COMPARING THE RESOURCE-BASED AND MARKET-BASED VIEWS OF THE FIRM: EMPIRICAL EVIDENCE FROM CZECH PRIVATIZATION

MONA MAKHIJA*
Fisher College of Business, The Ohio State University, Columbus, OH 43210, U.S.A.

The recent privatization of state-owned enterprises in the Czech Republic forms a natural experiment to test and compare the predictive ability of the resource-based view (RBV) against the market-based view (MBV) under conditions of great change. It has been recognized in the literature that, under normal stable circumstances, a firm's internal resources and its external market power are fundamentally intertwined. Consequently, it is difficult to identify the relative roles of these two theories in explaining expected firm performance and firm value. However, when market conditions are in a state of flux, as in the case of the Czech Republic in 1992, we expect the firm's resources to be the primary determinants of firm value. In order to test this notion, an RBV model was developed, based on a set of firm features reflecting the rare and valuable ability to compete in the emerging capitalistic economy (as opposed to the currently prevailing bureaucratically planned economy). A contrasting MBV model was also developed, highlighting the role of market power in this regard. These models were assessed in a cross-sectional sample of 988 Czech firms undergoing privatization. The empirical findings show that the RBV-driven variables are remarkably better at explaining share values of Czech firms in the period of privatization than MBV-driven variables. These results underscore the role of firm resources as a primary determinant of firm value in rapidly changing environments. Copyright © 2003 John Wiley & Sons, Ltd.

There are currently two highly differing theories in the strategy literature to explain why some firms perform in a superior manner and, consequently, are associated with higher value. The first is based on industrial organizational economics, and takes an external market orientation to address this issue. This perspective, which we refer to as the market-based view of the firm (MBV), typically stresses privileged end-product market positions as a basis for above-normal future returns and thus higher current firm value (Chamberlain, 1932; Bain, 1956; Caves and Porter, 1977, 1978; Porter, 1979; Gilbert, 1989; Tallman, 1991). In

this perspective, competitive advantage is due to barriers to competition arising from the structure of the market. In contrast is the resource-based view of the firm (RBV), which focuses inwardly on the firm's resources and capabilities to explain firm profitability and value (Barney, 1986a, 1991; Grant, 1991; Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984). According to the RBV, competitive advantage is provided by distinctive, valuable firm-level resources that competitors are unable to reproduce (Barney, 1986a, 1991; Peteraf, 1993; Prahalad and Hamel, 1990). The MBV and RBV perspectives clearly point to different sources of competitive advantage for firms (Roquebert, Phillips and Westfall, 1996).

As Henderson and Mitchell (1997) have recently pointed out, there remains little consensus on the relative role of these two influences on firm

performance, and the reason is that a firm's organizational capabilities and market position are fundamentally intertwined. Normally, one would attribute abnormal returns to *both* internal and external conditions faced by the firm (Powell, 1996). Understandably, then, most researchers have had difficulty distinguishing the relative roles of these two theories for explaining firm performance (McGahan and Porter, 1997). We are therefore left with a 'very rudimentary' understanding of the true nature of these relationships (Henderson and Mitchell, 1997: 6). In particular, it is the role of firm resources and capabilities that is less understood, since these are often less visible than market position indicators. Thus, untangling this role constitutes an essential hypothesis in empirical investigations of the RBV (Collis, 1991; Davis and Thomas, 1993; Farjoun, 1994; Helfat, 1994; Henderson and Cockburn, 1994; Robins and Wiersema, 1995; Mehra, 1996; Maijoor and van Wittelstuijn, 1996).

In this research, we attempt to address the 'untangling' problem pointed out by Henderson and Mitchell (1997) by taking a very different approach than that found elsewhere in the literature. We draw from Grant (1991), who has noted that a firm's resources and capabilities take on greater importance when the external environment is in a state of flux. The argument here is that when the market undergoes significant change a firm's current market position is less relevant to future performance than if the market structure is stable. In such a situation, we expect that the determinants of future firm performance and value can be more fully attributed to firm resources. To examine this notion, this research focuses on the highly unique case of recently privatized firms in the Czech Republic. As we will show, this case offers a 'natural experiment' for testing the effects of RBV vs. MBV. The collapse of the Communist regime in late 1989, and the consequent removal of its attendant features, left Czech state-owned enterprises (SOEs) facing dramatically altered conditions. The massive disruptions in Czech markets create unique circumstances which allow us to more clearly differentiate between the internal and external influences separately emphasized in the MBV and RBV perspectives.

A cross-sectional regression analysis is conducted on 988 Czech firms that underwent first-round privatization in 1992. Two competing models with explanatory variables consistent with the MBV and RBV are developed to explain the values associated with these firms by investors. The RBV model is based on the argument that across all firms those with greater *competitive capability*, a rare, valuable, imperfectly imitable and nonsubstitutable set of resources, will prove more successful in the emerging economy. To contrast this perspective, an MBV model is also developed that focuses on the firm's inherited *market power*. MBV proponents would argue that since the transformation process in actuality unfolds gradually over time, such market power provides a valuable base for competing in the evolving environment. Our findings indicate that in this period of change the RBV model performed remarkably better than the MBV model in explaining the values of Czech firms in 1992. These results suggest that for industries undergoing significant change or rapid upheaval the RBV may be a more appropriate analytical lens with which to view firm value or performance than the MBV. These results also suggest that the methods that have been mostly used to value firms in former planned economies may not have been appropriate since they take a largely MBV perspective.

The rest of the paper is organized as follows. In the next section, we describe the Czech case, highlighting the features of Czech privatization which form a natural experiment for the purposes of this research. This is followed by a review of the RBV and MBV theories of the firm. Based on these theories, two separate testable models relevant for the Czech case are developed. Then, in the methodology section, we discuss the measures associated with each model and the empirical procedures used. Next, we present results and their discussion. Finally, we suggest some implications of this research.

THE CASE OF CZECH PRIVATIZATION

The discussion below highlights why, unlike the privatization processes of some other planned economies, the Czech case provides a natural experiment for separating out MBV and RBV effects under conditions of extreme change. We first examine (a) the legacy of over four decades of Communist rule, and then (b) the manner in which the economy underwent transformation to a more market-oriented one in 1992. Finally, we examine (c) the voucher system of privatization with which

a select set of 988 firms was privatized in the second half of 1992.[1] Unlike the privatization process of other former planned economies, the voucher system creates a unique opportunity to compare the values investors place on the shares of newly privatized firms.

The Communist legacy

By the time of the bloodless Velvet Revolution in November 1989, the Czech Republic had developed a highly rigid command economy with tightly regulated prices, a concentrated industrial structure, as well as state monopoly of foreign trade. The role of the state was overwhelmingly dominant in all economic activities, with about 98 percent of the GDP produced by the state. Integration of small and medium enterprises led to the creation of large state-owned enterprises, completely liquidating any private sector like the one that existed in Poland (Lipton and Sachs, 1990). Even among the large enterprises, there was an effort to reduce the total number of firms due to a presumed benefit from economies of scale and more manageable oversight from the center. Administrative and legal barriers were set up to protect firms from external competition and to control the entry and exit of firms. Enterprises themselves sought monopoly power because, besides being advantageous in negotiating with central authorities, it reduced the uncertainties and risks associated with competition (Kornai, 1992). There was an absence of any meaningful bankruptcy or liquidation procedures, and instead, poor results were generally rewarded with state subsidies (or sometimes absorption by another enterprise).

Similarly, managers were immune from serious negative consequences of underperforming (Kornai, 1992; Frydman and Rapaczynski, 1994; Sachs, 1992). Employment was virtually guaranteed by the state. Western-style incentives, like ownership or higher performance-based income, were not available. SOEs were generally plagued by severe managerial agency problems in the absence of a meaningful owner and monitor. A multitiered vertical system of management was created to keep central authority informed and in control of the activities of the SOEs. However, given the hierarchy of management consisting of up to six tiers before reaching the Ministry of the Interior, large informational asymmetries existed between central authorities and the managers of SOEs (Zemplinerova and Stibal, 1995).

The movement to a market economy, 1990–92

Following the collapse of the Communist regime in late 1989, the newly elected conservative government of Vaclav Klaus in July 1990 attempted to introduce rapid market-related reforms. The preexisting legal and commercial framework was discarded, while other legislation was passed to form the foundation of a new market economy. Nonetheless, there were many knotty issues to be resolved, such as the clarification of property rights and contract law.

