

THE RESEARCH MODEL FOR INTANGIBLE RESOURCES OF SMALL AND MEDIUM-SIZED ENTERPRISES IN VIETNAM

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ABSTRACT:

This research tests empirically the hypothesis that the greater the intangibility of resources of small and medium-sized enterprises (SMEs) in Vietnam is, the greater the sustainability of its competitive advantage in Vietnam is. The resource intangibility is measured by Tobins q and the predicted value from a hedonic regression of q on several accounting measures of intangibles. By using a dynamic panel data regression model, this study finds that intangibles play an effective role in sustaining a firms competitive advantages in Vietnam, as predicted by the resource-based view of SMEs.

Keywords: Intangible resources, small and medium-sized enterprises, Vietnam.

1. Introduction

According to the resource-based view of the firm (RBV), a firms endowment of resources is what makes its competitive advantage sustainable in time (Wernerfelt, 1984; Rumelt, 1984; Barney, 1996; Dierickx and Cool, 1989; Amit and Schoemaker, 1993; Peteraf, 1993). RBV stresses the importance of intangible resources as the key to sustainability. As Itami (1987) observed: intangible assets, such as a particular technology, accumulated consumer information, brand name, reputation and corporate culture, are invaluable to the SMEs competitive power and often the only real source of competitive edge that can be sustained over time.

Research uses the estimated persistence of firm-specific profits to measure sustainability, and Tobins q to measure resource intangibility. Both raw q , and the predicted value are from a hedonic regression of q on several accounting measures of intangibles. By testing a key theory about what

makes firm-specific profits persist, this study will bring together RBV and persistence-of-profits research, and contributes to fill a gap in both literatures.

II. Research problem

According to meanings of active international economic integration and participation into international economic processes, Vietnam is improving its competitiveness at the national and firm levels, and of its products. However, Vietnam's competitiveness is very weak and slow to be improved. The competitive pressure will increase when protection of domestic production is reduced while the country implements the international commitments. This forces Vietnams SMEs to restructure their tangible and intangible resources to improve competitiveness, and to create new competitive capacity. For domestic market, Viet Nams SMEs have to compete to maintain their domestic market shares once trade tariffs over foreign commodities and services are

removed. This is extremely difficult when costs of some domestic goods are higher than those of imported ones and less competitive. Viet Nam's SMEs will be less competitive and lose its ground in domestic market.

III. Research objectives

This research will find out the econometric model showing relationships between characteristics of SMEs and firm-specific profit persistence and between intangible resources and sustainability of SMEs competitive advantage in Vietnam.

IV. Research question

Two research questions are raised as follows:

1. What is the relationship between characteristics of SMEs and firm-specific profit persistence in Vietnam?
2. What is the relationship between intangible resources and sustainability of SMEs competitive advantage in Vietnam?

V. Theory hypothesis

1. Intangible resources

RBV points to intangible resources as the main drivers of the sustainability of performance differences across firms. Different contributors to the RBV literature have used different terms, such as "capabilities", "core competences", or "knowledge", to refer to these resources, and a variety of definitions have been offered. It is not clear whether this abundance of terms adds precision or just noise to RBV. So, this study will only use the term "intangible resources" to refer indistinctly to all these concepts excluding, of course, resources that are clearly tangible such as physical or financial assets.

Intangible resources are typically tacit and hard to codify (Kogut and Zander, 1992; Conner and Prahalad, 1996). They are also likely to trade in imperfect factor markets (Barney, 1996) and exhibit complementarities (Milgrom et al., 1991; Athey and Stern, 1998; Rivkin, 2000). As a result, intangible resources are difficult to acquire, develop, and to replicate and accumulate within the firm (Itami, 1987; Winter, 1987). They are also difficult to be understood and imitated by others (Rumelt, 1984; Dierickx and Cool, 1989; Nelson, 1991). This uncertain imitability is what makes them valuable and prone to be the basis of a

sustainable competitive advantage for a firm (Lippman and Rumelt, 1982; Hall, 1993).

