

Resource–performance relationships in industrial export ventures: The role of resource inimitability and substitutability[☆]

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Abstract

Drawing on resource-based theory and insights from qualitative fieldwork we examine resource drivers of export venture performance in industrial firms using primary data from German and UK industrial-goods manufacturers. Our results indicate that while the levels of individual export venture resources are not directly related to export venture performance in the firms in our sample, many of the resources are related to two important characteristics of resources — namely the inimitability and non-substitutability of the mix of resources available to the export venture. Furthermore, we find that that resource inimitability and non-substitutability are directly related to export venture performance. Taken together these results demonstrate the important role that inimitability and non-substitutability play in mediating the resource-to-performance relationship in the industrial goods export ventures in our sample. Our study provides some of the first direct evidence supporting a key premise of the resource-based view of the firm — that the competitive inimitability of a firm's resources and the inability of rivals to use substitute resources to execute a similar strategy are important drivers of firm performance.

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1. Introduction

The value of worldwide export trade has grown to exceed \$5 trillion annually (e.g., World Bank, 2001), accounting for more than 10% of global economic activity (e.g., International Monetary Fund, 2001). As an important foreign market entry and revenue expansion mode, exporting of industrial goods has become a significant area of interest for international business researchers (e.g., Peng & York, 2001; Trabold, 2002). Within this domain, researchers have identified the export venture, which represents the individual export product-market efforts of the firm, comprising a single product or product line exported to

a specific foreign market, as the primary unit of analysis in explaining firms' export performance (Ambler, Styles, & Xiucum, 1999; Cavusgil & Zou, 1994; Myers, 1999). Firms usually operate multiple export ventures, and the export performance of the firm therefore comprises the sum of the performance of its export ventures (e.g., Morgan, Zou, Vorhies, & Katsikeas, 2003; Zou, Taylor, & Osland, 1998). However, despite increased attention from researchers, the literature suggests that understanding the drivers of industrial export venture performance remains limited, offering few insights for either the managers responsible for export performance or public policy-makers involved in export trade development (e.g., Czinkota, 2000; Katsikeas, Leonidou, & Morgan, 2000).

This paper addresses this knowledge gap and makes two contributions to understanding in this increasingly important domain of business activity. First, drawing on the resource-based view of the firm (RBV) and recent methodological insights (e.g., Levitas & Chi, 2002; Rouse & Daellenbach, 1999, 2002), we synthesize literature-based and qualitative

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fieldwork insights to identify resources and resource characteristics key to understanding industrial export venture performance. This provides an important new theory foundation for future industrial exporting studies. Using primary data from manufacturing export ventures in German- and UK-based industrial firms, we provide empirical evidence that critical resource factors explain considerable variance in export venture market performance. Second, our study also contributes to RBV knowledge development. Responding to criticisms concerning the relatively weak empirical base supporting RBV theory (e.g., Godfrey & Hill, 1995; Priem & Butler, 2001), we empirically assess central RBV theory predictions linking resource levels and characteristics with the performance of industrial export ventures. Our findings provide direct evidence to support the fundamental RBV prediction that the resource–performance relationship is dependent on the imitability and substitutability characteristics of available resources.

2. Conceptual framework

Concurrent with the growing importance of exporting, the past decade has witnessed an explosion of interest in the RBV among researchers studying firm performance. RBV theory views firm-specific resources as the cornerstone of competitive advantage and firm performance (e.g., Conner, 1991; Peteraf, 1993). From this perspective, firms are idiosyncratic and somewhat “sticky” bundles of resources, with resource heterogeneity leading to inter-firm differences in positional advantages in the marketplaces in which they compete (e.g., Amit and Shoemaker, 1993; Makadok, 2001). Positional advantages achieved by a firm through the deployment of its available resources are sustained by the inability of competitors to either imitate the firm’s mix of resources or to substitute alternative resources that allow achievement of the same positional advantages (e.g., Barney, 1991).

The RBV is a particularly appropriate theoretical framework for studying industrial export venture performance. By definition, an export venture is a business unit that from its creation is focused on a specific export market (e.g., Cavusgil & Zou, 1994). Since the literature and our fieldwork indicate that corporate managers typically do not allow industrial export venture managers to switch the export markets served by the venture, export venture managers have relatively limited control over external industry and market factors that may affect export venture performance (e.g., Katsikeas et al., 2000). Export venture managers are, therefore, forced to compete to the best of their ability, given the resources available to them, in the export markets they have been assigned. This situation is congruent with RBV explanations of firm performance that have a primary focus on the selection and deployment of available resources to maximize economic rents (e.g., Amit & Shoemaker, 1993; Barney, 1991).

The RBV literature highlights the importance of identifying specific resources that are valuable in a particular research context (e.g., Rouse & Daellenbach, 1999). While export-related resources have not been discussed explicitly in the RBV literature, a number of researchers have examined assets that

may be viewed as potential sources of competitive advantage in an industrial export context. To help identify specific resources important in determining industrial export venture performance, we supplemented our literature review with qualitative in-depth fieldwork interviews. The fieldwork involved 17 interviews with export managers, international business development managers, CEOs, and account development managers, each of whom was responsible for at least one export venture in different industrial goods firms from a cross-section of manufacturing industries (SIC 22, 28, 30, 35, 36). We also used the fieldwork interviews to probe managers’ understanding of the specific resources identified in order to help develop valid and parsimonious measures.

Consistent with the literature, our interviews indicated that industrial goods export ventures are primarily viewed as marketing-based business units within the firm (e.g., Cavusgil & Zou, 1994). As a result, our fieldwork pointed to resources required to effectively market products in the targeted industrial export market as being the key determinants of export venture performance. Synthesizing these fieldwork insights with the types of resources identified in the existing literature suggests six types of resources that form particularly important sources of export venture competitive advantage: reputational resources; financial resources; human resources; cultural resources; relational resources; and, informational resources. Each of these resources and their role in determining export venture performance are explicated further below.