Managers were given more autonomy to run their SOEs, with a concomitant reduction in state subsidies. Demonopolization was one of the declared goals of the government in 1990. Although barriers to entry in many industries, like telecommunications, were to survive for a long time, the government attempted to dismantle them in other industries, with only partial success. In January 1991, another law was passed to expedite the creation of a competitive market economy.[2] Resembling the German anti-cartel law, the Czech government passed the Competition Protection Act, with the provision that the state would intervene if an enterprise captured more than 30 percent of its market. However, in practice, the state found itself administratively incapable of dealing all at once with the large number of cases with more than 30 percent share of the market. Instead, the Ministry of Economic Competition selectively chose to gradually deal with monopoly cases. Thus, despite an early burst of activity, the demonopolization efforts of the government were stalled by a lack of resources.

Besides the adverse effects of reforms in the short run, SOEs experienced other negative economic shocks. The breakdown of the Council of Mutual Economic assistance meant loss of markets among its former trading partners (Dyba and Svejnar, 1991).[3] The developing rift between the

---

[1] In this discussion, only the situation in the Czech Republic is described, even though the Czech and Slovak Republics did not split until January 1993. The reason is that in practice, prior to the split, important differences existed between the two republics, even in the face of similarly stated policies.

[2] Simultaneously, about 85 percent of producer and consumer prices were decontrolled.

[3] With 60 percent of its foreign trade taking place with socialist economies in 1989, Czech firms' foreign trade with their former

Czech and Slovak Republics, leading to their eventual split, added to the economic problems. The absorption of East Germany, a neighbor and major trading partner of the Czech Republic, into West Germany posed more difficulties. Following years of neglect and underinvestment, most Czech SOEs were technologically obsolete (Bohata, Hanel, and Fischer, 1995), leaving them unprepared for new products and consumer tastes.

In sum, as SOEs set out to be privatized in 1992, they faced large uncertainties in their domestic and foreign markets, a loss of the state's safety net, and a declining economy.

The transfer of large state-owned enterprises into private hands

Large-scale privatization (involving large SOEs) effectively transferred the core economic base of the country into private hands. In the first wave, 988 SOEs were privatized during the period May through December 1992 using a voucher bidding scheme.[4] Two important stages of this process were (a) the development of privatization plans for each SOE, and (b) the voucher scheme which allowed private parties to bid on these firms. The manner in which this voucher scheme was set up allows us to formulate proxies for firm valuations by individuals and experts (in this case, investment fund managers) that will be used later in our analysis.[5]

Development and approval of privatization plans

In the first part of the privatization process, managers were required to submit privatization plans on behalf of their firms by January 1992, although anyone else, including foreigners, could also voluntarily participate. These plans included information relating to the assets and liabilities of the firm,

choice of privatization method, a proposed ownership structure, and a business plan. A number of possibilities were available as choices for privatization method, including direct sales, auctions, and tender offers of a part of the assets of the firm. Similarly, there were a number of possibilities available for the ownership structure of the equity of the privatized firm. The proposed ownership structure could contain direct domestic sales (block sales proposed or already made to domestic Czech buyers), direct sales to foreigners, equity set aside for restituents, and equity to be held by the Czech government. The remaining equity was to be distributed through a voucher-based bidding scheme, a method preferred by the Czech government. The category of direct domestic sales involved purchases by managers and other domestic buyers. Since other domestic buyers could not easily acquire shares without the help of incumbent managers, direct domestic sales represent insiders' holdings. The Ministry of Privatization then considered the various aspects of the submitted privatization plans, and selected one plan for each SOE. In this manner, 988 SOEs were brought forward to participate in the voucher scheme.

The voucher scheme and a measure of share value

On the supply side, the government needed to establish the number of available shares for a given SOE. To accomplish this, the firm's outstanding liabilities (mostly to banks, other enterprises, and the government) were made the responsibility of the firm. These were then netted against its book assets to determine the SOE's book equity. Finally, the number of shares was determined by setting the book value of one share at 1000 Czech Crowns. On this basis, an SOE's equity was divided to determine the number of its available shares. After setting aside shares for restituents, insiders, foreigners, and government in the privatization plan, the remaining number of shares was available for distribution through the voucher scheme. In this manner, the supply of shares for each SOE obtainable through the voucher scheme was established.

On the demand side, a voucher booklet was made available to each adult Czech citizen for approximately $35. The booklet contained 1000 investment points that could be bid for the SOEs. In the first round (the only one relevant to our analysis), Czech authorities set the prices of all shares at a uniform price of 33.33 points. It was

---

partners fell to 20 percent by 1993, accompanied by a drastic decline in the level of real exports (Dyba and Svejnar, 1995).

[4] Remaining large SOEs were scheduled for privatization in a second wave, which was completed in October 1994. By that time, many phases of the transition were over and conditions for a 'natural test' of the RBV did not exist. Consequently, we deal only with SOEs privatized in the first wave.

[5] The full process of privatization was by necessity rather complex. In this brief description of the voucher scheme and the events leading up to it, we focus only on aspects relevant for our analysis. Detailed descriptions of the process are provided in a number of recent papers, including, Kotrba (1995), Svejnar and Singer (1994), Claessens (1997), and Hingorani *et al.* (1997).

due to this procedure, with prices fixed arbitrarily and uniformly across shares, that we are afforded a unique opportunity to assess their perceived value. Given that each share costs exactly the same, when the shares of a given firm are in higher demand than those of another firm it reflects differences in the perceived value of those shares. In other words, the number of shares *demanded* reflects the *value* placed on those shares.[6]

Czech individuals could bid their points either directly themselves or through one of the more than 400 investment privatization funds (IPFs) that had sprung up (some backed by foreign firms). These funds proved to be very successful, ultimately controlling 72 percent of all points. IPFs can be thought of as experts, which allows us to distinguish between the value assessments made by individuals and experts. Therefore, in this analysis, we examine the numbers of shares demanded by three different groupings: individuals alone, IPFs alone, and individuals and IPFs together.

THE MARKET-BASED AND RESOURCE-BASED VIEWS OF THE FIRM

Having identified the features of Czech firm privatization important for our analysis, we now turn our attention to the two theoretical perspectives that provide alternative explanations of the valuation of Czech firms.

The market-based approach

The long-standing focus of the industrial organization (IO) literature is the role of favorable industry environments for above-normal profitability of firms. Taking their cue from the IO literature, early widely cited works in the area of strategic management have also invoked industry characteristics to explain differences in the profitability of firms (e.g., Caves and Porter, 1977, 1978; Porter, 1979). This perspective focuses outside the firm on the markets in which it competes, and therefore constitutes what is referred to in this research as the *market-based view* (MBV).

According to the MBV, the sources of value for the firm are embedded in the competitive situation characterizing its external product markets. In this perspective, a firm's sources of market power explain its relative performance. Although many aspects of market power are discussed in the literature (Chamberlain, 1932; Bain, 1956; Caves and Porter, 1977, 1978; Porter, 1979; Gilbert, 1989; Tallman, 1991), three sources of market power are frequently highlighted: monopoly, barriers to entry, and bargaining power (Grant, 1991). When a firm has a market environment characterized by the presence of monopoly or a strong market position, its expected performance will be higher. By the same token, an industry that has high barriers to entry for new competitors also implies greater long-run performance since the firm faces less competition. Higher bargaining power within the industry relative to suppliers and customers also suggests that the firm will be associated with higher expected performance, since the firm's power over its constituents indicates that they have fewer alternatives within the industry to which they can turn. The structural attributes of industries have been observed to change very slowly (Geroski and Masson, 1987; Mueller, 1986; Caves and Porter, 1980), suggesting that market power—and its observed reflection, profitability—of incumbent firms does not erode rapidly. Even in a changing environment, past market power of incumbents provides a (temporary) cushion from new competition which can be used to regain market power. For these reasons, greater market power is associated with higher firm value.

This argument for the MBV can be seen in the case of Czech privatization as well. First, many Czech firms inherited substantial market positions in 1992 that were potentially valuable in the future. We noted earlier that in the immediate post-Communist period the government was slow in its demonopolization efforts. Second, the market power of Czech SOEs could be expected to fade only gradually. Entry and exit were neither costless nor would they be effected immediately, which would leave many SOEs with *de facto* market power. Thus, after privatization these firms could take advantage of their preexisting domestic customer base, adjusting products as necessary. Finally, the IO perspective presumes that firms in general, and in this case, the privatized SOEs, have equal access to factors necessary for the emerging

---

[6] In the subsequent rounds, Czech authorities set different share prices based on share demand in prior rounds. Since differing prices for a share affects its demand, we no longer have a basis for comparing true demand for the shares of different firms. For this reason, we do not include these subsequent rounds in our analysis.

competition (Porter, 1981; Rumelt, 1984; Scherer, 1980). The SOEs should be able to produce the new products needed in the future, allowing them to hold on to or even improve their positions.