RBV's prediction about the role of intangible resources in sustaining superior firm performance might be formalized by saying that the more intangible resources a firm has, the greater the sustainability of its competitive advantages. However, stating the prediction in such a way does not lead to a powerful test of the underlying theory. For instance, such proposition could be true as a result of industry-related size effects that have nothing to do with the arguments mentioned above about what makes intangibles so crucial under RBV. Thus, a statement about the absolute importance of intangibles in the aggregate may not capture the gist of RBV. What RBV arguments seem to suggest is a test of the importance of intangible resource relative to tangible resource, i.e. of the degree of intangibility of a firm's resources. For instance, from a resource-based perspectives, the tacitness of the firm's knowledge base, the complexity of a firm's activities and the complementarities among them, or the firm's dependence on imperfect factor markets, are all characteristics that can be expected to translate into a greater degree of intangibility of the firm's resource endowment. The difficulty to trade, substitute, or imitate this highly intangible resource endowment arises from such characteristics and is in turn responsible for the greater sustainability expected under RBV.

Ghemawat (1991) proposes that characteristics of intangible resources translate into sustainability of competitive advantages for SMEs. In his view, intangible assets, because of their lower tradability and higher stickiness, are particularly prone to be a source of commitment, which he defines as the tendency of strategies to persist over time.

Hypothesis 1. The greater the degree of intangibility of a firm's resources, the greater the sustainability of its competitive advantages in Vietnam.

2. Industry effects in the impact of intangible resources on sustainability

The impact of intangible resources on the sustainability of performance differences across firms is likely to vary systematically by industry, for two reasons:

First, some of the intangible resources that could be a source of advantages are likely to be of a different nature in different industries and sectors. For instance, a firm's technological knowledge base built through research and development is more likely to be a source of competitive advantages in the manufacturing sector than it is in the lodging and entertainment industries. Amit and Schoemaker (1993) use the term "strategic industry factors" to refer to the set of resources that has become the prime determinant of economic rents for industry incumbents. They note that the capacity of a firm's resources for creating and protecting the firm's competitive advantages depends not just on their unique characteristics but also on the extent to which they overlap with industry-determined strategic industry factors.

Second, intangible resources may exist at different levels within SMEs: human resources, teams, functions, processes, projects, or the organization as a whole (Nelson and Winter, 1982; Grant, 1991). RBV focuses on the firm as the main level of analysis and makes no prediction about the existence or persistence of performance differences across sub-units of a firm; only about differences across firms (Nelson, 1991; Rumelt, 1991). It is therefore important to note that, in order for those intangible resources to be a source of superior performance for firms, the owners of the firm must be able to appropriate at least some of their value (Ghemawat, 1991; Peteraf, 1993). Levin et al. (1989) provide evidence that the efficacy of different mechanisms for ensuring the appropriation by firms of returns to R&D varies significantly across industries. Accordingly, this study hypothesizes

Hypothesis 2. The impact of resource intangibility on the sustainability of a firm's competitive advantages will differ significantly across industries in Vietnam.

3. Operationalizing sustainability: Persistence of firm-specific profits

A firm's competitive advantages (disadvantages) is the degree to which it outperforms (underperforms) its competitors. If performance is measured by profitability, the difference between a firm's profitability and the average profitability of its industry is thus a direct

indicator of its competitive advantage. Hereafter, this research will refer to this indicator as firm-specific profits. Because firms are diversified, the average profitability of an industry is the average for all segments in the industry including both single-segment firms and segments of diversified firms. Firm-specific profits of diversified firms are a weighted average of their segment-specific profits (the difference between a segment's profitability and the average of the industry).

