based view. This implies the integration of approaches from different realms that are not commensurable in every regard and hamper sound research from the viewpoint of the philosophy of science (Knudsen 1996; Freiling et al. 2008). The different theoretical grounding of the schools of thought as outlined in section 2 is only one proof in this regard. Schulze (1994) asks in this respect reasonably whether it is possible at all to develop a 'grand' resource-based theory.

Different from that, the whole resource-based research suffers from an insufficient grounding in the philosophy of science. The set of antecedents is neither uniform, nor clear or undisputed (Foss/Knudsen 2003). Moreover, the causal structures often appear to be vague, incomplete, or tautological in character (Priem/Butler 2001). As for the causal chains, many scholars still believe in the competitive power of intangible assets although this category is very heterogeneous and does not really tell us much about the reasons for a general significance. Moreover, it is still unclear what drives processes of resource and competence development. In particular, the role of entrepreneurial action that is relevant to a complete understanding of RBV as mentioned above is still open.

Basically, RBV allows for the consideration of evolutionary aspects in management. Teece et al. (1994) clearly pointed out that history matters and many other scholars touched on the fact that firms follow idiosyncratic paths of organizational development (e.g. Dosi 1982). RBV considers the time dimension explicitly. However, there are many more aspects in this context to be taken into account. In particular, the lag structures of organizational development are not sufficiently researched so far. Internally it takes time to develop competences. Externally it is quite uncertain how fast a competence will unfold its competitive impact (and increase the firm's power). To build and to utilize resources and competences is a time-consuming process with an uncertain end. It seems that we need more (sophisticated) methodological backup to respond to this challenge of modelling. This may help us to overcome another problem of RBV: the limited prognosis validity. RBV is powerful as long as performance of the past is subject to explanation. In case of predictions the situation turns. Although firms might have a grasp of the potential of their resources or competences, it is hard to say how they might perform. This leads us to a serious blind spot of resource-based research: RBV typically focuses on the resource endowment and, thus, on internal circumstances. Competition, competitors, and customers do not play – besides some exceptions (e.g. the open system view according to Sanchez/Heene 1996) – an important explicit role (Foss 1997). It would be desirable to take into account at least competitor's moves more thoroughly to overcome this myopia. This implies to

adopt a co-evolutionary view that scrutinizes the trajectories of the firm and the rivals as well. Once again, sound methodological support comes to an issue.

We argue that such co-evolutionary considerations could bring RBV into a favourable position, since an aggregated view of the evolution of competition vis-à-vis the firm's development opens the door to an industry analysis. By now, RBV made its way as an alternate program to the IO-rooted 'market-based view'. However, RBV only provides us with an interesting theory of competitive advantage but, at least by now, not with a 'New IO'. Little has been done so far to proceed in this direction (Conner 1991, Warren 2008) although RBV basically seems to be in a position to address industry structures and dynamics.

As far as it is possible to analyze and understand competitive interaction and dynamics we can identify those firms driving the industry development and at the same time recognize the firms which are driven. To some extent this discussion rests on the kind and extent of entrepreneurial behaviour of firms in markets. These issues, however, directly tie in with a debate on power constellations in markets and industries – an issue that is explicitly addressed by the resource dependence approach (Pfeffer/Salancik 1978) as well. Although actually not playing a significant role in resource-based research, power issues do not need to be a blind spot of RBV since resources and competences are important drivers of dependences and power asymmetries in competition. Hence, the follow-up considerations dwell on this aspect in more detail in order to overcome this open problem and to connect RBV with basic RDA considerations.

4. The Resource-based View on the path to the environment

In RBV the relation between the firm and the environment differs from the market-based view considerably. Whereas the market-based view assumes determinism and, consequently, claims an adaptation of the firm to the environment that is treated as given, RBV prefers a more balanced view as to the firm/environment relationship. Prahalad and Hamel (1990) pointed out that firms are able to shape the markets of the future and developed a model of three different phases of competition with two phases before the first market transactions start (Hamel/Prahalad 1994). They stress the necessity to behave entrepreneurially by anticipating up-and-coming needs in the future and by pro-actively configuring a responding strategic architecture as a frame for the value-added system to be built in collaboration with suitable strategic network partners. The proactive building of competences based on alert first moves in the market allows for structuring future markets as more or less unstructured arenas and to set standards in competition.