According to the MBV, then, we expect the values of Czech SOEs to vary with the extent of their respective market power, derived from monopoly positions, barriers to entry, and bargaining power.[7] Firms' monopoly-type positions are reflected in higher market shares in their industry. Larger market shares in an industry allow firms to enjoy certain monopolistic advantages such as elevation of prices above costs (Scherer, 1980; Kwoka, 1977, 1979), brought about by industry features such as resource immobility (Lustgarten and Thomadakis, 1980) or potential for product differentiation (Gale and Branch, 1982). In addition, as an industry moves structurally closer to a monopoly and away from perfect competition, firms are able to appropriate in profit the full amount of the value they create. Thus, we expect higher profitability for such firms (Grant, 1998; Scherer, 1980).[8] The weak competitive pressures faced by firms with monopoly-like positions should allow them to achieve both higher *and* more stable profitability. Higher expected profitability with high variance can be tantamount to low profitability, which is contrary to profits associated with more monopoly-type situations. A more monopolistic position should be expected to yield the firm an ability to better control its market due to fewer constraints (Barney, 2002) and to reduce its risks (Porter, 1980). In order to retain its monopoly position, however, a firm may also take actions that produce variability in its returns (e.g., set low prices in the short run). In the net, however, we expect that firms with monopoly-type positions experience lower variance of profitability than firms in more competitive environments.

Market power is also enhanced in an industry with significant barriers to entry. A number of researchers have noted that higher barriers to entry

are associated with fewer competitors in the industry (Bain, 1956; Demsetz, 1982; Grant, 1998). Industries with preemptive patenting, significant capital intensities, or knowledge asymmetries will deter new firms from entering established markets (Porter, 1980). Finally, we expect larger and financially less constrained firms to have more favorable bargaining power positions with respect to their suppliers or customers (Cowley, 1988; Kwoka, 1977). Larger firms in an industry are not only likely to be large buyers from suppliers (Caves and Porter, 1980), but also they reduce alternatives available to customers (Porter, 1980). Firms with lower debt leverage can be characterized as financially stronger (Gale, 1972). Such firms should therefore be less risky or more reliable customers to suppliers, and may at the same time pose a credible threat of backward integration (Grant, 1998).

In all, the MBV model relating to the Czech case is the following:

The MBV model

Since the ability to compete in the new market economy depends on market power, we expect that the value of a firm's shares is[9]

(a) *reflected in its monopoly-type situation (positively related to the firm's recent profitability and market share, and negatively related to the variability of its profitability);*

(b) *reflected in the barriers to entry in its market (negatively related to the number of firms in its industry); and*

(c) *reflected in its bargaining power (positively related to its size, and negatively related to its debt leverage).*

The following hypotheses are derived from the MBV model, with market power reflected in the value of shares of a firm:[10]

> *Hypothesis 1a: The relationship between share value and firm size is positive.*

---

[7] In developing testable hypotheses for the MBV model, we are interested in those variables that reflect the market power of the firm. In this regard, we use both industry-related and firm-related variables to capture attributes of the industry setting faced by the firm. In particular, the interpretation of these firm-specific variables reflects their external implications.

[8] Note that past profitability does not qualify as a resource variable for the firm. The resources that were associated with past profitability are no longer aligned with emergent market conditions. We therefore can reject the relevance of past profitability for the RBV perspective.

[9] Although the variables listed below are associated with a particular concept (i.e., monopoly-type situation, barriers to entry, and bargaining power), they have some overlapping aspects.

[10] Previous work in the finance literature on Czech valuation during privatization has in fact invoked some of these variables, including profitability, variability of profitability, and leverage (Svejnar and Singer, 1994; Claessens, 1997; Hingorani, Lehn, and Makhija, 1997). Other important MBV-based variables, such as market share and number of competitors, were not considered.

Hypothesis 2a: The relationship between share value and variance of profitability is negative.

Hypothesis 3a: The relationship between share value and firm debt leverage is negative.

Hypothesis 4a: The relationship between share value and profitability is positive.

Hypothesis 5a: The relationship between share value and market share is positive.

Hypothesis 6a: The relationship between share value and number of rivals is negative.

The resource-based approach

In contrast to the MBV, the *resource-based view* (RBV) of the firm looks inwardly towards the resources available to the firm. According to Wernerfelt (1984), a firm's resources are those tangible and intangible assets tied semipermanently to the firm (Wernerfelt, 1984: 172). These include all firm-specific assets, capabilities, organizational processes, firm attributes, information, knowledge, etc., that allow the firm to develop strategies benefiting its efficiency and effectiveness (Barney, 1991: 101). The importance of a given resource can only be assessed in comparison to those held by competitors, since only a competitively unique and superior competence can be a source of economic value (Collis, 1991: 51). Resources have features that lead to a sustainable competitive advantage, or produce equilibrium returns in excess of the cost of capital (Barney, 1986a, 1991; Peteraf, 1993). Barney (1986a) notes that rent-producing resources must be (a) valuable, (b) rare, (c) imperfectly imitable, and (d) not perfectly substitutable. The literature is replete with examples of such firm resources.[11]

Recent empirical work on the RBV highlights attributes of actual resources that are likely to be rare, imperfectly imitable and also imperfectly substitutable. While it is certainly possible that physical assets can be the source of above-normal returns, it is intangible organizational resources, developed typically through unique historicity and with social complexity, that are frequently found to create sustained competitive advantage. These resources are commonly embodied in the form of tacit knowledge within the firm. In the case of Maijoor and van Witteloostuijn's (1996) study of the Dutch auditing industry, the relevant resource is the auditing skill base of registered auditors. In describing the resource, they note that unique human capital is the principal source of competitive advantage. In Wernerfelt's (1984) perspective, this is embodied in the firm's in-house knowledge of technology, while Farjoun (1994) considers it as stemming from combinations of human expertise in diversified U.S. firms. Similarly, Helfat (1994) focuses on the role of firm-specific corporate applied R&D in the U.S. petroleum industry.

Researchers have also highlighted particular resources that rise in importance in rapidly changing industry environments (Majumdar, 1998; Chakravarthy, 1996; Brush and Artz, 1999). In the banking industry, Mehra (1996) finds that as this industry restructures, resources such as management quality and depth, technological expertise, resource management/efficiency, and innovation play an important role in explaining performance variation in the U.S. banking industry. Henderson and Cockburn (1994) suggest that 'competence' in research is the enduring resource in the dynamic environment of the pharmaceutical industry. Collis (1991) highlights the importance of resources associated with core competence, organizational capability, and administrative heritage, as the bearings industry undergoes global transformation. Finally, in a longitudinal study encompassing three periods of transformation in the typesetter industry, Tripsas (1997) shows how investment in technological and complementary resources enhanced the ability of incumbent firms to survive.

In the case of Czech firms undergoing privatization in 1992, a similarly important set of resources can be identified. In particular, we argue below that managers with the ability to manage in a competitive environment (in contrast to the prior prevailing bureaucratic environment) represent a comparable value-creating resource for their firms. While there may be any number of different resources pertinent

---

[11] Examples given in the literature include trade contacts, machinery, efficient procedures, capital, corporate culture, firm's reputation among suppliers, and interpersonal relations among managers in a firm (Barney, 1986b, 1991; Wernerfelt, 1984); Sony's capacity to miniaturize, Phillip's optical-media expertise, Casio's ability to harmonize streams of technology (Prahalad and Hamel, 1990); items of capital equipment, skills of individual employees, patents, and finance (Grant, 1991); idiosyncratic firm research capability, (Henderson and Cockburn, 1994); and a brilliant Nobel prize-winning scientist as an employee (Peteraf, 1993).

to specific businesses, such a *competitive capability* is a necessary ingredient for success of all firms in a free market economy. In planned economies, however, since firms did not need to compete with each other, this capability is not only rare, it is valuable, difficult to imitate, and not easily substitutable.

To understand the scarcity and value of *competitive capability*, it is useful to examine the consequences of the Communist legacy (discussed in the previous section) for the managerial culture within firms. According to Kornai (1992), one of the distinguishing features of the Communist system was pervasive bureaucracy.[12] Organizations in centrally planned economies displayed higher levels of procedural formalization, functional specialization of activities, and centralization of decision making compared with similar organizations in free market systems (Kuc, Hickson, and MacMillan, 1980). The role of the individual manager was limited (Kornai, 1992) since important decisions relating to production, investment, supplies and hiring were centralized (Ericson, 1991; Vlachoutsicos and Lawrence, 1990). Essentially, the scope of managerial discretion was decreased as decisions were pushed to ever-higher levels in the state planning function. In this scenario, if an individual manager reacted to changes in prices, costs, or consumer demand, he could expect to be sanctioned. Consequently, the Communist manager was expected to follow established guidelines for acquiring and transforming inputs rather than meeting the demands of the marketplace. In addition, the uncertainty and consequences faced by such managers were limited. The central planning functions acted to reduce uncertainty for managers, fixing for them prices, demand for product, and supplies of inputs.