2.1. Export venture resources

Reputational Resources concern intangible image-based assets available to the firm (e.g., Fombrun & Shanley, 1990; Hall, 1993). The major reputational asset relevant to export performance identified in both the literature and our fieldwork is brand equity (e.g., Roth, 1995; Steenkamp, Batra, & Alden, 2003). Brand equity has been defined in terms of the differential effects of marketing activities uniquely attributable to the awareness and image of the brand in the marketplace (e.g., Keller, 1993). To the extent that brand equity is positive, our fieldwork indicates that brands can be valuable intangible resources that enable export ventures to build and protect market share, leverage marketing expenditures, and more easily launch new products into the export venture marketplace (e.g., Aaker, 1996).

Financial Resources concern the ability to access cash and capital (e.g., Gomez-Mejia, 1988). Our fieldwork indicates that the most important characteristics of export venture financial resources are the level of financing that can be accessed, and the timeframe within which this can be deployed. Given the relatively high working capital and financial liquidity requirements of industrial export operations, our fieldwork and the literature indicate that access to financial resources is essential in enabling export ventures to effectively engage in relationship building and marketing activities in export markets (Leonidou & Kaleka, 1998; Yaprak, 1985).

Human Resources refer to the number and characteristics of personnel available to formulate and implement strategy (e.g.,

Barney, 1991). Important aspects of human resources identified in the literature include the individual-level experience, knowledge, and skills of available personnel (e.g., Cavusgil & Zou, 1994; Daily, Certo, & Dalton, 2000). In the context of export ventures, our fieldwork supports the international business literature indicating that industrial export venture managers think about human resources as concerning the breadth and depth of personnel available to design and execute the venture's export marketing strategy (e.g., Diamantopoulos & Schlegelmilch, 1994).

Cultural Resources concern the shared values, beliefs, and assumptions which provide behavioral norms that shape planned and realized competitive strategy (e.g., Barney, 1986). Organization culture has been identified as important in enabling marketing activities to be successfully designed and executed (e.g., Deshpande, Farley, & Webster, 1993). Our fieldwork indicates that in industrial goods firms, export venture managers view the strength of the international orientation of their firms' organizational culture as being particularly important in determining export venture performance. By shaping the ways in which corporate-level managers interpret and act on information, and the understanding and support they provide to export venture managers, such cultural resources can be significant assets for export ventures (e.g., Reid, 1983; Schlegelmilch & Ross, 1987).

Relational Resources concern the number, strength, and quality of existing relationships with key constituents such as customers and channel members (e.g., Morgan & Hunt, 1994; Peng & York, 2001). Recent marketing theory has highlighted the role of such market-based assets in driving shareholder value (e.g., Srivastava, Shervani, & Fahey, 1998). Our fieldwork supports the international business literature in suggesting that strong relationships with customers in export markets (e.g., Leonidou & Kaleka, 1998), and the channels used to reach them (e.g., Ambler et al., 1999), are particularly important drivers of an industrial export venture's ability to design and execute appropriate export marketing strategies.

Informational Resources refer to data that have been interpreted and given meaning concerning various domains pertinent to competitive strategy (e.g., Morgan et al., 2003). In increasingly dynamic marketplaces, informational resources have been identified as an important asset (e.g., Hult & Ketchen, 2001). In particular, the literature has highlighted the important role of information regarding customers, competitors, channel members, and the broader market environment in the successful development and execution of marketing strategy (e.g., Jaworski & Kohli, 1993). Our fieldwork supports the limited exporting literature in this area (e.g., Cadogan, Diamantopoulos, & Siguaw, 2002) in suggesting that export market knowledge is a key resource in enabling industrial export ventures to develop and effectively execute appropriate marketing strategies.

2.2. Resource characteristics

While the firm-specific resources identified here may directly impact the relative value delivered to target industrial

export customers and hence generate positive export venture cashflows, they may not provide the sustainability of competitive advantage required to allow resource acquisition, maintenance, and deployment costs to be covered and investment payback targets to be achieved (e.g., Barney, 1991; Reed & Defillipi, 1990). Understanding the sustainability of positional advantages achieved is therefore a critical issue (e.g., Conner, 1991; Day & Wensley, 1988). RBV theory posits that for positional advantages to be sustained, the resources deployed by the firm to achieve realized positional advantages have to be inimitable (e.g., Godfrey & Hill, 1995) and non-substitutable (e.g., Collis, 1991). *Inimitability* concerns the ability of competitors to replicate the resources used by a firm in achieving its current positional advantages (e.g., King & Zeithaml, 2001; Lippman & Rumelt, 1982). An inability of would-be imitators to replicate the resources deployed by the firm reduces its rivals' ability to erode the source of the firm's competitive advantage. *Non-Substitutability* concerns the ability of competitors to replicate a firm's positional advantages through the deployment of an alternate set of resources (e.g., Dierickx & Cool, 1989). For resources to be non-substitutable, the literature indicates there must be no strategic equivalent that can take their place when implementing a particular strategy (e.g., Barney, 1991).

2.3. Industrial export venture performance

Firm performance is a complex multi-dimensional phenomenon (Venkatraman, 1986). A particularly important performance dimension is effectiveness, concerning the degree to which goals are achieved (e.g., Lewin & Minton, 1986; Tsui, 1990). In the context of industrial export ventures, our fieldwork interviews and the literature indicate that an important export venture goal is growth, concerning the efforts of the venture to expand its sales revenue and share of the target export market (e.g., Zou et al., 1998). Export venture market effectiveness, the extent to which the venture's growth objectives are met in the target export market, can therefore be viewed as a theoretically and managerially important performance metric (e.g., Katsikeas et al., 2000).

3. Hypotheses

Having identified important industrial export venture resources and explicated the conceptual framework for our study, as depicted in Fig. 1, we now develop hypotheses linking industrial export venture resource levels and characteristics with their effectiveness performance.