This basic reasoning tackles the attainment of power of firms in competition. However, the question arises what kind of power we talk about. Pfeffer and Salancik (1978) highlight in particular 'hard' sources of power based on the availability and control of critical resources which we need to take into account below. However, sociological theory tells us more about the different sources of power. Referring to the seminal work of French and Raven (French/Raven 1959; Raven 1965), the most important – and more or less 'soft' – sources are (1) reward and coercive power which are two sides of the same coin, (2) legitimate power, (3) referent power, (4) expert

power, and (5) informational power. Are these bases of social power relevant to RBV considerations, too?

It goes beyond the purpose of this paper to treat this question at length. However, just a brief discussion reveals the RBV's implicit closeness to power issues: Starting with the basic understanding of competences, we can summarize that they denote a repeatable, knowledge-based, and rule-based ability to sustain coordinated deployments of assets and resources in ways that should help a firm to achieve its goals (Sanchez et al. 1996). The fact that competences rest on (often tacit) knowledge of different people who share this knowledge for the purpose of task fulfilment indicates that asset mass effects (Dierickx/Cool 1989) are possible. Alert first movers who develop a sound strategic architecture according to Hamel and Prahalad (1994) have the chance to trigger a process of creative destruction in the sense of Schumpeter (1934). Firms that are in a position to structure new markets and to set standards can undoubtedly accumulate power. This power is in particular informational power because it rests on superior knowledge and wisdom. Moreover, the competent treatment of value-added challenges requires expert power that emerges over time and is subject to self-reinforcing processes.

Are these two bases of power the only ones that are addressable from a resource-based point of view? Referring to Schumpeter (1934) once again, the answer is no: The power of the innovative entrepreneur is only to some extent reducible to his superior judgment regarding the identification of promising innovation projects among the numerous inventions available to him. Having selected the innovative endeavours, the entrepreneur has to overcome the various modes of intra- and inter-organizational resistance. This typically requires other sources of power according to French and Raven (1959) and Pfeffer and Salancik (1978) as well: Taking a closer look at the environment, the innovative firm has to attract alliance and network partners as well as customers. We know from von Hippel's (1986) debate on lead users how attractive it can be for both the firm and the customer to collaborate on an innovative solution for the market. Lead users feel particularly attracted since they face pressing problems that can be solved by R&D partnering. From their point of view, the participation in such an innovation process is vital to increase the competitiveness. Once the firm signals the possibility of overcoming the lead user's problems, the respective reward power turns out. This power rests not only on complementary value-added resources and competences but at the same time often on the firm's reputation so that the customer can stand to benefit from a co-operation with a named supplier. The last consideration is already close to referent power. If e.g. lead users or other customers in business-to-business markets feel committed to a supplier due to its high reputation – which is often observable in case of competent firms –, then this kind of power works. As a result, resources and competences bring firms in powerful positions and help to address many of the typical bases of power. Economic as well as sociological reasons play a role. Besides the economic power of resources and competences as to the value-added process, the social relations of the firm to the environment (Granovetter 1985) seem to produce social capital that, among other factors, rests on reputation and trust.

Having addressed power issues in RBV is only a first step. But what is the particular input of RBV to the debate on power and dependency, in particular regarding the firm's control of external organization? To develop a resource-based view on power and dependency one should take into account the RDA perspective for comparison reasons.