Thus, in these bureaucracies certain managerial behaviors were inculcated and rewarded. This included the following of rules, rather than independent decision making. The result is a lack of proactive ability on the part of managers. Incentives existed for incremental rather than innovative behavior, leading to an aversion to risk taking. The consequence of this is a lack of entrepreneurial ability. The central role of the state meant an excessive reliance on the state for subsidies or other favors. This behavior was encouraged by the state, since this reliance increased the state's control over the enterprise and manager. These, then, are some of the common managerial behaviors found within firms in planned economies (that is, they are not rare, valuable, inimitable or nonsubstitutable).

In contrast, the combinations of knowledge underlying *competitive capability* are not easily found in SOEs. *Competitive capability* involves at least three types of knowledge. The first is the knowledge underlying *efficiency*, or the ability to put organizational resources to their most productive use. Generally, SOEs that have exhibited greater efficiency or productivity in the past suggests a proactive management, since production quotas and not efficiency were stressed by the state (Kornai, 1992). This ability is likely to result in higher performance in a free market economy. Most often, efficiency within some SOEs is likely to be an historic accident, arising either as a unique, spontaneous, local development and/or because the state's umbrella did not provide sufficient protection from external forces. Examples may include industries with uncontrollable uncertainties, including dependence on foreign dealings, foreign exchange, or other unanticipatable planning problems. Thus, firms which have historically faced more uncertain industry environments relative to others are likely to have management that have been required to show relatively more initiative. Therefore, the greater the uncertainties faced by the management in the past, the greater is the firm's ability to perform well in the new economy.

A second type of knowledge underlying *competitive capability* is that associated with *entrepreneurial ability*. Entrepreneurial ability involves the ability to be innovative, and to make decisions characterized by uncertain outcomes, more difficult goals, and significant consequences. Such decisions involve the ability to take significant risks (Sitkin and Pablo, 1992). Although clearly not prevalent in Czech SOEs undergoing privatization in 1992, there are some observable characteristics of firms whose management is likely to possess relatively more entrepreneurial ability. The presence of restituent (the original owners prior to the Communist takeover) and foreign ownership should move SOEs away from bureaucratic behavior towards more entrepreneurial behavior. Restituents and foreign owners bring in new knowledge and skills into the firm that will be important for the

---

[12] A lack of property rights, limited mobility of human resources, and a shortage economy are the other three features that Kornai (1992) highlights.

firm's future competitiveness in a market economy. We can also infer that the management of a firm is more entrepreneurial when managers took an ownership stake in the firm.[13] In addition, smaller firms, usually less burdened with bureaucratic methods than large ones, will also be comparatively more entrepreneurial and flexible.

A third type of knowledge underlying *competitive capability* stems from the firm's *institutional networks and administrative heritage*. The firm's networks include its relationships with institutional actors such as the government, banks, suppliers, and other organizations that affect its ability to carry out its objectives. The ability of the firm to maintain quality relationships will have an important impact on a firm's competitive standing. In a changing economic environment, ties to the government give the firm greater competitive advantage over those with no such ties. The government becomes an important source of institutional knowledge for the firm. As new rules, regulations, and laws evolve in this environment, the firm's closer relationship with the state helps to reduce uncertainty and risks relating to the institutional environment. In addition, ties to the state are associated with a correspondingly greater ability to draw more favorable regulations. Thus, we expect government ownership to positively affect firm value. Using a similar argument, ties to state-owned banks (primary suppliers of credit) are also important to the privatizing firm, suggesting a positive relation between leverage and firm value. Banks were either not privatized or had large equity stakes held by the government (Coffee, 1996). Consequently, banks, as extensions of the state, were reluctant to force firms with bad loans into bankruptcy. Moreover, because of long ties with other arms of the state, banks played an influential role in the setting of government policy. Thus, the presence of debt suggests valuable connections through banks (and other lending enterprises). Finally, we believe that when a firm has been split into multiple units as part of the privatization process, those units privatized separately from the original firm will have lost critical resources and knowledge related to administrative heritage as well as its external networks with the state (Collis, 1991). Due to this, despite

their smaller size, these dismembered units are not expected to be as successful in the privatization process, affecting values adversely.

Summarizing the implications drawn above, we have the following model:

The RBV model

Since the ability to compete in the new market economy depends on its 'competitive capability,' we expect that the value of a firm's shares is

(a) *reflected in the firm's ability to be efficient (positively related to its productivity and historical uncertainty of environment);*
(b) *reflected in the firm's entrepreneurial ability (positively related to the presence of restituent, managerial, and foreign ownership, and negatively related to the size of the firm);*
(c) *reflected in the firm's institutional networks (positively related to the presence of government ownership and bank leverage, and negatively affected if the firm is a dismembered unit).*

Based on the RBV model presented above, the following contrasting set of hypotheses is proposed, with competitive capability reflected in the value of shares:

Hypothesis 1b: The relationship between share value and firm size is negative.

Hypothesis 2b: The relationship between share value and variance of profitability is positive.

Hypothesis 3b: The relationship between share value and leverage is positive.

Hypothesis 7b: The relationship between share value and managerial efficiency is positive.

Hypothesis 8b: The relationship between share value and managerial ownership is positive.

Hypothesis 9b: The relationship between share value and restituent ownership is positive.

Hypothesis 10b: The relationship between share value and foreign ownership is positive.

Hypothesis 11b: The relationship between share value and government ownership is positive.

---

[13] As noted in the description of the data below, restituent, foreign, and insider ownership were not common among the Czech SOEs undergoing privatization in 1992.

Hypothesis 12b: The relationship between share value and dismemberment (from a larger unit) is negative.

In sum, the multidimensional *competitive capability* within Czech firms outlined above is valuable, rare, imperfectly imitable, and not perfectly substitutable. At one level, *competitive capability* resides in individuals. Cumulatively, however, it represents a corporate culture and an organizational resource of a firm (Barney, 1986b). It is an intangible resource derived from human capital, considered to be a particularly critical organizational resource by most researchers (e.g., Wernerfelt, 1984; Grant, 1991; Barney, 1991; Prahalad and Hamel, 1990). At the same time, *competitive capability* within Czech firms involves social complexity, historicity, and causal ambiguity, making for a value-generating resource (Barney, 1986a). Even in well-functioning market economies, with appropriate incentives and educational infrastructure, there is no simple prescription for developing market-oriented abilities and corporate culture. In the emerging market economy of the Czech Republic (which until recently did not even have a word for 'marketing'), it is impossible to imagine that there can be a formula to transmit free-market related managerial skills. Imitators cannot readily acquire the tacit knowledge involved in this organizational resource (Polanyi, 1967). According to Barberis *et al*. (1996), this capability is so rare among Russian managers that management turnover, and not just better-aligned incentives, may be necessary to create the human capital needed to meet the challenges of the new market economy.[14]

METHODOLOGY AND DATA

Methodology

The hypothesized relationships outlined above are assessed via linear regression methodology. The variables associated with the full model (incorporating the MBV and RBV variables), with the hypothesized signs denoted below the regression coefficients, are the following:

Share value = α

+ β Firm size+	χ Var. of profit	+ δ Leverage
(+ for MBV)	(− for MBV)	(− for MBV)
(− for RBV)	(+ for RBV)	(+ for RBV)
+ ε Profitability+	ϕ Market share+	γ No. of rivals+
(+ for MBV)	(+ for MBV)	(−for MBV)
+ η Mgmt eff.+	ι Mgmt stake+	φ Restituent stake
(+ for RBV)	(+ for RBV)	(+ for RBV)
+ κ Foreign stake +	λ Govt stake +	μ Broken unit +
(+ for RBV)	(+ for RBV)	e (2) (−for RBV)

Note that when common variables are invoked (firm size, variance of profitability/uncertainty of environment, and leverage), the MBV and RBV theories have contrasting predictions. Each theory also suggests additional independent variables.[15]

Data

As part of the privatization process, the Czech Ministry of Finance issued a number of publications (Kuponova Privatizace) prior to and during the voucher privatization scheme which disclosed information on the 988 firms undergoing voucher privatization in Wave 1. From these, a unique database of SOEs undergoing privatization was created, which provided uniform coverage for a large sample of firms. The data made available included certain firm-specific items for 1989, 1990, and 1991 that are the basis for our analysis: shareholders' equity, total equity, total liabilities, bank loans, sales, pretax profits, number of employees, industry classification, and whether the unit was a dismembered component of a larger parent firm.[16] In addition, ownership data were

---

[14] Lipton and Sachs note that 'there are tens, if not hundreds, of thousands of officials whose professional experience lies in a lifetime of bureaucratic planning of economic life ... It is naïve to think of the existing bureaucracies as equipped, professionally or temperamentally, to implement sophisticated policies based on Western-style theories ...' (Lipton and Sachs, 1990: 88). Frydman and Rapaczynski (1994) raise similar concerns when they say, 'the long history of communist administration has trained the managers in the art of avoidance to a degree undreamt of by their Western counterparts ... they are apt to resist any attempts to monitor their behavior and sabotage efforts to set up an institutional structure that would subject them to external control' (Frydman and Rapaczynski, 1994: 145). Barberis *et al*. (1996) feel that the situation is so hopeless that no meaningful change can be expected until a new generation replaces the old guard.

