

Manjunatha N

EXPORT ORIENTATION, TECHNOLOGICAL CAPABILITIES AND EXPORT PERFORMANCE

ABSTRACT

The practice of exports by the companies in India leads to generating foreign exchange, builds international relations and reputation for both countries as well as the firm irrespective of the type of industry. Particularly the intensity of competition is a bit more among manufacturing companies in export orientation. The success of any business entity in the international market is dependent on the level of seriousness with respect to the intensity of export orientation and technological capabilities. The primary objective of conducting this research is to understand the relationship of variables such as export orientation and technological capabilities of the firm with the export performance of auto component manufactures in south India. Pertinent variables are used to test the hypothesis with the help of linear regression analysis. It is also understood that it is a firm's ability of export orientation and technological capabilities have an influential impact on auto component manufacturing companies' export performance in south India. The significant contribution of the study helps South Indian Auto component manufacturers to formulate better export strategies to capture market share and export revenue.

Keywords: Export orientation, Technological capabilities, Auto components, Export performance

Manjunatha N

Assistant Professor of Commerce, GFGC, Srinivaspur

Correspondence: Manjunatha N

Government First Grade College, Srinivaspur- Kolar District

Karnataka- India

E-Mail: manjunatha.mba23@gmail.com

INTRODUCTION

In the early stage of globalization, the auto component manufacturing industry was struggling to earn foreign exchange due to a lack of support from the government though there was a huge demand for components in the foreign markets. The requirement of components is based on the production schedules of the original equipment manufacturers. Over a period of time the component manufacturers learned to acquire export competencies in terms of technological collaboration with foreign OEM's (Sahoo, T., D.K. Banwet and K. S. Momaya. 2010). Gradually, the Indian government realized the importance of import alternatives and started encouraging the export oriented firm's by providing various export incentives to make the auto component manufacturing sector a global hub for sourcing components for OEM's assembly. (Torayeh, and M. Neveen. 2011). With the support of the government after 1991, the firm's started exploring the prospective destinations to have a strong foot-hold in the foreign markets in the form of supplying global standard quality products and keeping competitors aside.

The export managers and the exports of international business of the industry started formulating marketing strategies in the form of adaptation and standardization approaches according to changing conditions of the global market conditions. (Kaleka, A. and N. A. Morgan. 2017). The firm's learned through export orientation in the form of investing substantial finance to have state of the technology to supply components for emerging and new vehicles models in the foreign markets (Tang, R.Y. 2011). Many researchers recommended that a firm's ability of export orientation and technological capabilities enhances export performance. A firm's export orientation abilities such as firm size, type of business operation, capital intensity, innovation capabilities, export mode, resources base, diversified product line are the main antecedents of export success (Kahia, M. 2017).

In the present research, the study focuses on testing the impact of a firm's export orientation on the export performance of South Indian auto component manufacturing firms. Many researches argue that, if the firm is operating on a large scale, then the ability of innovation, new product development, offering new services is generated. It is also understood that the R&D capability of the firm helps in achieving the export goals. (Erdila, T.S. and O. Ozdemir. 2016). The firm characteristics of the firm such as firm's export experience, financial and physical resources and market characteristics such as demand, product exposure to the customers, economic and political conditions in the foreign markets and the firm's internal export commitment such as capital investment, human

resources, managerial strategic planning have found significant with export orientation (Jalali, S.H. 2012). Various studies have given diversified approaches for export orientation and technological capabilities for example, firm size is measured in the form of annual sales in some research (Kumar, C. P. and S. Singh. 2014) whereas some other (Ha, V.T.C., M.J. Holmes, and T.M. Le. 2020) measured firm size in terms of a total number of employees (Karymshakov, K. 2020). Similar to this, the technological intensity of the firm is measured in the form of R&D investment in some research (Gupta, A. 2018), whereas some other (Uyar, K. and B. Oralhan. 2017) measured it by considering a number of new products developed. The success of export orientation is dependent on rigorous export policies towards capturing export markets (Carneiro, J. 2011). Many studies have discussed the export orientation of the firm and technological capabilities to uplift export revenue and exploit international market opportunities (Chandran, V.G. and R. Rasiah. 2013).