The RDA (Pfeffer/Salancik 1978; van Gils 1984) assumes firms in a position of scarce assets. Bottlenecks can be blown over by exchange with third parties. However, this state implies the firm's dependence on the environment. The more the firm tries to access external assets, the more dependent the firm will be. The dependence rests on (1) the importance of the assets involved, (2) the discretion over asset allocation and use, and (3) the concentration of asset control (Pfeffer/Salancik 1978). According to that, firms are well advised to develop means that avoid too extreme kinds of dependence and help to offset the loss of autonomy. Although a perfect autonomy is completely out of reach from the RDA angle, a firm is able to achieve states of 'countervailing power' (Galbraith 1967). Typical strategies in RDA terms are (a) the absorption of critical assets by means of integration and (b) the creation of a negotiated environment by cooperation (Pfeffer/Salancik 1978). This sketchy overview of RDA reasoning already reveals that firms are by no means powerless in the face of dependence on external assets and external organizations. However, at this point the differences compared to RBV become obvious. But what does the RBV angle on the control of external organizations look like?

Regrettably, RBV failed to develop an unanimous understanding what a resource really is. Apart from Wernerfelt (1984), we cannot use the term resource without a reference to the explanandum of RBV, i.e. to explain performance (-relevant) differences among firms by the unique availability of resources and competences. Thus, a resource is to be differentiated from the assets mentioned above when introducing RDA reasoning. Resources can be understood as those assets that have undergone a firm-specific upgrading process and should contribute to the firm's actual and future competitiveness (Freiling 2004). This terminological issue is not unimportant since the firm's survival finally depends on resources and competences providing the firm with a unique endowment that should contribute to competitiveness. Thus, in case of external access to assets the firm is still in charge to manage the upgrading and refinement process in order to achieve states of at least competitiveness and – even better – sustaining competitive advantage. What Cohen and Levinthal (1990) pointed out with regard to the integration of knowledge is relevant to accessing other kinds of assets as well: Cohen and Levinthal introduced the construct of 'absorptive capacity' that is made up of three components: (1) recognizing (the value of) external knowledge, (2) assimilating it, and (3) applying it to commercial ends. Whereas the first two steps are integral part of RDA reasoning, step three is worth mentioning explicitly. The application of the integrated assets is a procedure that turns assets of the more or less homogeneous kind into those that are firm-specific and synergetic. In other words, the last step is vital to understand why some firms are able to generate superior value in competition.

Besides that, RBV stresses internal processes of asset upgrading and refinement much more than RDA does. This is not surprising in the face of the different ambi-

tions of the theories. However, internal resource accumulation and competence building is a process that can reduce dependence on external organizations considerably and at the same time cause a state of dependence of external organizations on the firm. This is particularly the case if core competences are available, as e.g. Hamel and Prahalad (1994) pointed out by referring to the miniaturization competence of Sony. RBV argues that these effects are possible thanks to certain isolating mechanisms (Rumelt 1984) that work. In this context the asset interconnectedness and the social complexity in connection with the accumulation of tacit knowledge (Dierickx/Cool 1989) are the reason for the achievements.

Regarding the internal upgrading and refinement processes as a direct basis for the accumulation of power it makes sense to differentiate among three kinds of assets. Moldaschl and Fischer (2004) point out, that assets differ significantly depending on the *logic of use*. Firstly, *finite assets* such as machines, materials or equipment are scarce and exhaustive so that managers are well advised to use them as parsimonious as possible. Secondly, *regenerative assets* are not necessarily subject to depreciation as long as they are used according to the principles of sustainable management. Not only renewable primary products belong to this category but for instance the work of employees, too. Finally, the *generative assets* differ considerably from the two above-mentioned categories since in case of usage their value increases. The other way round, if these assets are not regularly in use it is possible that they will lose parts of their value. Notably, knowledge, experience, intuition, trust, brands, and competences belong to the generative assets. As for issues of organizational dependence these generative assets are meaningful. A firm that invests in generative assets is able to generate resources and competences of strategic importance. This reduces dependence on third-parties and at the same time increases the expert, informational, reward, and referent power of the firm. Although the creation and upgrading of these assets is typically not independent from the environment (e.g. reputation is an asset that depends on the other party's perception and interpretation), the internal development and not the external acquisition is the most decisive step to achieve competitiveness.