3.1. Direct effects

RBV theory posits that inter-firm performance variations are the result of firms possessing heterogeneous resources (e.g., Conner, 1991). Theoretically, resource heterogeneity leads to performance variations between firms because it impacts firms' ability to conceive and implement competitive strategies (e.g., Barney, 1991; Peteraf, 1993). Viewing firms as possessing

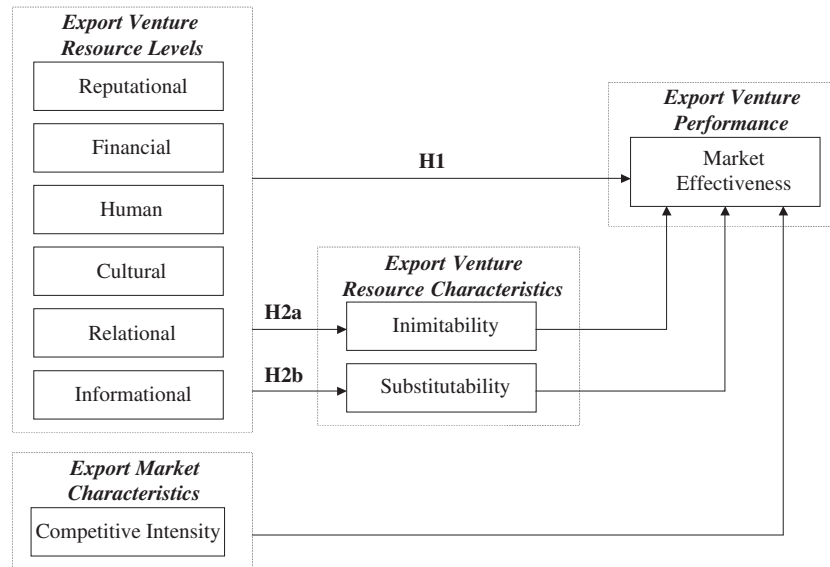


Fig. 1. Conceptual framework.

resources that are heterogeneous in their productivity, RBV theory therefore directly links firm resources with firm performance (e.g., Collis, 1991; Makadok, 2001). From an RBV perspective, export venture resources should therefore be directly related to export venture performance outcomes (e.g., Amit & Shoemaker, 1993). While most researchers have not explicitly labeled them as such, the literature does reveal support for linking each of the export venture resource types identified above directly with market performance outcomes.

For example, brand equity has been identified as a significant driver of export sales revenue (e.g., Aaby & Slater, 1989). Given the high liquidity and working capital requirements typical of industrial exporting activities, the availability of financial resources has also been highlighted in the literature as a key enabler of export marketing strategy (e.g., Yaprak, 1985). In human resource terms, there is some evidence that the knowledge and skills of export venture personnel can have a significant impact on the effectiveness of the venture's marketing strategy (e.g., Morgan et al., 2003). The literature also suggests that cultural resources such as the firm's international orientation can play an important role in enabling managers to anticipate and overcome barriers to successfully implement appropriate export venture marketing strategies (e.g., Aaby & Slater, 1989; Roth, 1995). Relational resources have also been identified as important drivers of managers' ability to understand their export customers and more effectively develop and retain the channel breadth and depth necessary to deliver value offerings in the export market (e.g., Kale & Barnes, 1992). Finally, international marketing theory has long highlighted the important role of export market information in enabling appropriate export marketing strategy to be formulated and effectively implemented (e.g., Cadogan et al., 2002).

In sum, the literature and our fieldwork suggest that by enabling the formulation and execution of appropriate industrial export venture marketing strategies, superiority in export venture resources of each of the types identified has the

potential to enable export ventures to achieve superior market effectiveness. We therefore hypothesize that:

H1. The level of each of an industrial export venture's resources will be positively related to the export venture's market effectiveness.

3.2. Indirect effects

While individual resource levels may lead directly to positional advantages in the target industrial export market, RBV theory suggests that these advantages may often be temporary (e.g., Barney, 1991). In order for positional advantages to be sustained, RBV theory suggests that the resources on which they are based have to possess characteristics that inhibit competitive imitation (e.g., Day & Wensley, 1988; Dierickx & Cool, 1989). Without the characteristic of inimitability, rivals can simply replicate a firm's resources and compete away their source of competitive advantage (e.g., King & Zeithaml, 2001; Reed & DeFillipi, 1990). The literature suggests that a number of the export venture resources identified above may be difficult to replicate. For example, brand equity has been identified as a durable source of competitive advantage because it is difficult for competitors to displace brand associations in the minds of target customers (e.g., Keller, 1993). Similarly, the literature posits that both customer relationships and channel relationships are valuable because they create ties that reduce the ability of competitors to establish similar relationships with the same customers and channel members (e.g., Morgan & Hunt, 1994; Peng & York, 2001).

While each resource available to a firm may be viewed in terms of its individual inimitability, RBV theory views resource characteristics such as inimitability as a higher-level phenomenon (e.g., Barney, 1991; Dierickx & Cool, 1989). Specifically, RBV theory posits that it is the inimitability of the mix of resources used to conceive and implement a competitive strategy that is theoretically important in determining firm performance

outcomes (e.g., Black & Boal, 1994; Reed & Defillipi, 1990). Indeed, connections between individual resources in the resource mix used in implementing a particular value-creating strategy have been identified as one source of inimitability (e.g., Collis, 1991). For example, by increasing causal ambiguity and time compression diseconomies, asset interconnectedness between individual resources in the resource bundle required to implement a particular strategy can inhibit competitive imitation (e.g. Helfat, 1997; Teece, Pisano, & Shuen, 1997). We therefore propose that:

H2a. The inimitability of the mix of resources available to an industrial export venture mediates the relationship between the level of the export venture's individual resources and its market effectiveness.

Substitutability concerns the ability of rivals to replicate a firm's positional advantages through the deployment of an alternate set of resources (e.g., Dierickx & Cool, 1989). For resources to be non-substitutable there must be no other resources that can take their place when implementing the firm's strategy (e.g., Barney, 1991; Collis, 1991). The literature suggests that it may be difficult to substitute a number of the individual resources identified above in implementing industrial export venture marketing strategies. For example, strong brands have been highlighted as essential for competitive success in a number of industries (e.g., Keller, 1993). Similarly, market information has been identified as a resource for which there is no obvious substitute in conceiving and implementing competitive strategies appropriate to the firm's market environment (e.g., Cadogan et al., 2002; Lord & Ranft, 2000).