Managerial characteristics of the firm such as export manager's education qualification, export market exposure, perception towards international orientation, export motivation and commitment factors have found a positive relationship with export orientation (Stoian, M.C. and A. R. Criado. 2010). Export market characteristics such as market segmentation, targeting prospective destinations, gaining foothold market share, export market research, and international market intelligence are the key determinants of export orientation (Al-Doori, J. A. and J. Ahmed. 2019).

Technological capabilities of the firm such as meeting global quality standards in the host country along with innovative products by using various technologies like robotics, CNC machines, production automation, manufacturing design based products, flexible manufacturing systems, process and product innovation, registering patents, having knowledgeable engineers are the key determinants of export success (Chandran, V.G. and R. Rasiah. 2013). The firm's ability to sustain foreign market risk through achieving a low-cost advantage with help of sophisticated export infrastructure has found positive relation with export orientation. This can be achieved by a large-scale production process by the auto component manufacturers (Karedza, G. and K. Govender. 2019). In the light of the above study the research also focuses on analysing the relationship between the technological capabilities of the firm and its influence on the export performance of South Indian auto component manufacturing firms. The significant contribution of the study helps South Indian Auto component manufacturers to formulate better export strategies to capture market share and export revenue.

LITERATURE REVIEW

The firm's commitment towards export orientation in terms of product development for foreign clients, competitor's analysis, exploring the business opportunity in the foreign destination have found significant with export performance (Linda, A. 2017). In order to earn foreign exchange in the long run, the firm should have more number of client networks, R&D collaboration, usage of advanced technology. The firm's infrastructure facilities such as export-oriented units, state of the art technology, strategic business units, foreign sales branches, well designed logistic facilities have found significant with exports. To satisfy global OEM's, the firm should export global quality products. This can be achieved through the upgradation of technology, technical alliances with clients (Arora, V. 2014).

The firm's international exposure in terms of involvement of a number of years in export operation, corporate image and export competitiveness has got relevant with export orientation ability. Those firms having good experience in international business, have the ability to understand the customers well and to cope up with uncertainties in terms of finance, legal issues and agreement, product adaptation strategies, issues leading to achieve the desired level of export performance (Kahia, M. 2017). For the successful export orientation, the auto component manufacturers are exporting advanced products to meet the latest requirements of global OEMs such as engine models, high-end critical parts, gear boxes, suspension and brakes parts. This shows that the Indian exporters have the ability to meet changing needs of their client's foreign clients by supplying high end value products leading to earn foreign exchange (Kumar, A. and S. Dubey. 2017). With the concept of export orientation and technological capabilities of auto component manufacturers are able to increase export sales in the recent past.

The state and central government are passing favorable export policies in terms of providing export incentives, duty-free schemes, export subsidies etc. With this support and technical alliances, the manufacturers are able to produce components for low cost with global quality standards leading to make the industry to enjoy a competitive advantage and earning export revenue (CRISIL Report, 2017). Firms are able to orient their export capabilities and develop innovative components through internally generated information and the knowledge created by export market research. The internal export knowledge of the firm is created out of testing and development, learning and experiment, learning experience, gathering export market information through formal and informal sources within the industry environment. Continuous communication and link with outside clients,

government, research organization, the academic institution helps firm to source technological solutions. Researchers termed technological capabilities of the firm can be defined as the ability to interact, collect information, integrate, process and use technological intelligence. With the help of this the company is able to get needed technology across the globe for innovation purposes (More, R. Z. and K. Jain. 2013). Many component manufacturers are not trying to go for export orientation with the advanced technology, because of fear of market failure, financial risk, legal and regulatory risk. High cost of transaction, a lack of adequate resources and managerial complexities are hampering the growth of export performance (Musuva, A.M, M. Ogutu, Z. Awino and J. Yabs. 2013). Sharing the export market information with other strategic business units and departments helps to respond or formulating export decisions according to the changing international market conditions which mean market intelligence plays an important role in export success.