Compared to RDA, RBV enables us to understand resource dependence issues in a different way as for other cornerstones of the debate. In this regard RBV reminds us that both the acquisition of external assets and the development of resources and competences internally should not only be evaluated from the firm's point of view. Sometimes the quality or speed of asset management is simply not sufficient to withstand competitive pressures. Insofar all the steps of managing assets, resources, and competences are to be compared to the development of rivals. In this context it is not only the competitive element that distinguishes RBV from RDA but also the path dependent analysis. The decisions of the past create a certain resource endowment and come along with organizational commitment (Ghemawat 1991). This status quo determines to a large extent what the firm is able to do in the future and pave the way for asset mass efficiencies (Dierickx/Cool 1989). These synergetic effects may improve the power position of the firm. A crucial next step in resource-based research is the analysis of the co-evolution of firms in an industry in order to compare the resource and competence building in particular concerning pace, specificity, and flexibility. Such co-evolutionary analyses are useful since sometimes the resource develop-

ment of rivals in competition is convergent because knowledge diffusion equals the positions of the different firms whereas in other cases the situation is diverging: one firm becomes so strong in terms of the resource endowment thanks to self-reinforcing effects that no other competitor is able to follow. The competition for standards in many high-tech industries is one example among others. In section 5 we will refer to the usefulness of a co-evolutionary view again when we introduce methodological considerations.

To some extent, RBV gets closer to RDA thinking over time. In particular Dyer and Singh (1998) developed a ‘relational view’. They argue that alliances and networks are critical but less understood units of analysis – in particular in case of comprehending competitive advantages. Due to the fact that dynamic markets require both specialization and flexibility single firms are often overtaxed when it comes to building and sustaining competitive advantage in those settings. Networks, however, offer a background that is often fertile enough to pool and refine resources and competences of different partners – regardless the threat of opportunistic behaviour, e.g. in case of learning races (Hamel 1991). This shows a mutual dependence of firms in networks as the ‘meso level’ in industries. Obviously, the RBV logic in particular of the structural school – with strong emphasis on the firm as the unit of analysis and the anchor point of competitive advantage – is too myopic in turbulent environments where the trade-off between high (asset) specificity and high flexibility can only be managed by strategic collaboration. The process school, instead, is much more open for these ideas. This brings thinking in terms of a ‘negotiated environment’ to RBV, so that finally absorption (acquisition), cooperation, *and* internal development are RBV’s answers to the question of providing critical resources to survive in competition. This answer is similar to RDA but goes beyond.

Each of the three above mentioned options more or less comes along with cooperation. Nevertheless, this dependence on third-parties is in almost every case a matter of *reciprocity* so that the considerable power of the individual firm transpires. This reciprocity implies that the partners involved have something meaningful to give and to take. Because of this, resource ties develop and keep the network together for some time.

The maybe most delicate question in this context is the *kind of mutual dependence and reciprocity* since the state itself is by no means new or surprising. As for the kind of mutual dependence it is crucial (a) to differentiate among symmetric and asymmetric states and (b) to take into account the development of dependence relationships in a path related context. What does RBV offer in this respect?

- Firstly, RBV reminds us to identify strategic resources available to the network in the face of the intended or realized competitive advantage. Once aware of these critical resources that are typically based on specification, upgrading and refinement processes, *ownership* issues matter. The more the property rights – as a crucial isolating mechanism according to Rumelt (1984) – of the respective resources are united in the hands of a single firm, the more powerful this firm will be and the more this situation creates asymmetrical dependence. Once again it turns out how far expert and informational power matter. Expert power in particular stems

from tacit knowledge and the mastering of complex and dynamic routines (Pentland/Rueter 1994), whereas informational power rests on the availability of superior explicit knowledge on the market, the business environment, and the internal conditions of the firm (e.g. transactive knowledge – cf. Austin 2003).