The sustainability of competitive advantage can be defined as the degree to which firm-specific profits persist. Jacobsen (1988) and Schohl (1990) show that firm-specific profits over time tend to follow a first-order autoregressive process or AR(1). Thus, the persistence of firm-specific profits can be formally measured by the $\hat{\alpha}$ coefficient in the following auto-regressive process or AR(1):

$$FSP_{i,t} = \alpha_i + \beta * FSP_{i,t-1} + \epsilon_{i,t} \quad (1)$$

Where: $FSP_{i,t}$ are the firm-specific profits of firm i in period t , defined as above. The β coefficient in Equation (1) indicates the percentage of firm-specific profits in any period before period t that remains in period t . An alternative definition of persistence that has been used in the literature is the percentage of the incremental component of firm-specific profits in any period before t that remains in period t .

This narrower definition, which excludes fixed effects, was first introduced by Mueller (1986) to prevent the persistence estimates from being overly influenced by the arbitrary initial starting point. However, persistence applies only to incremental components. So, the statistical approach generates results that must be interpreted carefully. Thus, the persistence of the incremental component may be largely irrelevant to the tendency of profits to last between periods. The consequence is a mistaken inference about the importance of a persistent effect to the continuing performance of SMEs.

This study uses the former definition of persistence, or the percentage of total firm-specific profits in any period before period t that remains in period t .

4. Operationalizing resource intangibility: Tobins q

The hypotheses stated above refer to the degree

of intangibility of a firm's resources, or resource intangibility. The fair value of a firm's tangible assets is the replacement cost of such assets the current cost of purchasing an asset of equivalent productive ability, and can be estimated by appropriately adjusting accounting data. The value of a firm's intangible resources can be estimated as the difference between a firm's market value and the replacement cost of its tangible assets (Andersen, 1992). Firm resources include the managerial capability for deploying both tangible and intangible assets. When markets are efficient, capital market securities prices provide the best estimates of the value of a firm's resources, i.e. of the present discounted value of the future stream of cash flows generated by those resources (Fama, 1970; Ross, 1983).

The study will use Tobin's q to measure resource intangibility. From an empirical point of view, Tobin's q proxies for the intangible assets of firms as a result of the accounting treatment of intangible resources (Lev, 2001). Tangible assets are capitalized, i.e. recognized as assets and reported on firms balance sheets. In contrast, intangibles are expensed, i.e. written off in the income statement along with regular expenses such as wages, rents, and interests. As a result, the book value of assets does not reflect the stock of intangible resource that results from cumulative investment, but market value does. The empirical association between q and intangibility is evident from studies of Lindenberg and Ross (1981), which reveal that the q s of firms in R&D or advertising-intensive industries are abnormally high. In fact, it is a fairly common practice in studies that use Tobin's q as a measure of corporate performance to "correct" the denominator of q for the presence of such intangible resources.

Several studies have used q to measure specific intangible assets, by taking the predicted value from a regression of Tobin's q on accounting or survey measures of the intangible asset of interest such as knowledge capital (Hall, 1993; Megna and Klock, 1993; Sougiannis, 1994; Hall et al., 2000; Lev, 2001), brand equity (Simon and Sullivan, 1993), or customer asset (Ittner and Larcker, 1998). The approach, then, is a corporate version of the hedonic price regressions used in other contexts to

value intangible goods such as car quality (Court, 1939; Griliches, 1961), clean air (Harrison and Rubinfeld, 1978), or other product differentiation attributes (Rosen, 1974; Epple, 1987).

The interpretation of Tobin's q as a measure of intangibles is also closely related to Lindenberg and Ross's pioneering study of the significance of q for industrial organization. Therefore, q is the capitalized value of the "aggregate Ricardian and monopoly rents" that accrue to the firm's current assets. The resource-based view admits either type of rents as necessary conditions for a firm to sustain its competitive advantage (Peteraf, 1993). By this view, a relationship between q and the persistence of firm-specific profits indicates that the firms that are more able to sustain their competitive advantages over time are those that have a more valuable endowment of intangible assets, regardless of the source of those assets.

VI. Methods

1. Research unit and data

The research unit as sample for this study will be public corporations that have been listed on Vietnam stock market: Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange Market (HNX). The sample will cover industries which are classified by Industry Classification Benchmark (ICB). In order to increase the quality of data, corporation with violating the information disclosure regulations of accounting and auditing will be eliminated. The data will be a panel secondary data and collected from industry files and annual reports on website of HOSE, HNX and database of well-known securities companies.