In the early phase of liberalization, the auto component manufacturers were exporting only to the developing countries like South Africa, middle east with moderate quality components but today the scenario of Indian auto component suppliers has been changed. They are able to supply global standard quality components for OEMs even in most developed countries like U.S.A and Germany etc. All these are due to the upgradation of technology and having internal testing and development centers within. (Kumaraswamy, A. 2012). Firms that are operating internationally with sales branches abroad should allow the distributors to take marketing decisions locally. If the firm size is big, then Adequate liberty or an adequate degree of decentralization should be given to foreign branches because they will have a thorough understanding and ability to have control over the market territories (Chung, H.F.L., C. L. Wang and P. Huang, 2012). For the international orientation the firm should opt for an appropriate mode of export entering into international business to achieve export success. Preferably most of the component manufacturers are prefer to export through direct export mode due to less risk associated and simple way of transaction in international business.

Firms with domestic market experience, export intelligence and the stage at which export orientation have also found significant with export success (Mohamad, O, T. Ramayah, and H. Puspowarsito. 2011). The cost and overheads of an international transaction also impact on export orientation. The cost incurred for various elements such as trade with lack of information, time cost, cost incurred to executing of export planning, overhead cost, opportunity cost, resource establishment cost has a direct association with export operations. It is also important to note that the cost is dependent on market size, the

number of export intermediaries, direct/indirect trade barriers, country risk and market growth (Stoian, M.C, 2010).

Firms ownership pattern, competent employees, innovation capabilities, foreign market characteristics and export market standardization strategies have been studied in the South Korean manufacturing sector. The results showed that, ownership characteristics, human capital, technological capabilities and export market standardization strategies (Anic, I. D., E. Rajh, and I. Teodorovic. 2009). The auto component manufacturers have got potential demand for the advanced component such as fully assembled engine models, electronic and electric components, ABS braking systems, manual and automatic transmission systems in export markets. The OEMs are highly committed to supply quality products and services to their customers in terms of safety, distance control, vehicle-to-vehicle communication etc (CRISIL Report, 2017). Quality of the product has become a basic mantra of OEMs nowadays so component manufacturers ought to produce innovative products to meet global quality standards (Tiwari, R. and K. Kalogerakis. 2017).

The product, process, managerial, market innovation process of the firm has been widely studied, among those, product innovation and process innovation have found a positive association with export marketing standardization (Kim, M. and W. Azizi. 2009). Usage of alternative materials and products in the vehicle assemblies enhances the profitability of the firm. The alternatives materials include electrical products, fiber, lightweight body structures etc. In addition to this, if the exporters are able to follow the international environmental policies there will be always welcome from the foreign governments to operate an international business by the home country. Through establishing of research and development centers nearby client in the foreign markets the firm is able to supply continuous requirement of OEMs. With the help of R&D efforts the firm can offer innovative and advanced products across the global markets (Arora, V. 2014).

Substantial investment in R&D helps to innovate new products, producing world-class quality products which reduce the cycle time and cost leading to survive, earning reputation and export profit in international business (Mitra, A.K, and B.P. Joshi. 2014). For the successful export business, it is very important to decide whether the marketing strategies are to be standardized or adapted for technologically intensified industries. After intensive literature review it is understood that a high degree of standardization is needed in technological oriented industries such as photocopier industries, equipment manufacturers for medical field, aircraft, computers manufacturing industries and auto/Auto component manufacturing industries whereas adaptation of marketing strategies

is needed more in fast-moving consumer goods and white goods manufacturing industries (Poturak, M. and T. Duman. 2014).

International market conditions are volatile in nature there will be a large number of factors contributing to the business fluctuations. In order to understand and cope up with these changes the auto component manufacturers should work with OEM partners by technological collaboration which helps improve export sales (Arora, V. 2014). If the firms which are small-scale in nature willing to enter into international markets through the direct export mode, they can collaborate with local similar kinds of firms within the cluster to innovate, source required technology and R&D capabilities. These firms take the technical support from outside India through joint ventures to face market challenges in international markets. Those firms enjoying a competitive advantage in terms of low-cost manufacturing, exploring the favorable regulatory policies, positive and encouraging exchange rates, government support in terms of tax-free, duty drawback, export subsidies etc., are more successful in international businesses.