- Secondly, the discussion on the isolating mechanisms of RBV provides us with the construct of the interconnectedness of assets (Dierickx/Cool 1989). Once developed for the context of intra-firm asset bundling, interconnectedness plays a vital role as for the dependence issue in networks, too. It is not enough to make resources and competences available to a network – they have to be connected with other resources and competences of the partners as well so that synergies can evolve due to embeddedness reasons. Thus, to integrate assets, resources, and competences according to the strategic goals of a network becomes a second delicate challenge and a chance for firms in the network to improve their power position because not every firm is competent enough to *manage* this *integration process* in structural and personal regards. Thus, the power constellation depends on this issue as well.
- The competitiveness of the entire network not only rests on resources and competences inside the network. Moreover, external assets are necessary as well. This issue traces us back to, thirdly, the discussion on the *absorptive capacity* (Cohen/Levinthal 1990). Those network partners can improve their power position and reduce unfortunate states of dependence by recognizing, assimilating, and exploiting external knowledge to commercial ends from the network's perspective. The same holds true as for other kinds of external assets available to the network. Firms with a superior absorptive capacity have the chance to improve their power position within the network and, thus, to reduce the problem of asymmetrical dependence. This absorptive capacity is by no means to be treated as given but typically grows over time due to learning processes.

To conclude, RBV provides us with constructs to scrutinize dependence on external organizations and with means to manage related challenges. Most importantly, RBV sheds light on the opportunities to control external organizations within and without the own strategic network based on the power available by the resource and competence endowment. Moreover and by now not sufficiently elaborated, the process school of RBV stresses the need for *entrepreneurial thinking and acting* to structure the environment according to firm-specific goals. This comes along with crucial implications: If we conceptualize entrepreneurship according to Freiling (2008), then entrepreneurial action comprises the permanent *renewal* of the firm as a system, the *exploitation* of the given 'infrastructure' and the *protection* of the firm from negative consequences of uncertainty. Performing the innovation function allows for system renewal whereas system exploitation rests on the coordination function internally (e.g. managing the division and the unification of labour according to List 1841) and the arbitrage function externally. Finally, by executing the risk management function the firm is able to respond to exogenous and behavioural risks. As a matter of fact, the simple execution of one function is not enough to unfold the available potential. Therefore, an alignment of the four functions is necessary in order to improve firm's position in the

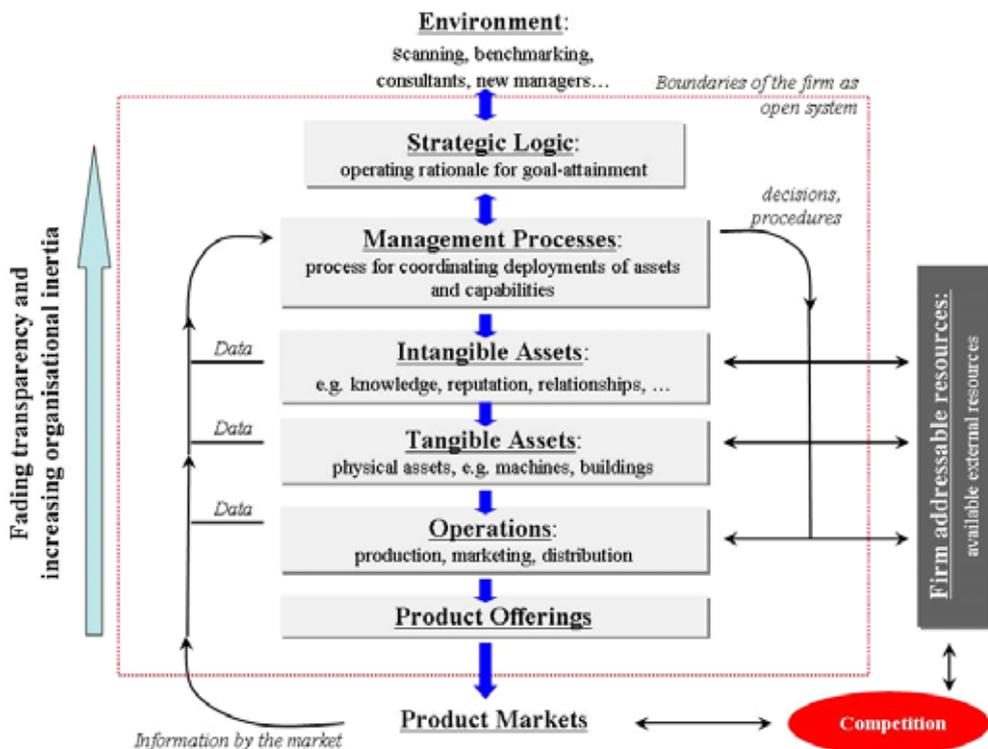
industry, to reduce unfavourable dependences and to increase the available power. The entrepreneurship element in RBV shows again the necessity of managing the firm’s interface to the environment.