2. Variables and measures

2.1. Firm-specific profits

Firm-specific profits are defined as the difference between the firm's profitability and the average profitability of the industry in any given year. Profitability is measured by operating return on assets (ROA) - the ratio of operating income to identifiable assets. Industry averages are computed from the data before the final screening operation is performed.

If the firm is diversified in any given year, firm-specific profits are computed as the weighted average, across its segments, of the segment-specific profits:

$$FSP_{it} = (\omega_{ijt} SSP_{ijt}) \quad \forall i=1, \dots, lit; t=1, \dots, ti$$

Where $FSP_{i,t}$ are the firm-specific profits of firm i in year t . $SSP_{i,j,t}$ are the segment-specific profits of firm i in segment j in industry i in year t :

$$SSP_{i,j,t} = ROA_{i,j,t} \cdot \sum_{t=1}^{ijt} \left(\frac{ROA_{i,j,t}}{ijt} \right) \quad \forall i=1, \dots, lit; t=1, \dots, ti$$

$$\omega_{i,j,t} = \frac{\text{assets}_{i,j,t}}{\sum_{t=1}^{ijt} \text{assets}_{i,j,t}}$$

With: ijt is the number of firms with operations in industry j in year t , jit the number of segments within firm i in year t , ti the number of years in sample for firm i , and $ROA_{i,j,t}$ the observed return on assets of firm i operations in industry j in year t . If the firm is not diversified, firm-specific profits are simply computed as:

$$FSP_{i,t} = ROA_{i,t} \cdot \sum_{t=1}^{it} \left(\frac{ROA_{i,t}}{it} \right) \quad \forall i=1, \dots, jit; t=1, \dots, ti$$

where $ROA_{i,t}$ is the observed return on assets of firm i in year t .

2.2. Tobins q

Tobins q is calculated following the procedure in Lang and Stulz (1994) and McGahan. The numerator - the firms market value is computed as the sum of the year-end market value of common stock, and the book value of preferred stock and debt. The denominator - the replacement cost of the firms (tangible) assets-equals the sum of the replacement values of inventories and property, plant and equipment (PPE), and the book value of all other assets. The value of inventories is calculated as in Lindenberg and Ross - adjusting book values for inflation when the inventory valuation method used by the firm is LIFO, average cost or retail cost (a different adjustment is made for each of these). PPE is valued setting up an acquisition schedule and adjusting for price level and depreciation.

2.3. Hedonic q

This measure of resource intangibility is the predicted value obtained from the regression of Tobins q on three accounting measures of intangible assets: R&D stock, advertising stock, and intangibles-in-books. Therefore the study is attempting to capture the joint value of a firms knowledge capital, brand name reputation, and

other intangible resources such as customer lists, franchises, licenses, or intellectual property rights.

Previous hedonic approaches to intangibles valuation based on R&D and advertising measures include either stock or flow (expenditures) measures, or both. These are constructed, for both R&D and advertising, using the recursion:

$$K_t = (1 - \delta)K_{t-1} + I_t$$

where K_t is the accumulated stock of R&D or advertising and I_t is the current period investment. Annual depreciation rates δ are assumed to be 15 percent for R&D (following Griliches, 1981; Hall, 1990; Hall et al., 2000), and 45 percent for advertising (following approximately Hirschey and Weygand, 1985). Based on the fact that estimates of the average duration of R&D effects on profits and/or market value range between 5 and 10 years (Hirschey and Weygand, 1985; Lev and Sougiannis, 1996), and those of the advertising effects on market value between 1 and 5 years (Broadbent, 1993); Hirschey and Weygand. Diversified firms are defined as those that have two or more segments in all the years in which they appear in the sample. Focused firms are those that have only one segment in all the years in which they are in the sample.