Every firm should have a separate wing to manage its technology to grab the foreign market opportunity (More, R. Z. and K. Jain. 2013). Local competition intensity is also one of the key determinants of export success. In India, the competition is taking place based on the product quality due to the availability of technical experts, skilled employees, low-cost manufacturing systems, the emergence of information and communication technology, software-enabled manufacturing systems, the ability to build product models etc. these capabilities helped Indian auto component manufacturers enter into an international business through technical collaboration and strategic alliances which are leading to standardization of marketing strategies so that India has become one of the global hubs for sourcing auto components to foreign clients (Chisthy, S. K. and Asadullah. 2013). There is a need for price adaptation in technological oriented firms because, for example, the firms producing manufacturing engineering equipment or electric and electronic items need to recover investment immediately. Once these product prices are reduced due to obsolete technology over a period of time then there will be a huge loss in foreign markets (Alshammari, S. D. and R. Islam. 2014). Researchers are proposing that integrated promotional programs, a strong resource base, R&D facilities, product and process innovation have been significant for export business (Malca, O., J. P. Vences, and A. Fransico. 2019).

Foreign Direct Investment (FDI)

The FDI inflow into the Indian automotive industry during the period April 2000-March 2021 stood at USD 25.85 billion as per the data released by the Department for Promotion of Industry and Internal Trade (DPIIT).

Table 1. Some of the recent investments made/planned in the Indian auto components sector is as follows:

2021	Tamil Nadu government - investment commitments	Rs. 28,508 crores	With 49 different companies	Electronics, automotive components, industrial parks, information technology and manufacturing Sectors	Expected to generate ~83,482 jobs
2021	Indian government - FDI outlined	US\$ 7.8 billion	Automobile and auto components sector	Production-linked incentive schemes	Under the Department of Heavy Industries (US\$ 247.3 million).
May 2021	Government of India approved	PLI scheme	Manufacturing advanced chemistry cell battery	Estimated outlay of Rs. 18,100 crore	
March 2021	Government of India announced	Fresh incentives to companies making	Electric vehicles (EVS) as part of a broad auto sector scheme	The scheme is expected to attract US\$ 14 billion of investment	In the next 5 years
February 2021	Vedanta Resources	Launched - newest product	Aluminium cylinder head alloy, a crucial raw material	Manufacturing cylinder heads	Automotive components
Expectations in 2030	India's electric vehicle (EV) ambitions	Cumulative investment of ~Rs. 12.5 trillion	(US\$ 180 billion)	Likely to boost the demand of auto components	Especially from local manufacturers
January 2021	Suzuki Motor Corp. And Hyundai Motor	Announced plans	India a key global hub	Sourcing components	Sharp rise in vehicle exports
January 2021	French battery system supplier	Forsee Power	Committed to invest Rs. 82 crore	(US\$ 11.18 million)	Phase 1 of the India project
October 2020	Japan Bank for International Cooperation (JBIC) agreed to provide	(Rs. 7,400 crore)	US\$ 1 billion	To SBI (State Bank of India) Funding the manufacturing	Sales business of suppliers and dealers of Japanese automobile

October 2020	Government of Tamil Nadu	Signed 14 MoU	Rs. 10,055 crore	(US\$ 1.4 billion)	69,712 jobs in the state
September 2020	Off-highway tyre-maker	Alliance Tire Group (ATG), owned by the Japanese major Yokohama Group	Plans to set up its third plant in Visakhapatnam -Rs. 1,240 crore	US\$ 165 million The proposed plant will add over 20,000 tonnes per annum capacity to the 2.3-lakh-tonne	Will be commissioned by the first quarter of 2023
September 2020	Toyota Kirloskar Motors announced	Investments	Rs. 2,000 crores	US\$ 272.81 million	Electric components and technology.
February 2020	National Engineering Industries Ltd (NEIL)	Announced investment	Rs. 100 crore	US\$ 14.31 million	Producing needle roller bearing at its Jaipur facility
January 2020	Tata autocomp Systems	Joint venture (JV)	With Beijing-based	Prestolite Electric	To enter the electric vehicle (EV) components market