The considerations reveal that we need frameworks in order to structure the complexity of the relationship between the firm and the environment (structural aspect) and to understand the dynamics of dependence and power constellations in industries. Two selected frameworks are introduced in the next section that addresses methodological implications of the debate.

5. RBV’s methodological back-up

In order to understand the firm’s embeddedness in the environment and to specify the kind of relationships to third-parties, we make use of a framework developed by Sanchez and Heene (1996). The respective model comprises an open system view on the firm. Figure 1 illustrates the firm’s principal openness by highlighting four striking interfaces.

Figure 1: The firm as an open system (Sanchez/Heene 1996: 41)



The first interface directly affects the strength of the value-added system of the firm in the grey dotted area of figure 1: Almost every value-added system faces bottlenecks. In many cases they cannot be overcome fast and easy without external support. Ac-

cordingly, the firm has to access firm-addressable assets for the purpose of strengthening the value-added system. As competitors might plan to acquire the same assets, entrepreneurial action is required in order to recognize them earlier than others and to integrate them for application to commercial ends. The second interface refers to the firm's boundary to the market. Having used the value-added system – be it alone or be it already in collaboration with customers (cf. the lead user debate as mentioned above) – the firm has to prove itself in transactions with customers. The demand itself is, thus, an important (external) asset the suppliers strive for. The interaction with the customers continues when we regard the feedback loop in figure 1 (third interface): Customer (dis-)satisfaction, remarks on the solutions received, or simply advices as information run back to the firm and represent important input to modify the entire system for the purpose of maintaining or increasing competitiveness. Finally, the fourth interface reveals the dependence of the firm on external advice. Although performing the entrepreneurial functions, the entrepreneurial mindsets often need refreshment, encouragement, or simply new ideas how to do the business. As a consequence, this external input can have substantial impact on the strategic logic and the management processes.

The open system view structures the interfaces to the environment and at the same time stresses the need for entrepreneurial action to provide resource and competence building with an appropriate sense of direction. So doing, firms get into positions making the best of their embeddedness in the environment and the respective dependences.

However, the open system view focuses on the firm as the unit of analysis. In the next step we introduce a methodology that goes beyond these more structural considerations in order to address network, market, or industry dynamics by analyzing the process dimension. In this sense, system dynamic modelling appears to be useful to understand both the micro- and macro-level of an industry. Forrester (1961) and – much later – Sterman (1989) belong to the protagonists of system dynamics. In an RBV context, e.g. Sanchez and Heene (1996) and Warren (2008) applied system dynamic thinking. We draw upon system dynamic modelling and try to make use only of this technique in RBV. What are the reasons for doing so?