While each of the resources we identify may vary in terms of its individual substitutability, the literature indicates that the key substitutability issue concerns the ability of competitors to replicate the firm's strategy using a different set of resources (e.g., Barney, 1991). Since the formulation and execution of marketing strategy rarely, if ever, rely on the deployment of a single resource (e.g., Black & Boal, 1994; Collis, 1991), it is the substitutability characteristics of the combination of resources required to conceive and deliver the export venture's marketing strategy that determine its ability to sustain any competitive advantage achieved. Indeed, RBV theory suggests that to the extent that individual resources deployed in an export venture's competitive strategy are "co-specialized," such relationships can themselves serve to reduce the substitutability of the export venture's resource mix (e.g., Helfat, 1997). We therefore propose that:

H2b. The non-substitutability of the mix of resources used to implement the industrial export venture's strategy mediates the relationship between the level of the export venture's individual resources and its market effectiveness.

4. Methodology

4.1. Research design

In order to enhance the generalizability of our hypothesis tests we adopted a multi-country research design (e.g., Tsang,

2002). We therefore collected data from industrial manufacturing firms headquartered in two European countries: Germany and the UK. While both are located in Europe, Germany and the UK have been identified as having significantly different national cultures that impact how managers in those countries do business (e.g., Brouthers & Brouthers, 2001; Hofstede & Bond, 1988). Collecting data from two such different cultures should further enhance the generalizability of the findings of our study (e.g., Hofstede, 1991).

Exporting is a stage of internationalization that is particularly appropriate for medium sized business (e.g., Katsikeas et al., 2000; Morgan et al., 2003). For this reason, the target population in each country consisted of industrial manufacturing firms ranging in size from 50 to 500 employees. Since we are interested in maximizing both the variability in responses and the generalizability of our findings, we selected a multi-industry sample of industrial manufacturers with known export operations in each country. Firms were selected from publicly available sources such as ECOFIS Wirtschaftsinformationen GmbH in Germany and the Dun and Bradstreet Directory for the UK sample. In both cases, a random sample of industrial exporters listed in each database was utilized, resulting in a sample of 862 firms in Germany and 411 firms in the UK.

Primary data were collected to test our hypotheses for two reasons. First, the emerging RBV methodology literature indicates that primary data provides the opportunity for more "fine-grained" studies of the kinds of specific resource differences between firms that underpin RBV theory (e.g., Rouse & Daellenbach, 1999, 2002). Second, data concerning the specific resources identified as valuable in our fieldwork are not available from secondary sources, and performance is typically not publicly reported by firms at the export venture-level (e.g., Katsikeas et al., 2000). Our data collection research design was guided by the characteristics of the export venture context in which most export ventures have a relatively small number of employees, usually with a single overall manager. Our interviews indicated that among export venture personnel, only the industrial export venture manager was knowledgeable concerning all of the resource-level, resource characteristics, and performance phenomena of interest in our study. Further, our interviews suggested that while informants other than the export venture manager may be able to provide data on individual constructs of interest in some export ventures, these informants would be unlikely to be as knowledgeable on these issues as the export venture manager. This indicated that an export venture manager key informant primary data collection design was appropriate for our study.

While the key informant data collection approach we adopted is the most widely used in organizational research, there are potential problems that can be associated with collecting data on organizational phenomena from a single informant. We therefore carefully followed accepted methodological guidelines commonly used to mitigate these potential problems concerning identifying and motivating the most knowledgeable key informants and designing and pre-testing our measurement scales and survey instrument to maximize the validity of the data collected (e.g., Huber & Power, 1985).

Where an appropriate executive responsible for an industrial export venture was not identified through public sources, telephone calls were therefore placed to identify an appropriate and knowledgeable key informant. A survey packet was then mailed to the appropriate export venture manager identified at each firm. For firms not responding to the initial mailing, a second complete mailing was performed. In all, 218 of 862 surveys were returned from German industrial goods manufacturing firms, representing a 25% response rate. For industrial goods manufacturers in the UK, 173 of 411 surveys were returned representing a 42% response rate. In order to maintain the diversity required for enhanced generalizability, we treated the data from each country separately rather than pooling them into a single data set (e.g., Tsang, 2002).

Analysis of non-response bias was performed using the extrapolation approach recommended by Armstrong and Overton (1977). Tests revealed no significant differences between early and late respondents on any of the constructs in either of the two data sets. We also compared secondary demographic information regarding responding and non-responding firms, and noted no significant differences. This suggests that non-response bias is unlikely to be present in our data. In addition, we also directly assessed the competency of our key informants by asking respondents to rate their knowledge of their own firm's export resources and performance, and those of their export market competitors. These two questions used seven-point scales ranging from "low knowledge" = 1 to "high knowledge" = 7. To ensure key informant competency, we eliminated any

responses scoring 4 or less on our 7-point scale for either question (c.f., Morgan et al., 2003). This resulted in eliminating 23 respondents from the UK sample, yielding a final sample of 150 UK firms, and 29 respondents from the German sample, yielding a final sample of 189 German firms.

4.2. Measures

In developing measures to indicate the resource levels and resource characteristics of export ventures, we synthesized perspectives from the literature with those obtained in our fieldwork. Our initial measures were refined and pre-tested using face-to-face contexts to enhance face validity, and were further refined through two quantitative data collection exercises. Below we briefly describe how each of the major constructs was operationalized. The precise items used in the measurement scales to indicate the constructs of interest are presented in Table 2.