VII. Research result

The suggest of research result is considered as the econometric model of the hedonic regression of Tobins q, showing relationship between q and the persistence of firm-specific profits. The hedonic equation is specified as: q is Tobins q, RDSTOCK is R&D stock divided by assets, ADSTOCK is advertising stock divided by assets, and OTHERINTANG is intangibles-in-books divided by assets. Following Hall (1993), the natural logarithm of q is taken because a linear formulation would imply unlimited constant returns to scale in intangible investment, which is unlikely to be the case. The j subscripts in all coefficients are used to indicate that this model is estimated separately for each of industries in the sample. This allows for the fact that the specific intangible assets included in this equation may to be more relevant in some industries than in others. The model is estimated through OLS.

The hedonic q estimates for each firm-year are the antilogs of the predicted values of q from the

regression of above equation. These values are then related to the persistence of firm-specific profits through the following fixed-effects model:

$$FSP_{i,t} = \alpha_0 + \beta_0 FSP_{i,t-1} + \beta_1 q_{i,t} + \sum_{j=1}^J \beta_{2j} FSP_{i,t-1} q_{i,t} D_j + \epsilon_{i,t}$$

where $FSP_{i,t}$ are firm-specific profits, q is either Tobins q or hedonic q , and D_j are sector dummies. In this model, β_0 is the persistence of the firm-specific profits coefficient after controlling for the other regressors; β_1 is capturing the effect of resource intangibility on the level of FSP; and β_{2j} the effect of resource intangibility on the persistence of FSP for each sector. The β_{2j} are the coefficients of interest for testing the hypotheses in this study. These coefficients capture the effect of resource intangibility on the persistence of FSP (to test Hypothesis 1), interacted with sector dummies (to test Hypothesis 2). Sector dummies are used to facilitate the presentation. This component includes all the intangible resources that are not explicit in the hedonic regression (such as managerial ability, organizational culture, etc.).

VIII. Contribution

This research's expected findings will provide further empirical contribution for argument about intangibles-based commitment driving sustained performance differences basing on the theory of the resource-based view of SMEs. It will be also the empirical contribution to explaining what makes inter-firm performance differences persist over time. These findings also have important

implications for managers; namely, investment in intangibles is a high-risk, high-return strategy for SMEs in Vietnam. Further study may determine whether some intangible resources offer a better risk-return trade-off than others, and why some firms suffer the downside of intangible investment while others greatly benefit from it. These findings also have important implications for managers; namely, investment in intangibles is a high-risk, high-return strategy for SMEs in Vietnam.

IX. Summary

Study's results show that resource intangibility is positively related to the persistence of firm-specific profits (Hypothesis 1) and the effect of resource intangibility on the level of firm-specific profits is positive and significant under all specifications (Hypothesis 2). They support the interpretation that intangible assets play an important role in sustaining a firm's competitive advantage in Vietnam, as predicted by the resource-based view of SMEs. This research's expected findings provide further empirical contribution for argument about intangibles-based commitment driving sustained performance differences basing on the theory of the resource-based view of the firm.

The hedonic q measure may be limited in its value as a proxy for intangibles because R&D and advertising expenditures data could be missed for many firms and years. In addition, the definition of intangibles used in this research is overly broad, and only imperfectly captured by Tobins q ■

REFERENCES:

1. Amit, R.H., Schoemaker, P.J.H., 1993. *Strategic assets and organizational rent*. *Strategic Management Journal* 14.
2. Anderson, T.W., Hsiao, C., 1982. *Formulation and estimation of dynamic models using panel data*. *Journal of Econometrics* 18, 47 - 82.
3. Broadbent, S., 1993. *Advertising effects, more than short-term*. *Journal of the Market Research Society* 35, 37 - 49.
4. Christensen, C.M., 1993. *The rigid disk drive industry: A history of commercial and technological turbulence*.
5. Cubbin, J., Geroski, P., 1987. *The convergence of profits in the long run: Inter-firm and inter-industry comparisons*. *Journal of Industrial Economics* 35.