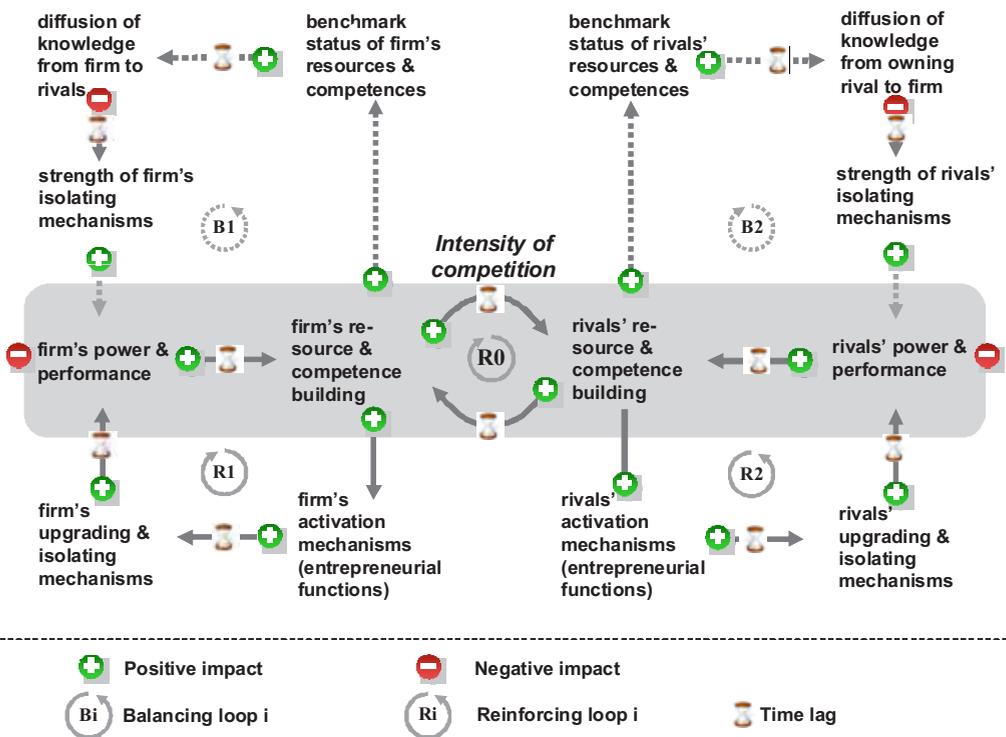
- System dynamic modelling allows for an analysis of *complex, non-linear systems* and its elements.
- Based on an understanding of the drivers of a system like an industry (or a network) we are able to *simulate* a potential run of events. This makes it easier to recognize future scenarios and, therefore, to overcome the limited *prognosis validity* of RBV.
- At the same time, system dynamic modelling rests upon closed (and non-tautological) cause and effect loops and allows for a consideration of *recursive* relationships of constructs under scrutiny. This is useful in cases where reality reveals that there are no clear structures consisting of independent and dependent variables – a not very unlikely case.
- It is a core ambition of system dynamic modelling to take the time dimension into account. Often it takes a long time until a certain development comes to per-

ceivable outcomes. Such *lags* are explicitly considered in any relationship of the model.

- System dynamic modelling seeks to take into account the most important *productive and destructive forces* of a certain development. Accordingly, the modelling consists of reinforcing and balancing loops. The interplay of the different loops explains the direction of the run of events.
- Finally, this methodology is useful to take the firm’s and the rival’s action into account, so that a path related *co-evolutionary analysis* is possible.

Figure 2 contains an overview of a – only for illustration reasons – very simplified model in the context of this paper. It is obvious that by the application of modern software much more complex structures with the respective equation systems can be considered.

Figure 2: A system dynamic model of resource-based competition and power



In the middle of the model we find the firm and its rivals in resource-based competition. All the firms in an industry are involved in resource and competence building. Reinforcing loop R1 indicates that entrepreneurship as conceptualized above activates the productive forces of the firm so that with a certain time lag an upgrading process increases the value of the resource endowment. As a consequence, the power and the performance over time increase. The same holds true for the rivals (reinforcing loop

R2). Regarding only these two loops one could assume a permanently increasing intensity of competition and a continuous nurturing of the resource endowment of all parties. This, however, would be far away from reality. As figure 2 shows, there are not only reinforcing loops but at the same time balancing loops. Just for the purpose of illustration, balancing loop B1 could be looking like that: The more the resource endowment of the firm becomes powerful, the more other suppliers will start benchmarking activities in order to find out the roots of success. Thus, a knowledge diffusion process will be started or reinforced, respectively. As a consequence, the firm's isolating mechanisms will lose their power so that imitation and substitution of valuable resources by the rivals will be easier day by day – with a final impact on the resource endowment. Again time lags occur. Balancing loop B2 applies inversely to the rivals' processes.