Industrial Export Venture Resource Levels were assessed using six new multi-item measures. Respondents were asked to evaluate the level of the reputational, financial, human, cultural, relational, and information resources available relative to those of the export venture's major competitors in the export market. *Industrial Export Venture Resource Characteristics* were assessed using two new measures. Respondents were asked to evaluate the degree to which the mix of resources available to the export venture and used to implement their export venture's strategy in the target export market was inimitable and non-

Table 1
Descriptive statistics and construct intercorrelations

German firms		Mean	Standard deviation	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
X1	Reputational resources	4.72	1.11	1.00									
X2	Financial resources	4.18	1.13	.43**	1.00								
X3	Human resources	4.81	1.07	.31**	.26**	1.00							
X4	Cultural resources	4.93	1.21	.37**	.44**	.54**	1.00						
X5	Relational resources	4.96	1.13	.54**	.36**	.47**	.50**	1.00					
X6	Informational resources	4.65	0.98	.46**	.33**	.53**	.61**	.67**	1.00				
X7	Inimitability	4.54	1.10	.31**	.28**	.26**	.30**	.23**	.36**	1.00			
X8	Non-substitutability	3.73	1.06	.19**	.19**	.07	.19**	.04	.11	.41**	1.00		
X9	Competitive intensity	4.56	0.95	-.14†	.08	-.02	-.01	-.05	-.05	-.20**	.01	1.00	
X10	Market effectiveness	4.37	0.86	.33**	.15*	.32**	.34**	.33**	.41**	.33**	.30**	-.14**	1.00
United Kingdom firms													
X1	Reputational resources	4.53	1.38	1.00									
X2	Financial resources	3.94	1.44	.46**	1.00								
X3	Human resources	4.78	1.24	.29**	.24**	1.00							
X4	Cultural resources	4.46	1.40	.46**	.48**	.36**	1.00						
X5	Relational resources	5.07	1.13	.59**	.33**	.36**	.49**	1.00					
X6	Informational resources	4.61	1.07	.49**	.34**	.56**	.44**	.65**	1.00				
X7	Inimitability	3.43	1.17	.18**	.50**	.22**	.51**	.26**	.29**	1.00			
X8	Non-substitutability	4.25	1.05	.12	.16*	.27**	.20**	.07	.14†	.27**	1.00		
X9	Competitive intensity	4.06	1.27	.06	.01	.05	.06	.07	.06	-.01	.05	1.00	
X10	Market effectiveness	4.94	0.81	.27**	.27**	.17**	.30**	.25**	.23**	.45**	.25**	-.14†	1.00

† $p < .10$.

* $p < .05$.

** $p < .01$.

Table 2

Construct measurement scales

Export venture resource levels (7-point scale — Much Worse = 1 to Much Better = 7 — relative to competitors)

Please rate the resources available to this export venture, relative to those of your major competitors (in this export market), in the following areas:

Reputational resources (CR_{Ger} .90; AVE_{Ger} 69%; CR_{UK} .91; AVE_{UK} 72%)

Brand name awareness

Distinctiveness of our brand image

Appeal of our brand ‘personality’

Strength of our brand image

Financial resources (CR_{Ger} .89; AVE_{Ger} 67%; CR_{UK} .92; AVE_{UK} 75%)

Access to capital

Speed of acquiring and deploying financial resources

Size of financial resources devoted to this export venture

Ability to find additional financial resources when needed

Human resources (CR_{Ger} .91; AVE_{Ger} 73%; CR_{UK} .94; AVE_{UK} 79%)

Knowledge of export venture personnel

The quality of our export venture people

Experience of our export venture personnel

The skills of our export venture people

Cultural resources (CR_{Ger} .75; AVE_{Ger} 51%; CR_{UK} .84; AVE_{UK} 64%)

International orientation of our company’s culture

Strength of our corporate culture

Company’s international experience

Relational resources (CR_{Ger} .79; AVE_{Ger} 50%; CR_{UK} .86; AVE_{UK} 61%)

Strength of existing customer relationships in this export market

Quality of our channel relationships in this export market

Duration of relationships with our current distributors in this market

Closeness of existing customer relationships

Informational resources (CR_{Ger} .87; AVE_{Ger} 62%; CR_{UK} .85; AVE_{UK} 59%)

Export market information

Customer knowledge in this export market

Knowledge of competitors in this export market

Knowledge of distributors in this export market

Export venture resource characteristics (7-point scale — Strongly Agree = 1 to Strongly Disagree = 7)

Please indicate how much you agree or disagree with the following statements:

Inimitability (CR_{Ger} .79; AVE_{Ger} 50%; CR_{UK} .79; AVE_{UK} 50%) *Considering the mix of various resources (e.g., people, money, market knowledge, relationships, reputation, culture, etc.) available to our export venture...*

Competitors find it very difficult to match our export venture’s resources

No competitor could replicate our mix of export resources

Acquiring export resources similar to ours is not difficult (Reverse Scored)

Competitors never seem to match our export venture’s resources

Non-substitutability (CR_{Ger} .83; AVE_{Ger} 55%; CR_{UK} .81; AVE_{UK} 52%) *In executing our strategy in this export market...*

There is no substitute for our mix of export resources

You can always overcome having a different mix of export resources somehow (Reverse Scored)

Having a different mix of export resources would be disastrous

You cannot succeed without having our mix of export resources

Export venture market characteristics (7-point scale — Strongly Agree = 1 to Strongly Disagree = 7)

Competitive intensity (CR_{Ger} .82; AVE_{Ger} 53%; CR_{UK} .82; AVE_{UK} 53%)

Please indicate how much you agree or disagree with the following statements concerning the competitive environment in your export venture market.

Competition in this export market is cut-throat

There are many “promotion” wars in this export market

Price competition is a hallmark of this export market

One hears of a new competitive move in this market almost every day

Export venture performance (7-point scale — Much Worse = 1 to Much Better = 7 — relative to competitors)

Market effectiveness (CR_{Ger} .89; AVE_{Ger} 67%; CR_{UK} .89; AVE_{UK} 68%) *Please evaluate your export venture’s performance over the past year, relative to your major export market competitors, in terms of...*