Global Value Chain (GVC)

Auto component export is a key driving force in the manufacture and export of automobiles across the globe (Schroder, M. 2017). The global auto component industry consists of auto component manufacturers, aftermarket parts manufacturers, suppliers, dealers and retailers (Divakaran, P. and M. Muthukumar. 2018). The growth of the auto component industry is dependent on growth in the automobile industry as the original equipment manufacturers (OEM) are the main customers for the auto component manufacturing industry. An increase in complexities, demand for automobiles, increase in the importance of suppliers as partners, and growing opportunities for large suppliers are some of the key factors driving the growth in the auto components industry (Tiwari, R. and K. Kalogerakis. 2017). Shifting focus on research and development, increasing consolidation of the industry through mergers and acquisitions and the emergence of online sales are considered as remarkable phenomena in the growth of this industry (Kumar, A. and S. Dubey. 2017). The auto component market is highly concentrated with more than 40,000 organized auto component manufacturing companies in North America, Western Europe and Japan.

Global export sales of auto components in these countries put-together amounted to USD 347.3 billion in 2015 and USD 360.6 billion in 2016.

The value of global auto component exports increased by 2.4% from 2015 to 2016. Among all the continents, European countries accounted for the highest dollar worth of auto components exports during 2016 with shipments valued at USD 167.8 billion or 46.6% of global exports, Asia generated 30.1% followed by North American shipments at 22.1%. (Workman, D. 2017). The Top 15 countries exported 82.9% of the auto component in 2016 (by value). In the year 2012, the USA was one of the top exporters of auto components and it exported 22% of total world export. Germany was the second with 21%, and Japan did 14%. (Mughal, J. 2012). The same three countries have retained their ranks in the world market in 2016 too, with the USA (11.90%), Germany 15.60%, and Japan, 8.80%.

China is also considered as a low-cost component exporter with 7.90%, other low-cost countries (LCC) being Mexico, Germany, Japan and Korea. France and Germany are major importers of a certain category of auto components. The growth rate of auto component exports from South Korea increased significantly in the decade (Vestring, T., T. Rouse, U. Reinert, and S. Varma. 2015). In 2016, it created derived demand for auto components in spite of being an auto component exporter.

Problem statement

India has been considered by OEM's all over the world as one of the global hubs and potential destinations for sourcing auto components. Indian firms need to exploit potential demand by the OEM's in international markets through an appropriate export marketing approach. In the light of changing economic, technological, mode of export orientation, and regulatory policies, the managers of the exporting company need to design an appropriate strategy to capture more market share and earn foreign exchange with the available physical and financial resources. In the international markets the volatility of business transactions is high in terms of product strategies, pricing strategies, distribution and promotion strategies. Therefore, the hypothesis statement -there is a significant relationship between a firm's export orientation and export performance has been drawn. In order to save the cost, the standardization of export marketing strategies has been widely proposed. For the export marketing strategy standardization, There is a need for understanding firm's ability of export orientation and technological capabilities, since the success of export market standardization strategies are dependent on firm's market intelligence, utilization of market information, type of export mode, distribution network,

firm's resource, ICT capabilities, R&D efforts, institutional networks, the ability to develop new products, new services, state of the art technology, IPR's, designing testing and development capabilities, product and process innovations. There is less research work has been done on the above mentioned areas specifically auto component industries in South India. Therefore, after intensive literature review, it is understood that there is research has been studied in the field of export orientation and technological capabilities of the firm. Therefore, the hypothesis statement firm's technological capabilities have a significant relationship with export performance has been drawn. Keeping the above literature study in mind the following objectives of the research have been formulated.

Objectives of the study

1. To study the impact of a firm's export orientation on the export performance of South Indian auto component manufacturing firms.
2. To analyse the relationship between technological capabilities and export performance of South Indian auto component manufacturing firms.