[15] For the estimation procedure, White's correction for heteroskedasticity is employed.

[16] Czech enterprises employed double-entry bookkeeping based on generally accepted concepts such as the business entity as a reporting unit, money measurement for transactions, use of historical cost, a going-concern assumption, and accrual accounting (United Nations, 1993). Despite these important similarities with Western accounting methods, one may question the quality of data. However, there is no reason to believe were

Table 1. Descriptive statistics

Panel A: Firms and their markets

	Mean	Median	S.D.	*N*
Total book assets, $ millions	32.01	6.88	249.22	988
Return on assets, %	10.27	5.45	39.14	988
Intra-industry variance of return on assets, % %	152.72	108.34	208.25	979
Ratio of total liabilities to total assets, %	34.57	32.79	21.42	988
Percentage of equity owned by foreigners, %	1.62	0.00	8.68	988
Percentage of equity owned by restituents, %	0.41	0.00	2.62	988
Percentage of equity owned by insiders, %	3.76	0.00	13.49	988
Percentage of equity owned by government, %	7.13	0.00	14.10	988
Percentage of equity owned by fund with the largest stake, %	13.54	14.00	5.85	987
Sum of squared percentages of equity owned by various owners, %	12.13	8.36	11.58	987
Ratio of firm sales to industry sales, %	5.25	1.01	14.41	988
Number of firms in industry of firms	19.00	6.00	32.19	52
Number of pieces into which original firm was broken with sample firm as one piece	2.46	1.00	2.86	988
Revenues per employee, #	19,719.85	11,428.01	26,255.88	987

Panel B: Ownership

Ownership type	Mean	Median	S.D.	*N*
Foreign ownership in firms with positive foreign stakes	39.15	36.00	18.79	41
Restituent ownership in firms with positive restituent stakes	5.43	3.00	8.01	75
Insider ownership in firms with positive insider stakes	41.24	40.00	21.31	90
Government ownership in firms with positive government stakes	21.34	20.00	17.10	330

Panel C: Firm value

Measures of value	Means	Median	S.D.	*N*
Shares demanded in total in Round 1 as a ratio of total shares available, %	137.98	59.65	495.72	988
Shares demanded by funds in Round 1 as a ratio of total shares available, %	77.97	42.32	101.91	988
Shares demanded by individuals in Round 1 as a ratio of total shares available, %	60.00	14.31	446.77	988
Dollar price per share traded in first RMS auction (July 8, 1993)	35.49	26.53	45.40	975

obtained from the approved privatization plans preceding the voucher scheme. These included direct domestic sales (management and related owners), restituents, foreigners, government, and other minor owners (such as municipalities).

Table 1, Panel A, contains descriptive statistics on the 988 sample firms.[17] The average firm is small, based on the mean ($32.01 million) and

---

biases in the data, if any, should lead to specific findings on any of the coefficients.

[17] All Czech crown figures have been converted into dollar amounts using an exchange rate of 30 Czech crowns per 1 U.S. dollar, approximating the general level of exchange rates during the period.

median ($6.88 million) total book assets reported in the table. However, the mean is considerably larger than the median, suggesting the presence of some large firms (the smallest firm has book assets of $116,300, while the largest has assets of $7.296 billion). Similarly, other variables in Panel A of Table 1 show that there is considerable cross-sectional variation in firm characteristics. Other notable observations from this panel are that the average firm was profitable in 1991, and not heavily indebted (leverage of about 35%). For the 52 industries covered, the median industry had only six firms. While at least half the firms were the original whole firms (median number of pieces is one), the average number of pieces into which the original firm was broken into is about 2.5.

The ownership data for newly privatized Czech firms shown in Table 1, Panel A, suggests that the average firm did not have large amounts of foreign, restituent, insider, or government ownership. The means are, however, misleading because very few firms were able to acquire these forms of ownership. According to Panel B, there were 41, 75, 90, and 330 cases of nonzero ownership stakes held by foreigners, restituents, insiders, and government, respectively. For firms with positive amounts of such ownership, Panel B shows that these owners (except for restituents, perhaps) held significant stakes in the firm. The most important form of ownership shown in Panel A is the ownership held by the fund with the largest stake (mean of 13.54%), which resulted from the voucher scheme.

In Table 1, Panel C, different measures of firm value are presented, proxied by the number of shares demanded since all shares were available at a fixed price in Round 1. The mean of the shares demanded in total in Round 1 as a percentage of the total shares available is 137.98 percent. However, not all shares were considered this valuable, since the median demand was only 59.65 percent. Again, there is considerable variation in demand (standard deviation of 495.72%). Panel C also provides a breakdown of the total demand in terms of shares demanded by investment funds and by individuals. Demand by investment funds, including some set up by foreign investment firms, can be considered to reflect the valuation by experts. Finally, Panel C describes prices at which shares first traded after the voucher scheme.

For purposes of the regression analysis that follows, we check the data for multicollinearity. No pair of independent variables has a high enough correlation coefficient, or even close to it, to consider multicollinearity to be a serious issue (the cut-off of 0.8 is the standard, Judge *et al.*, 1980). In testing the model above, the following definitions of variables were used in the regression analysis.

Dependent variable measures of share values

Share value based on total share demand:

LTD = Log of shares demanded in Round 1 by funds and individuals as a percentage of total shares available

Share value based on share demand by investment privatization funds:

LFD = Log of shares demanded by funds in Round 1 as a percentage of total shares available

Share value based on share demand by individuals:

LID = Log of shares demanded by individuals in Round 1 as a percentage of total shares available

Share value based on stock market prices:

LPRICE = Log of dollar price of shares based on the first RMS auction on July 8, 1993
Although RMS (Registracni Misto System) and PSE (Prague Stock Exchange) were two avenues for trading stock that were available at the time, early on most of the volume occurred on the RMS. The RMS set prices through a periodic auction process.

Independent variables firm-specific variables

Throughout the analysis, the most recent data available (1991) are used, although data for 1989 and 1990 were also reported by Czech authorities for some variables.

Variables common to MBV and RBV theories

Firm size:

SIZE = Log of total dollar book assets for 1991, summing the liabilities and equity values

Variance of profitability:

VAR = Variance of intra-industry rates of return on assets for 1991, %%

In the absence of a time series of firm profitability, we employ this measure to capture the uncertain environment of the firm. We estimate intra-industry variance of return on assets for 1991 using all firms within the same 2-digit ISIC code. In the case of nine firms, there were not enough firms in the industry (three or more) to calculate intra-industry variance. So, all the regressions have at most 979 observations.

Leverage:

LEV = Percentage of total liabilities to total assets in 1991, %

Additional MBV variables

Profitability:

ROA = Return on assets for 1991, %[18]

Market share:

MKTSH = Percentage of sales of the individual firm relative to total sales of all firms in its industry in 1991

Number of rivals:

COMP = Log of the number of firms in the industry of the firm in 1991

Additional RBV variables

Managerial efficiency:

MQUAL = Dummy variable with value of one when the revenue per employee in 1991 is above median for firms in the industry; otherwise zero

Management ownership stake:

MNGR = Log of insider ownership in 1991 when there is nonzero insider ownership; otherwise zero

Restituent ownership stake:

OLD = Log of restituent ownership in 1991 when there is nonzero restituent ownership; otherwise zero

Foreign ownership stake:

FOR = Log of foreign ownership in 1991 when there is nonzero foreign ownership; otherwise zero

Government ownership stake:

GOVT = Log of government ownership in 1991 when there is nonzero government ownership; otherwise zero

Broken/dismembered unit:

DISMEM = A dummy variable with a value of one if the firm is a piece of a firm broken into multiple firms. It has a value of zero if it is the original unbroken firm

Ownership stake investment fund with largest stake:

FUNDI = Log of ownership in 1991 by fund with the largest stake in the firm

Ownership concentration:

CONC = Log of Herfindahl index for ownership for 1991, where the Herfindahl is calculated as the sum of the squares of ownership by the various owners of the firm

RESULTS AND DISCUSSION

Full model combining MBV and RBV variables

In Table 2, findings are presented for regressions in which all the explanatory variables from the MBV and RBV theories are combined. Demand is estimated in three ways: total, fund, and individual. The average adjusted R^2 for the three estimations in Table 2 is 27.2 percent (only slightly higher than the average for the RBV-based variables alone, 24.9%).