Export venture’s market share growth

Growth in export venture sales revenue

Acquiring new export venture customers

Increasing sales to current export customers

Table 3
Structural equation modeling results

Paths modeled			German firms		UK firms	
			Standardized coefficient	t-value	Standardized coefficient	t-value
Reputational resources	→	Inimitability	.21	3.06	.33	3.79
Financial resources	→	Inimitability	.03	0.48	.25	3.23
Human resources	→	Inimitability	.12	1.96	.11	1.59
Cultural resources	→	Inimitability	.03	0.39	.27	3.02
Relational resources	→	Inimitability	-.23	-2.91	-.16	-1.71
Informational resources	→	Inimitability	.27	3.65	-.11	-1.04
Reputational resources	→	Non-substitutability	.23	2.60	-.08	-1.05
Financial resources	→	Non-substitutability	-.02	-0.19	.07	1.05
Human resources	→	Non-substitutability	-.01	-0.12	.14	2.10
Cultural resources	→	Non-substitutability	.18	2.03	.04	0.49
Relational resources	→	Non-substitutability	-.20	-1.99	-.01	-0.15
Informational resources	→	Non-substitutability	.09	0.95	.04	0.45
Reputational resources	→	Market effectiveness	.11	1.09	.04	0.26
Financial resources	→	Market effectiveness	-.09	-1.12	-.12	-1.18
Human resources	→	Market effectiveness	.09	1.20	.01	0.08
Cultural resources	→	Market effectiveness	.05	0.49	.06	0.47
Relational resources	→	Market effectiveness	.07	0.61	.12	0.96
Informational resources	→	Market effectiveness	.13	1.24	.08	0.59
Competitive intensity	→	Market effectiveness	-.10	-1.63	-.13	-1.71
Inimitability	→	Market effectiveness	.34	2.01	.49	3.28
Non-substitutability	→	Market effectiveness	.24	2.23	.46	2.41
Fit indices:			$\chi^2=953.05$, 660 <i>df.</i> , $p>.001$		$\chi^2=1028.16$, 660 <i>df.</i> , $p>.001$	
			CFI= .921		CFI= .893	
			RMSEA = .049		RMSEA = .060	

substitutable. *Industrial Export Market Effectiveness* was operationalized using a four-item scale tapping managers' perceptions of how well their export venture performed relative to major export market competitors in terms of: market share growth; sales revenue growth; acquisition of new export customers; and, increased sales to current export customers (e.g., Katsikeas et al., 2000). Such perceptual performance measures have been demonstrated to be valid indicators of objective performance (e.g., Venkatraman, 1986). Since the literature indicates that industrial export market conditions can impact export venture performance (e.g., Aaby & Slater, 1989; Cavusgil & Zou, 1994), we also collected data on *competitive intensity*, concerning rivals ability and willingness to respond to competitive moves in the marketplace to control for differences in individual export market conditions. This measure was adapted from Jaworski and Kohli (1993).

5. Results

5.1. Psychometric analysis results

Summary scale statistics and correlations for our measures are reported in Table 1. To assess the convergent and discriminant validity of our measures we used confirmatory factor analysis (CFAs) (e.g., Anderson & Gerbing, 1988). Consistent with our objective of maximizing generalizability, CFAs were performed on each of the two data sets separately.

The overall fit of the measurement model with the German data was good with a $\chi^2=933.70$, 657 *df.*, $p>.001$; CFI=.926 and RMSEA=.047. The data from the UK were submitted to the

same analysis using the same item-loading pattern as the German data. This resulted in a confirmatory factor model with $\chi^2=1003.81$, 657 *df.*, $p>.001$, CFI=.902, and RMSEA=.059, illustrating adequate fit of the measurement model to the UK data. In both data sets all items loaded strongly on the constructs they were intended to represent with standardized loadings ranging from .53 to .92 in the German data and .58 to .91 in the UK data). Combined with no evidence of significant cross-loading, this indicates good convergent validity for our measures (Anderson & Gerbing, 1988). Discriminant validity was confirmed by calculating the average variance extracted (AVE) for each of the measures and comparing it with the squared multiple correlations between the constructs (Fornell & Larcker, 1981). As shown in the Table 2, the AVE values range from 50% to 73% in the German sample and 50% to 79% in the UK sample. These values exceed all of the squared multiple correlation values in both data sets, indicating discriminant validity among our constructs (Anderson & Gerbing, 1988). To assess the reliability of each measure we calculated the composite reliability (CR) of each scale (Fornell & Larcker, 1981). CR values ranged from .71 to .91 in the German data and .79 to .94 in the UK data, suggesting excellent reliability (See Table 2).

While our separate measurement assessments for each sample provide confidence in the reliability and validity of our measures (e.g., Tsang, 2002), and our identification and purification procedures ensured that we collected data only from knowledgeable key informants (e.g., Huber & Power, 1985), the use of a single standardized survey to collect data from each firm still leaves the potential for common method bias. To evaluate this possibility we followed the widely used

Harmon's single-factor test procedure by comparing our ten-factor CFA measurement models with alternate single-factor models for each data set (e.g., Morgan et al., 2003; Tsang, 2002). In both data sets the single-factor model fit the data very poorly ($\chi^2=4208.62$, 702 *d.f.*, CFI=.40 in the German data and $\chi^2=3926.39$, 702 *d.f.*, CFI=.38 in the UK data), exhibiting significantly worse fit statistics than our ten-factor measurement models ($\chi^2_{diff}=3274.92$, 45 *d.f.*, $p<.001$ in the German data and $\chi^2_{diff}=2922.58$, 45 *d.f.*, $p<.001$ in the UK data). This indicates that common method bias is unlikely to be a significant problem in either of our data sets (e.g., Podsakoff & Organ, 1986).

5.2. Hypothesis testing

We tested Hypotheses 1 and 2 using structural equation models (SEM) on each of the two data sets, with paths representing the direct and mediated relationships between export venture resource levels, export venture resource characteristics, and export venture market effectiveness. We also estimated a path between the competitive intensity of the export market and export venture market effectiveness to control for differences in competitive rivalry in the export markets served by the industrial export ventures. For Hypotheses 1 to be supported we should see significant direct paths between each of the individual export venture resources and market effectiveness performance. For Hypothesis 2a to be supported, results should show that individual venture resource levels are positively related to the inimitability of the mix of available resources used in implementing the export venture's strategy, and that the inimitability of these resources is positively related to export venture market effectiveness. For Hypothesis 2b to be supported results should indicate significant paths between the individual export venture resource levels and the substitutability of the mix of resources used to implement the venture's strategy, and a significant path between the substitutability of these resources and export venture market effectiveness.

5.2.1. German industrial export venture SEM results

As shown in Table 3, the results of our SEM analysis indicate a good overall fit of the hypothesized structural model with the German data ($\chi^2=953.05$, 660 *d.f.*, $p>.001$, CFI=.921, and RMSEA=.049). In addition, the model exhibits good explanatory power, accounting for 33% of the variance in export venture market effectiveness. However, Hypotheses 1, predicting that the level of export ventures' individual resources are each related to export venture market effectiveness, was not supported in this analysis since no significant direct paths from export venture resources to export venture market effectiveness were found.