Hypothesis

Firm's export orientation

Conducting regular export market research by the auto component manufacturers would positively influence the export decisions of the managers. It also helps to maintain market intelligence on various issues of international markets such as market risks, political stability, exchange rates, regulatory policies, and customer profiles with their needs and requirements. Hence it is strongly encouraged for export-oriented firms to conduct periodic foreign market research to update and reduce external risks. Once the data has been collected, that information should be disseminated among the internal departments and other subsidiaries of the company. Indeed, this process is very crucial to formulate appropriate export decisions. Many of the component manufacturing firms are prefer to export their components through direct export mode to avoid financial and market risk. For the successful export business, the majority of the firms have strengthened with a strong resource base in terms of physical facilities and financial aspects. The physical resources consisting of state-of-the-art technology, well designed distribution system, well established R&D facilities, having export oriented units, having multiple manufacturing units across the country to serve international customers. Today the auto component manufacturing firms in South India are able to tune their resources asper the foreign market demand. In order

to understand the above study with practical implications the following hypothesis has been drawn.

Hypothesis 1: There is a significant relationship between firm's export orientation and export performance.

Hypothesis 2: Firm's technological capabilities have significant relationship with export performance.

Technological capabilities

Firms Technological Capabilities

The capabilities of providing new services to the OEMs have a positive association with export performance. Post sales services including credit facilities, insurance, replacement/rework and installation have significant association with export performance. It is also understood that product development through R&D, testing, software enabled technologies have found positive association with export performance. With the new services, the auto component manufacturing firms have started upgrading technology in terms of acquiring advanced technology, setting up R&D centers, working towards to getting an award of quality certificates, product and process improvement through automation, robotics and CNC machines. It is also understood that the firms are using the product cross deployment concepts to use their existing products to use in the industries. For examples, the piston and piston rings used in trucks can be also used even in bus engines. Some components are used for the assembly of on-road vehicles can also be used for off-road machinery. In order to understand the above study with practical implications the above Hypothesis number 2 has been drawn.

METHODOLOGY

Descriptive analytical research methodology has been used to study both theoretical and analytical aspects of the study. The objectives and hypothesis are analyzed using linear regression analysis to test the variables selected on export marketing performance. The study area for the present study is confined to firm export orientation, technological capabilities and export performance. The geographical coverage for the study is confined to organized auto component manufacturers in three states in south India such as Karnataka, Andhra Pradesh and Tamil Nadu. There are more than 800 organized auto component manufacturers have registered as members of the auto component manufacturing association (ACMA) in India. Out of which 308 companies are into the export business. Among 308 companies, 119 exporting companies fall in the South Indian region. With the

available export companies in Karnataka, Tamil Nadu and Andhra Pradesh, 108 companies have reached to collect the data who are exporting engine components, drive transmission and steering components, suspension and braking components, body and chassis components, equipments/ tools and accessories, electrical components and other products.

The required information and the data have been obtained from auto component manufacturing firms. In each firm, export managers vice presidents of marketing were asked to fill the structured questionnaire. The background information related to export marketing strategies and the firm's export performance was discussed during the company visit to support the study. 108 export managers are asked to fill the questionnaire to explore the required data because they will have knowledge about international business operations. Out of 119 companies, 108 companies have responded and the response rate was 91%. Primary data has been collected by visiting exporting firms of auto components and managers are asked to fill the structured questionnaire.

The survey method has helped to gather information related to export marketing, export orientation, technological capabilities, strategies related to product, price, distribution and promotion. Having a personal interview also helped me to understand the insights of export behavior of auto component manufacturing companies. The secondary data has been collected from the various online sources such as Infolibnet, annual reports of ACMA, Exim bank, journals and magazines, theses and working papers. The data was collected through a questionnaire by using 5 points Likert scales and also some quantitative data regarding the firm's export orientation and technological capabilities and the export performance. For example, export performance of the auto component manufacturing firms has been measured by using export satisfaction which includes the variables such as satisfaction with export market share compared to export planning, satisfaction with export profitability compared with objectives, a satisfaction of foreign customers as per company's expectations, satisfaction towards the achievement of export sales volume compared export sales plan, satisfaction with export market growth compared to growth plans, satisfaction with export market diversification, satisfaction with gaining a foothold in export markets and satisfaction with expansion to new geographic markets.