For total demand, the coefficient of ROA is positive, as predicted by the MBV, but it is not significant. This is an important finding, since it suggests that historic profitability did not significantly affect share valuation. Several other variables have coefficients with unexpected signs according to MBV. While the variance of intra-industry rate

---

[18] Some researchers, e.g., Hingorani *et al.*, 1997), have used return on equity (ROE). Instead, we use ROA, since equity was a fictional notion during the communist regime. It should also be noted that differences in ROA across firms could arise because of industries to which they belong. However, the analysis includes several other independent industry-related variables that should control for such variations.

of return is expected to be negative, it is positive (significant at the 5% level). Similarly, while the MBV predicts a positive sign, the coefficient on firm size (SIZE) is negative (significant at the 1% level). Although the MBV expected sign is negative, the coefficient for firm leverage (LEV) is positive, and statistically insignificant. The MBV predicted sign for the coefficient of firm market share (MKTSH) is positive, but instead found to be negative (though not significant). The only coefficient which is significant and has the negative sign as predicted by MBV is the one for the number of competitors (COMP). Interestingly, this variable has not been used in prior work on the valuation of Czech shares (i.e., Svejnar and Singer, 1994; Claessens, 1997; Hingorani *et al.*, 1997). This sole finding for the MBV theory, however, represents only weak support. Overall, the MBV does not appear to perform well in explaining share values of Czech firms in 1992.

In comparison, the RBV-based variables fare well. From the regression for total share demand, it is found that all of the RBV variables, with the exception of leverage, have the predicted significant coefficients with the correct signs. Only leverage (LEV) has a coefficient with an unexpected negative sign, although it is not significant. It is notable that higher historic uncertainty in the environment of the firm (measured by higher intra-industry variance of ROA in 1991) implies higher values for the shares of the firm. Although this is contrary to the traditional argument that risk has a negative effect on values, the RBV model suggests that past experience with uncertainty may be beneficial in dealing with the uncertainties of the new market economy. The negative coefficient for SIZE is also consistent with the RBV of the firm. Larger firms, with larger bureaucracy, stifle initiative and are less responsive. They are also more prone to suffer from severe agency problems. Thus, in the Czech case the adverse agency effects of size overpower the positive benefits of the market power implied by size. When fund and individual demand are used as the dependent variable, the findings are largely similar. In the case of individual demand, we find that LEV is now both positive and significant as predicted.

Each of the three private forms of ownership (FOR, OLD, and MNGR) has a positive effect on share values in Table 2, consistent with RBV's predictions relating to entrepreneurial skills and new knowledge for the firm. The positive coefficient on restituent ownership (OLD) is particularly interesting, since it cannot be attributed to the effects of control held by significant block holders. The mean (median) holdings by restituents, even when nonzero, is only 5.43 percent (3.00%). The significant positive effect of government ownership (GOVT) is also interesting, since it goes against the traditional argument of government as a negative influence. Instead, this supports our earlier argument that during a period of economic transition the government becomes an important source of institutional knowledge and influence. It can be used to obtain friendly, valuable regulations in the evolving Czech economy, as suggested by the RBV model.

The significant negative coefficient for dismemberment (DISMEM) for total demand in Table 2 is also consistent with the RBV model. The interpretation of DISMEM is that dismemberment of the original firm represents a fractured organization. The break-up of the business and personal ties within the original firm and the uncertain new rearrangements to follow suggest a negative effect on share values. Finally, managers who have operated their firms with greater efficiency (MQUAL) have a beneficial effect on the value of the shares of their firms. Overall, the RBV model performs well in explaining share values of Czech firms in 1992.

The findings in Table 2 also partially address the missing variables problem. To the extent that the MBV theory identifies some of these missing variables, it is reassuring that RBV predictions are still supported. This suggests that the findings in the panel did not arise because the RBV variables were proxying for missing MBV variables. Rather, the RBV variables themselves explain share values, addressing concerns about the relative roles of the two theories raised by Henderson and Mitchell (1997).

Thus far, it appears that the benefit from the MBV model must come from the significant coefficient on the log of number of competitors in the industry of the firm (COMP), since the coefficients on the other variables in Table 2 largely do not conform with the predictions of the MBV theory. Later, we use Chow tests to examine if there is a benefit from the inclusion of both theories in the full model.

Table 2.   Testing the full model using both the MBV and RBV variables

Dep. var.	ROA	VAR	SIZE	LEV	FOR	OLD	MNGR	GOVT	MKTSH	COMP	DISMEM	MQUAL	CONS	OBS	R²
LTD = Log of total demand	0.0056 (1.10)	0.0011 (4.34)***	−0.2383 (−6.15)***	−0.0008 (−0.34)	0.5344 (15.19)***	0.3474 (4.45)***	0.3694 (9.61)***	0.2154 (7.19)***	0.0010 (0.19)	−0.1168 (−2.50)**	−0.2347 (−2.70)***	0.5814 (6.00)***	4.1854 (21.68)***	979	27.86
LFD = Log of fund demand	0.0103 (1.16)	0.0015 (2.98)**	−0.0950 (−1.16)	−0.0005 (−0.08)	0.6931 (13.32)***	0.6450 (4.03)***	0.4611 (6.16)***	0.3401 (5.18)***	−0.0009 (−0.07)	−0.1724 (−1.55)	−0.3122 (−1.54)	0.9398 (4.41)***	2.4521 (5.29)***	979	12.97
LID = Log of individual demand	0.0049 (1.16)	0.0009 (3.91)***	−0.4641 (−13.45)***	0.0051 (2.87)**	0.6016 (15.14)***	0.2339 (4.12)***	0.4026 (10.26)***	0.2333 (8.98)***	0.0040 (0.76)	−0.0922 (−2.24)**	−0.2711 (−3.77)***	0.4228 (5.25)***	3.2597 (19.73)***	979	40.68
MBV prediction	+	−	+	−	+	+	+	+	+	−	−	+			
RBV prediction	+	+	−	+											

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, for *t*-statistics.

Table 3.   Testing for MBV variables alone

Dep. var.	ROA	VAR	SIZE	LEV	FOR	OLD	MNGR	GOVT	MKTSH	COMP	DISMEM	MQUAL	CONS	OBS.	R² %
LTD = Log of total demand	0.0080 (1.31)	0.0011 (3.92)***	−0.1044 (−2.61)***	0.0021 (0.81)					−0.0035 (−0.60)	−0.1606 (−3.21)***			4.4609 (21.47)***	979	8.99
LFD = Log fund demand	0.0135 (1.30)	0.0015 (2.78)**	0.1052 (1.28)	0.0033 (0.60)					−0.0060 (−0.48)	−0.2174 (−1.93)*			2.8305 (6.01)***	979	4.41
LID = Log of individual demand	0.0074 (1.41)	0.0010 (3.58)***	−0.3305 (−8.82)***	0.0080 (3.27)**					−0.0017 (−0.31)	−0.1531 (−3.33)***			3.5640 (19.07)***	979	16.93
Prediction	+	−	+	−					+	−					

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, for *t*-statistics.

Table 4.   Testing for RBV variables alone

Dep. var.	ROA	VAR	SIZE	LEV	FOR	OLD	MNGR	GOVT	MKTSH	COMP	DISMEM	MQUAL	CONS	OBS.	R²
LTD = Log of total demand		0.0012 (4.95)***	−0.2374 (−6.42)***	−0.0042 (−1.80)*	0.5516 (15.95)***	0.3586 (4.55)***	0.4138 (10.87)***	0.2177 (7.04)***			−0.2501 (−2.80)***	0.5899 (6.23)***	3.8786 (3.68)***	979	25.24
LFD = Log of fund demand		0.0018 (3.33)***	−0.1005 (−1.35)	−0.0057 (−1.11)	0.7239 (14.39)***	0.6658 (4.14)***	0.5409 (7.43)***	0.3430 (5.12)***			−0.3375 (−1.64)*	0.9658 (4.60)***	2.0219 (8.24)***	979	36.16
LID = Log of individual demand		0.0010 (4.55)***	−0.4559 (−13.17)***	0.0020 (0.96)	0.6146 (15.53)***	0.2430 (4.27)***	0.4393 (11.26)***	0.2351 (8.74)***			−0.2854 (−3.85)***	0.4325 (5.48)***	3.0310 (2.85)***	979	38.20
Prediction		+	−	+	+	+	+	+			−	+			

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, for *t*-statistics.