System dynamic modelling in an RBV context therefore allows for scrutinizing power related processes at both the firm and the industry level. Just this very simplified model reveals that power in competition as well as the intensity of competition can be addressed. Interestingly, this model shows that firms need to take care of the speed and intensity of their entrepreneurial action and their activities in the realm of resource and competence building: More of it is not simultaneously better. If e.g. a firm starts an innovative endeavour of competence building, after some time the rivals will be seriously affected and maybe merge their productive forces in order to be ready for a counter-attack. Firms have to consider this and recognize that it can be better to 'let sleeping dogs lie'.

6. Implications and outlook

Priem and Butler (2001) asked whether RBV is a useful perspective for strategic management research. Barney (2001) responded by saying 'yes'. Although RBV does not represent a homogeneous body (Acedo et al. 2007) and many of the objections raised are justified, we can conclude that, in sum, the perspective has still enormous potential to develop. Why?

Firstly, it is possible to consolidate and improve the theoretical grounding of RBV. This requires going some steps back to the RBV basics in philosophy of science because otherwise the descriptive and analytical problem cannot be fixed. In this context the basic question arises whether to refer to economic classic or neoclassical theory and to think more in terms of disequilibria or in equilibria (cf. Foss/Ishikawa 2007). From the perspective of the topic of this paper applying process school's thinking appears to be more useful. However, whether applying structural or process school do not make a difference regarding the basic work in RBV to be done. Facing the numerous problems of RBV as a theory, Sydow (1992) introduces in a more general context four options: (1) fast forgetting, (2) improving, (3) combining or (4) re-conceptualizing. Option (1) is no alternative regarding the enormous explanatory power of RBV. Option (2) is only adequate in case of minor improvements. RBV's problems, however, are more complicated. Option (3) is no primary alternative since the actual problems were not really fixed. Insofar a re-conceptualization (option 4) deems adequate and can be combined with option 3 later on when the problems are dissolved. First attempts have already been made in this regard (Teece et al. 1997; Hel-

fat et al. 2007; Foss/Ishikawa 2007; Freiling et al. 2008). After a re-conceptualization it is possible to locate the theory in the realm of organization and management theories in order to find out the paradigm, RBV belongs to. So doing, we can identify theories that can be combined with RBV without problems of incommensurability because the entire theoretical basics are compatible. With regard to the topic of this paper it appears to be useful to connect RBV with entrepreneurship theory to build the missing link from resource availability to resources in use. The execution of entrepreneurial functions contributes to activating resources and competences, to overcome rigidities, and to enable upgrading processes. Most recently, some papers deal exactly with this issue (e.g. Alvarez/Busenitz 2001; Foss/Ishikawa 2007). In this connection, the economic classic comes into play again.

Secondly, RBV represents a theoretical framework that has the potential to go beyond a theory of competitive advantage. RBV is already on the way to become a theory of the firm since explanations of the nature of the firm are different from other theories (e.g. Conner 1991). However, and this is one outcome of this paper, RBV provides an opportunity to understand economic activities simultaneously on the micro, meso, and macro level and can make, therefore, first steps in the way to become a 'New IO'. Admittedly, there are many more steps to be taken but at least at this point we should not neglect or under-estimate this interesting opportunity. In this regard, system dynamic modelling equips us with methodological means to better understand the complexity of even turbulent industries. Finally, in connection with entrepreneurial thinking based on the theory of entrepreneurial functions and by applying consequently the own causal structures, RBV is in a position to address phenomena of power and dependence in a similar way compared to RDA (Knyphausen-Aufseß 1997) but with some important peculiarities. Among them, we find path related developments, co-evolution, and reciprocity.

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