Hypothesis 2a, predicting that inimitability mediates the relationship between individual export venture resource levels and export venture market effectiveness was partially supported. First, the path from the inimitability of export ventures' resources to export venture market effectiveness demonstrated a positive significant coefficient ($\beta=.34$, $t=2.01$). Second, four paths between the individual export venture resource levels and the inimitability of export ventures' resources are significant. Three

of these four paths indicate that the level of reputational ($\beta=.21$, $t=3.06$), human ($\beta=.12$, $t=1.96$), and informational ($\beta=.27$, $t=3.65$) resources are positively related to the inimitability of export ventures' resources. Surprisingly, however, the path between the level of relational resources ($\beta=-.23$, $t=-2.91$) and the inimitability of export ventures' resources is significant but negative.

Hypothesis 2b, predicting that non-substitutability mediates the relationship between export venture resource levels and export venture market effectiveness was also partially supported in the German data. First, as seen in Table 3, the path between the non-substitutability of export ventures' resources and export venture market effectiveness is significant and positive ($\beta=.24$, $t=2.23$). Second, we note that the relationship between the level of both reputational resources ($\beta=.23$, $t=2.60$) and cultural resources ($\beta=.18$, $t=2.03$) and the non-substitutability of export venture resources is significant and in the predicted direction. Finally, we also find a significant negative relationship between relational resource levels and non-substitutability ($\beta=-.20$, $t=-1.99$).

5.2.2. UK export venture SEM results

Results from the SEM analysis using the UK data demonstrated an adequate fit of the hypothesized structural model to the data ($\chi^2=1028.16$, 660 *d.f.*, $p>.001$, CFI=.893, and RMSEA=.060). The explanatory power of the UK data model was also good, explaining 23% of the variance in export venture market effectiveness. However, as in the German data, Hypothesis 1, predicting a direct relationship between export venture resources and export venture market effectiveness was not supported as we find no significant path coefficients linking individual resources levels with export venture market effectiveness (see Table 3).

Hypothesis 2a, predicting that inimitability mediates the relationship between individual export venture resource levels and export venture market effectiveness, was partially supported in the UK data. Similar to the German data analysis, the path between the inimitability of export venture resources and export venture market effectiveness ($\beta=.49$, $t=3.28$) is significant and positive in the UK data. In addition, three of the six paths between individual resource levels and the inimitability of the export venture's resources are significant and in the expected direction — those for reputational resources ($\beta=.33$, $t=3.79$), financial resources ($\beta=.25$, $t=3.23$), and cultural resources ($\beta=.27$, $t=3.02$).

Hypothesis 2b, predicting that non-substitutability mediates the relationship between export venture resource levels and export venture market effectiveness was weakly supported in the UK data. As predicted, the path between the non-substitutability of export venture resources and export venture market effectiveness is significant and positive ($\beta=.46$, $t=2.41$). The relationship between the level of export venture human resources ($\beta=.14$, $t=2.10$) and the non-substitutability of the export venture's mix of resources was significant and in the predicted direction. No other individual resource paths were significantly related to the non-substitutability of export ventures' resources in the UK data.

6. Discussion and implications

Both the German and UK data indicate no significant direct relationships between the levels of individual export venture resources available and export venture market effectiveness. This finding is consistent with the view of competitive advantage evident in resource-based theory which suggest that competitive superiority in valuable and scarce individual resources may only lead to temporary positional advantages (e.g. Barney, 1991; Black & Boal, 1994). For some of the individual resources examined this may be intuitive. For example, superior financial resource availability may often be impermanent, and therefore only allows temporary positional advantages to be achieved. For other resources however, the literature suggests that their individual characteristics should make any superiority in resource levels more sustainable. For example, the literature posits that superior reputational resources should provide more than a temporary source of competitive advantage (e.g., Fombrun & Shanley, 1990; Keller, 1993). However, our data reveal insignificant direct relationships between reputational resources and export venture market effectiveness in both Germany and the UK. Our data therefore suggest that the level of individual resources available to export ventures are less important in determining export venture performance than might have been previously believed (e.g., Aaby & Slater, 1989; Cavusgil & Zou, 1994).

We find support in our data for the expected indirect relationships between the level of individual export venture resources available and export venture market effectiveness via the inimitability and non-substitutability characteristics of the industrial export venture's available mix of resources as each individual resource was related to either non-substitutability or inimitability or both. However, one unexpected finding is the negative relationship observed between relational resource levels and inimitability and non-substitutability in the German industrial export ventures. This suggests that the higher the level of an export venture's relational resources, the lower the inimitability and non-substitutability of the overall mix of resources used to implement its marketing strategy. Along with the non-significant direct relationship between relational resources and performance in both data sets, our results therefore do not support relational exchange theory predictions that relational resources are a source of sustainable competitive advantage in industrial export markets (e.g., Morgan & Hunt, 1994; Srivastava et al., 1998). Nonetheless, our data do indicate strong overall support for RBV theory predictions that the inimitability and non-substitutability of available resources used to implement the export venture's marketing strategy are important determinants of export venture performance outcomes.

Our findings have three broad implications for both managers and academics. First, given the limitation export venture managers have in terms of managing industry and market conditions through changes in market selection, our study indicates that resource-based theory provides useful framework for understanding industrial export venture performance. The significant variance in export venture market effectiveness accounted for in our structural models supports RBV theory as a mechanism for

understanding and explaining firms' export venture performance. Importantly, our results support RBV theory predictions concerning resource inimitability and non-substitutability in explaining market performance differences in export ventures in both Germany and the UK. Both our qualitative fieldwork and quantitative data therefore suggest that in seeking to understand and explain the increasingly important export venture performance of firms, researchers and managers can use the RBV to guide investigations into resource selection and highlight the importance of resource protection by export firms.