Estimation with MBV variables only

Table 3 contains the findings using only the MBV-based variables. The adjusted R^2 is 8.99 percent, 4.41 percent, and 16.93 percent for the estimations with total, fund, and individual demand as dependent variables, respectively. Each of these adjusted R^2 are less than the corresponding adjusted R^2 for the full model, which are 27.86 percent, 12.97 percent, and 40.68 percent, respectively. One interesting observation is that the adjusted R^2 for the estimation with investment fund demand is only 4.41 percent, compared with 16.93 percent for the estimation with individual share demand. This suggests that experts (investment funds) rely considerably less on MBV variables in the valuation of newly privatized Czech firms. The coefficients have signs and significance that mirror those in the full model.

Estimation with RBV variables only

In Table 4, findings for only the RBV variables are reported. The adjusted R^2 values for all three estimations in the panel are considerably higher than those in Table 3 (an average of 33.2% vs. 10.1%). The coefficients of the RBV-based variables in Table 4 continue to support the RBV model, except again for the coefficient of LEV, depending on the estimation.

Fund and individual demand also provide support for the RBV of the firm, although there are some differences between the two estimations in Table 4. The coefficients for all the ownership variables (FOR, OLD, MNGR, and GOVT) are higher when fund demand is the dependent variable rather than individual demand. This suggests that experts place more importance on the ownership aspects (entrepreneurial, control, and connections) than do individuals in valuing shares. While the adjusted R^2 for the estimation with share demand for investment funds is lower than that for individual demand in Table 4, it is higher than the corresponding figure in Table 3 (36.2% vs. 4.4%). That is, experts appear to rely more on RBV-based variables than on MBV-based variables.

Contributions of the MBV and RBV variables to the full model: Chow tests

In addition to the comparisons of adjusted R^2 in the discussion above, Chow tests were conducted to examine the contributions of the MBV and RBV variables to the full model. (Since linear constraints are applied, the F-values provided below strictly conform to Wald tests). Two sets of tests are conducted, since there are common variables between the MBV and RBV models.

The full model was first estimated, and then tested for the constraint that the coefficients of the variables relating to profitability (ROA), variance (VAR), size (SIZE), leverage (LEV), market share (MKTSH) and rivalry (COMP) are all zero (contrary to the MBV theory). This hypothesis is rejected with an estimated $F(6, 966) = 17.03$, and a Prob. $>F$ of 0.0000. Since VAR, SIZE and LEV are also RBV variables, the test is repeated with only coefficients of ROA, MKTSH, and COMP hypothesized to be zero. Now, the $F(3,966)$ is 3.64, and the Prob. $>F$ is 0.0124. Thus, inclusion of MBV variables does contribute to the full model. (Of course, this contribution of the MBV variables to the full model may be attributed to the variables that have significant coefficients in the regression, even though their signs are contrary to the MBV theory).

Chow tests were similarly undertaken for the RBV variables. When variance (VAR), size (SIZE), leverage (LEV), ownership of foreigners (FOR), restituents (OLD), management (MNGR), government (GOVT), dismemberment (DISMEM), and managerial efficiency (MQUAL) are constrained to be zero, the $F(9,966)$ has a value of 41.15 and a Prob. $>F$ of 0.0000. When the hypothesis is that only FOR, OLD, MNGR, GOVT, DISMEM, and MQUAL are zero, the $F(6,966)$ is 59.29 with a Prob. $>F$ of 0.0000. Thus, the RBV variables make significant contributions to the full model as well, whether one includes variables unique to RBV or those common to both theories.

CONCLUSIONS AND IMPLICATIONS

While traditional models based on industrial organization economics take an external market-based view (MBV) of the firm and typically stress end-product market positions, the resource-based view (RBV) of the firm focuses inwardly on the firm's resources to explain firm profitability and value. In this paper, these two views were empirically compared by examining some unique evidence on the determinants of value from Czech privatization. We argued that the recent privatization in the Czech Republic offers a natural opportunity

to examine the RBV relative to the MBV, since the collapse of the Communist state left Czech SOEs suddenly facing dramatically altered conditions. In line with Grant (1991), we argued that RBV factors will be stronger than MBV factors in such changing conditions. Although business-specific resources will be important to each firm, we identified a critical resource necessary for all successful Czech firms to be the uncommon ability to compete in a new, emerging, competitive, capitalistic economy. Our evidence supports the notion that this ability, which we refer to as *competitive capability*, is a primary determinant of firm value for newly privatized Czech firms.

This research contributes to the growing literature on the resource-based view of the firm in a variety of ways. One contribution is a clearer understanding of the relative roles of the two theories, RBV and MBV, in explaining expected firm performance in environments characterized by significant change. In developing and testing each theory, we were able to identify contrasting relationships between certain variables and firm value. This suggests that the dilemma of the researcher is not simply to separate or 'tease out' the effects of intertwined firm-related and industry-related variables on firm performance, as has been previously suggested in the literature. Instead, the conflicting predictions of the two theories may be due to fundamental differences in underlying causal effects. For this reason, we believe that it would be fruitful for researchers to continue to test these theories against each other for additional insight into this issue.

A second contribution of this research stems from the fact that this is one of the first attempts to systematically test the resource-based view in a period of great change or flux. Doing so separates the role of internal resources of the firm from its position within the industry. Although others have also tried to distinguish these two influences on firm performance (McGahan and Porter, 1997; Roquebert *et al.*, 1996; Rumelt, 1991), an environmental backdrop of tremendous change provides more dramatic effects in support of the resource-based view than those found by others. For this reason, we believe that future research assessing the resource-based perspective should incorporate other examples of extreme environmental change in order to assess the effects of internal resources on firm value. Such analyses would greatly enhance our understanding of the role of firm resources in the determination of firm performance. A richer understanding of this kind may ultimately allow us to develop a contingency model of the nature of resources under alternative conditions of change.

A final contribution of this research stems from the quantitative and cross-sectional nature of this research. Given the unique or firm-specific nature of most resources and capabilities, researchers are rarely able to isolate their relevant attributes beyond firm or industry-specific case methodologies. In this research, we were able to identify a rare, valuable, nonimitable and imperfectly substitutable resource that was relevant across all Czech firms undergoing privatization. Doing so makes us realize how context specific a relevant resource can be. It suggests that future research may be able to identify other resources within firms that are specific to a given country or industry. Although we have some evidence on the existence of such country- or industry-specific resources (Maijoor and van Witteloostuijn, 1996; Henderson and Cockburn, 1994), our insights on this issue remain quite limited.

ACKNOWLEDGEMENTS

REFERENCES

Bain JS. 1956. *Barriers to New Competition*. Harvard University Press: Cambridge, MA.

Barberis N, Boycko M, Shleifer A, Tsukanova N. 1996. How does privatization work? Evidence from Russian shops. *Journal of Political Economy* **104**: 764–790.

Barney JB. 1986a. Strategic factor markets: expectations, luck, and business strategy. *Management Science* **32**: 1231–1241.

Barney JB. 1986b. Organizational culture: can it be a source of sustained competitive advantage? *Academy of Management Review* **11**: 656–665.

Barney JB. 1991. Firm resources and sustained competitive advantage. *Journal of Management* **17**: 99–120.

Barney JB. 2002. *Gaining and Sustaining Competitive Advantage* (2nd edn). Prentice-Hall: Englewood Cliffs, NJ.

Bohata M, Hanel P, Fischer M. 1995. Performance of manufacturing. In *The Czech Republic and Economic Transition in Eastern Europe*, Svejnar J (ed). Academic Press: San Diego, CA; 255–284.

Brush T, Artz K. 1999. Toward a contingent resource-based theory: the impact of information asymmetry on the value of capabilities in veterinary medicine. *Strategic Management Journal* **20**(3): 223–250.

Caves RE, Porter ME. 1977. From entry barriers to mobility barriers: conjectural decisions and contrived deterrence to new competition. *Quarterly Journal of Economics* **91**: 241–262.

Caves RE, Porter ME. 1978. Market structure, oligopoly, and stability of market shares. *Journal of Industrial Economics* **29**(1): 289–313.

Caves RE, Porter ME. 1980. The dynamics of changing seller concentration. *Journal of Industrial Economics* **19**: 1–15.

Chakravarthy B. 1996. The process of transformation: in search of Nirvana. *European Management Journal* **14**(6): 529–539.

Chamberlain E. 1932. *The Theory of Monopolistic Competition*. Harvard University Press, Cambridge, MA.

Claessens S. 1997. Corporate governance and equity prices: evidence from the Czech and Slovak Republics. *Journal of Finance* **52**(4): 1641–1658.

Coffee JC. 1996. Institutional investors in transitional economies: lessons from the Czech experience. In *Corporate Governance in Central Europe and Russia*, Vol. 1, Frydman R, Gray CW, Rapaczynski A (eds). Central European Press: Budapest; 111–186.

Collis DJ. 1991. A resource-based analysis of global competition: the case of the bearings industry. *Strategic Management Journal*, Summer Special Issue **12**: 49–68.

Cowley PR. 1988. Market structure and business performance. *Strategic Management Journal* **9**(3): 271–278.

Davis R, Thomas LG. 1993. Direct estimation of synergy: a new approach to the diversity–performance debate. *Management Science* **39**: 1333–1346.

Demsetz H. 1982. Barriers to entry. *American Economic Review* **72**(1): 47–58.

Dyba K, Svejnar J. 1991. Czechoslovakia: recent developments and prospects. *American Economic Review* **81**: 185–190.

Dyba K, Svejnar J. 1995. A comparative view of economic developments in the Czech Republic. In *The Czech Republic and Economic Transition in Eastern Europe*, Svejnar J (ed). Academic Press: San Diego, CA; 21–46.

Ericson RE. 1991. The classical Soviet-type economy: nature of the system and implications for reform. *Journal of Economic Perspectives* **5**: 11–27.

Farjoun M. 1994. Beyond industry boundaries: human expertise, diversification, and resource-related industry groups. *Organization Science* **5**: 185–199.

Frydman R, Rapaczynski A. 1994. *Privatization in Eastern Europe: Is the State Withering Away?* Central European University Press: London.

Gale BT. 1972. Market share and rate-of-return. *Review of Economics and Statistics* **54**(4): 412–423.

Gale BT, Branch BS. 1982. Concentration versus market share: which determines performance and why does it matter? *Antitrust Bulletin* **27**: 183–205.

Geroski PA, Masson RT. 1987. Dynamic market models in industrial organization. *International Journal of Industrial Organization* **5**: 1–13.

Gilbert RJ. 1989. Mobility barriers and the value of incumbency. In *Handbook of Industrial Organization*, Schmalensee R, Willig RD (eds). North-Holland: Amsterdam; 475–537.

Grant RM. 1991. A resource-based perspective of competitive advantage. *California Management Review* **33**: 114–135.

Grant RM. 1998. *Contemporary Strategy Analysis*. Blackwell: Malden, MA.

Helfat C. 1994. Firm specificity in corporate applied R&D. *Organization Science* **5**: 173–184.

Henderson R, Cockburn I. 1994. Measuring competence: exploring firm-effects in pharmaceutical research. *Strategic Management Journal*, Winter Special Issue **15**: 63–84.

Henderson R, Mitchell W. 1997. The interactions of organizational and competitive influences on strategy and performance. *Strategic Management Journal*, Summer Special Issue **18**: 5–15.

Hingorani A, Lehn K, Makhija AK. 1997. Investor behavior in mass privatization: the case of the Czech voucher scheme. *Journal of Financial Economics* **44**: 349–396.

Judge G, Griffith W, Hill R, Lee T. 1980. *The Theory and Practice of Econometrics*. Wiley: New York.

Kornai J. 1992. *The Socialist System*. Princeton University Press: Princeton, NJ.

Kotrba J. 1995. Privatization process in the Czech Republic: players and winners. In *The Czech Republic and Economic Transition in Eastern Europe*, Svejnar J (ed). Academic Press: San Diego, CA; 159–199.

Kuc B, Hickson DJ, McMillan C. 1980. Centrally planned development: a comparison of Polish factories with equivalents in Britain, Japan, and Sweden. *Organization Studies* **1**: 253–270.

Kwoka JE. 1977. Large firm dominance and price–cost margins in manufacturing industries. *Southern Economic Journal* **44**(1): 183–189.

Kwoka JE. 1979. The effect of market share distribution on industry performance. *Review of Economics and Statistics* **61**(1): 101–109.

Lipton D, Sachs J. 1990. Creating a market economy in Eastern Europe: the case of Poland. *Brookings Papers on Economic Activity* **1**: 75–147.

Lustgarten S, Thomadakis S. 1980. Valuation response to new information: a test of resource mobility and market structure. *Journal of Political Economy* **88**(5): 977–993.

Maijoor S, van Witteloostuijn A. 1996. An empirical test of the resource-based theory: strategic regulation in the

Dutch audit industry. *Strategic Management Journal* **17**(7): 549–569.

Majumdar S. 1998. On the utilization of resources: perspectives from the U.S. telecommunications industry. *Strategic Management Journal* **19**(9): 809–831.

McGahan AM, Porter M. 1997. How much does industry matter, really? *Strategic Management Journal*, Summer Special Issue **18**: 15–30.

Mehra A. 1996. Resource and market based determinants of performance in the U.S. banking industry. *Strategic Management Journal* **17**(4): 307–322.

Mueller DC. 1986. *Profits in the Long Run*. Cambridge University Press: Cambridge, UK.

Penrose EG. 1959. *The Theory of the Growth of the Firm*. Wiley: New York.

Peteraf MA. 1993. The cornerstones of competitive advantage: a resource-based view. *Strategic Management Journal* **14**(3): 179–191.

Polanyi M. 1967. *The Tacit Dimension*. Double-Day Anchor: Garden City, NY.

Porter M. 1979. The structure within industries and companies' performance. *Review of Economics and Statistics* **61**: 214–227.

Porter M. 1980. *Competitive Strategy*. Free Press: New York.

Porter M. 1981. The contributions of industrial organization to strategic management. *Academy of Management Review* **6**: 609–620.

Powell TC. 1996. How much does industry matter? An alternative empirical test. *Strategic Management Journal* **17**(4): 323–334.

Prahalad CK, Hamel G. 1990. The core competence of the corporation. *Harvard Business Review* **68**(3): 79–91.

Robins J, Wiersema MF. 1995. A resource-based approach to the multibusiness firm: empirical analysis of portfolio interrelationships and corporate financial performance. *Strategic Management Journal* **16**(4): 277–299.

Roquebert J, Phillips R, Westfall P. 1996. Markets versus management: what drives profitability?' *Strategic Management Journal* **17**(8): 653–664.

Rumelt RP. 1984. Toward a strategic theory of the firm. In *Competitive Strategic Management*, Lamb R (ed.). Prentice-Hall: Englewood Cliffs, NJ; 556–570.

Rumelt RP. 1991. How much does industry matter? *Strategic Management Journal* **12**(3): 167–186.

Sachs J. 1992. Privatization in Russia: some lessons from Eastern Europe. *American Economic Review* **82**: 43–48.

Scherer F. 1980. *Industrial Market Structure and Economic Performance*. Houghton-Mifflin: Boston, MA.

Sitkin S, Pablo A. 1992. Reconceptualizing the determinants of risk behavior. *Academy of Management Review* **17**: 9–38.

Svejnar J, Singer M. 1994. Using vouchers to privatize an economy: the Czech and Slovak case. *Economics of Transition* **2**: 43–69.

Tallman SB. 1991. Strategic management models and resource-based strategies among MNEs in a host market. *Strategic Management Journal*, Summer Special Issue **12**: 69–82.

Tripsas M. 1997. Unraveling the process of creative destruction: complementary assets and incumbent survival in the typesetter industry. *Strategic Management Journal*, Special Issue **18**: 119–142.

United Nations. 1993. *Case Study of Czechoslovakia: Accounting, Valuation, and Privatization*. United Nations Publications: New York.

Vlachoutsicos C, Lawrence P. 1990. What we don't know about Soviet management. *Harvard Business Review* **68**(6): 50–63.

Wernerfelt B. 1984. A resource-based view of the firm. *Strategic Management Journal* **5**(2): 171–180.

Zemplinerova A, Stibal J. 1995. Evolution and efficiency of concentration in manufacturing. In *The Czech Republic and Economic Transition in Eastern Europe*, Svejnar J (ed.). Academic Press: San Diego, CA; 233–254.