Second, RBV theory has been criticized for its relatively weak empirical base (e.g., Priem & Butler, 2001). As pointed out by Godfrey and Hill (1995:530), "ultimately, the RBV will stand or fall, not on the basis of whether its key constructs can be verified, but upon whether its predictions correspond to reality observed for populations of firms." Our study provides solid empirical support for the fundamental RBV theory prediction that the inimitability and non-substitutability of the resources used to implement strategy are important determinants of performance outcomes. Confidence in this finding should be enhanced by the research design used in our study. The methodological literature has criticized empirical RBV studies for their reliance on secondary data that fail to provide the "fine grained" information required to test central RBV predictions (e.g., Rouse & Daellenbach, 1999). Using in-depth qualitative interviews to isolate and help develop valid and reliable measures of important resources, and using primary data from large samples of firms in two different countries to allow generalizable quantitative testing of RBV predictions, overcomes many of the potential methodological problems associated with testing RBV theory (e.g., Levitas & Chi, 2002; Rouse & Daellenbach, 2002). As a result both managers and academics can view our findings with increased confidence.

Third, our findings suggest that empirical investigations of relationships between individual resources and performance outcomes may provide only limited insights unless the inimitability and substitutability characteristics of the resources used to execute strategy are also considered. Obviously, researchers and managers must be careful in extrapolating the finding of this study beyond the export venture resources examined in our study of industrial exporters in Germany and the UK. However, as noted earlier, many similar resources have been empirically examined in this way in the management and international business literature. Indeed, the use of secondary resource data has been criticized precisely because it fails to allow researchers to examine resource characteristics (e.g., Rouse & Daellenbach, 1999, 2002). Our findings provide empirical evidence that in examining the performance impact of the type and level of individual resources, researchers need to control for differences between firms in the characteristics of the resources they deploy in implementing their strategy if relationships of interest are to be successfully isolated.

From a managerial perspective, our results suggest that in developing and executing industrial export venture strategies, managers need to think broadly about the mix of resources available to them. In particular, in developing a resource base with which to achieve sustainable competitive advantage in industrial

export markets, our study suggests that managers should not focus unduly on the levels of individual resources available. Rather, it appears that managers should focus attention on managing the degree to which the mix of resources to be deployed by the export venture in implementing its export marketing strategies prevents imitation and substitution by competitors. This supports RBV theory-based prescriptions suggesting that managers should base their efforts to achieve sustainable competitive advantage on bundles of interconnected resources (e.g., Barney, 1991; Grant, 1991). To apply the findings of this research, managers should develop an understanding concerning the degree to which competitors can imitate and substitute for key resources. Where competitive weaknesses are found, remedial action should be taken. For example, if brand positions within an export market (a reputation-based resource) are threatened by competitor's promotional efforts, it may be necessary to strengthen branding by increased advertising spending and linking the image building to the other resources (e.g., relational) to bolster the firm's position in the export market, thus, potentially creating an intangible barrier to entry. Likewise, market information resources may also be a weak area. If everyone who competes in a market has access to the same information, it cannot be a source of competitive advantage. To strengthen market information resources it may be necessary to perform proprietary, primary data collections to gain unique and not easily imitated or substituted for information. Similar strengthening of human and cultural resources is possible making more difficult to imitate or substitute resources in the overall resource mix. It may even be possible to perform a type of benchmarking to determine the appropriate mix of resources which drive competitive advantage within specific export markets and to act to protect the firm's position on these key resources.

7. Limitations and directions for future research

Two limitations of our study result from trade-off decisions required in research of this type. First, we test our hypotheses using cross-sectional data and are therefore unable to empirically impute causality in the relationships examined or to examine the sustainability of the export venture market effectiveness performance outcomes examined over time. While the causal ordering reflected in our SEM models reflects RBV theory, and was confirmed from a face validity perspective in our qualitative fieldwork, future research utilizing longitudinal research designs would allow the empirical assessment of causal relationships and the sustainability of performance outcomes over time (e.g., Rouse & Daellenbach, 1999). Second, by focusing specifically on an extensive examination of export venture resources, the logistical problems of collecting primary data mean that we were unable to control for differences between export ventures in terms of other firm-specific phenomena such as the specific capabilities used to select and deploy export venture resources (c.f., Teece et al., 1997). However, by including the competitive intensity of the export marketplaces served in our SEM, we do control for a theoretically important source of potential performance variance (e.g.,

Rouse & Daellenbach, 2002). As our ability to develop valid, reliable, and parsimonious resource measures improves, the potential for controlling for a wider range of factors should increase.

While a number of potential avenues for future research flow from our results, we focus here on two areas that we believe hold particular promise for developing knowledge and providing practical insights for managers. First, given the strong relationship revealed between the imitability and substitutability characteristics of export ventures' resources and their market effectiveness performance outcomes, further empirical research is required to identify the sources of such characteristics. Theory suggests that an important source of such characteristics may be interactions between multiple individual resources (Black & Boal, 1994; Collis, 1991). For example, the literature suggests that creating and sustaining superior brand equity relies on possessing numerous other resources such as informational resources and financial resources (e.g., Aaker, 1996; Keller, 1993). However, empirical knowledge of how and when such interactions lead to resource bundles with these valuable characteristics is scarce (e.g., King & Zeithaml, 2001). Second, while we focus here on export venture resource levels and characteristics, recent theory contributions have highlighted the increasingly important role of dynamic capabilities concerning how resources are acquired and modified to meet changing market conditions (e.g., Eisenhardt & Martin, 2000; Teece et al., 1997). If available resources are as important in determining export venture market performance as theory and our data suggest, research on how such resources are acquired, developed, and adapted to suit changing circumstances in export markets is an obvious focus for further knowledge development.

8. Conclusions

While the size and growing importance of exporting in industrial manufacturer's business performance have been widely recognized, the literature reveals a surprising lack of knowledge concerning the drivers of export venture performance. We draw on RBV theory and qualitative fieldwork insights, along with quantitative primary data from industrial export ventures in Germany and the UK, to examine resource drivers of industrial export venture performance. Our results indicate that the inimitability and non-substitutability characteristics of export venture resources are strongly linked with export venture market effectiveness. Further, resource inimitability and non-substitutability also mediate relationships between the levels of a number of individual export venture resources and export venture market effectiveness.

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