FINDINGS

Firm's export orientation

Firm's ability of export orientation of South Indian auto components manufacturing firms such as gathering export market information, capable of using export market information, the role of export mode, relationships and networks, strive to be the pioneer, flexible to modify firm resource base, are the variables used to test the significant relationship with export performance.

Table 2. Relationship between firm's export orientation of auto component manufacturing firms and export performance

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.924 ^a	.854	.845	.43513	
ANOVA ^b					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	111.698	6	18.616	98.324	.000 ^a
Residual	19.123	101	.189		
Total	130.821	107			

a. Predictors: (Constant), Flexible to Modify Firm Resource Base, Strive to be the Pioneer, Relationships and Networks, Gathering Export Market Information, Capable of using export market information, Role of Export Mode

b. Dependent Variable: Export Performance

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.646	.192		-3.369	.001
	Gathering Export Market Information	.369	.072	.346	5.089	.000
	Capable of using export market information	.209	.057	.243	3.689	.000
	Role of Export Mode	.324	.093	.254	3.473	.001
	Relationships and Networks	-.010	.059	-.009	-.171	.864
	Strive to be the Pioneer	.097	.059	.096	1.635	.105

a. Dependent Variable: Export Performance

Source: Data collected and collated by author

The analyses show that the value of R indicating firm's ability of export orientation and export performance have a high degree of correlation (.924) and R² is .854 indicates the variables selected fits the data to the model well. The significance of F change is less than

0.05 which indicates that the firm's ability of export orientation has found a significant relationship with export performance. All the six variables were considered to predict export performance. In this case gathering export market information ($t=5.089, p=.000$), capable of using export market information ($t=3.689, p=.000$) role of export mode ($t=3.473, p=.002$) and flexible to modify firm resource base ($t=3.238, p=.003$) are the factors have significant relationship with export performance. Regression model for Export Performance is $Y=b_0+b_1 \times 1+b_2 \times 2 \dots + b_k \times k + n$

Y = dependent variable, β_0 =Constant, β_1 =Beta1, β_2 =Beta 2, 1= Independent variable 1 2=Independent variable 2.

Export Performance = $-.646 + (.369 \times \text{Gathering Export Market Information}) + (.209 \times \text{Capable of using export market information}) + (.324 \times \text{Role of Export Mode}) + (-.010 \times \text{Relationships and Networks}) + (.097 \times \text{Strive to be the Pioneer}) + (.176 \times \text{Flexible to Modify Firm Resource Base})$

Technological Capabilities

Those firms having a financial problem to acquiring the required technology are trying to have technological collaborations with foreign clients to achieve export goals. Firms prefer to have internal product design facilities to meet changing needs of OEMs in the global markets because the product requirement varies from one client to another client. It is understood that adaptation product strategy is widely accepted by auto component manufacturers due to the availability of R&D facilities, product and process innovation. In addition to the above technological advancement the firms are enhancing their internal technological arrangement for the production of components for export purposes. An internal technological arrangement such as well-designed production and process layout, outsourcing of non-critical products to reduce the cost, arranging training programs to the technical people, shifting from traditional manufacturing systems to the modern method of production systems such as just in time, continuous improvement, registering for IPRs, using flexible manufacturing systems and collaborating research institutions, obtaining quality certifications to meet global quality standards leads to increasing export performance.

Table 3. Relationship between firm's technological capabilities of auto component manufacturing firms and export performance

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Model
1	.964 ^a	.929	.921	.31009	1
ANOVA ^b					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	121.494	10	12.149	126.349	.000 ^a
Residual	9.327	97	.096		
Total	130.821	107			

- a. Predictors: (constant), R&D facilities to test, involve suppliers and customers, technological up-gradation, flexible production system, new product development, develop new service, protect intellectual property rights, re-align manufacturing system, associate with research institutions, improvement in the existing products
- b. Dependent Variable: Export Performance

Coefficients ^a						
Model	c.	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1 (Constant)		-.658	.153		-4.288	.000
<i>Associate with Research Institutions</i>		<i>-.133</i>	<i>.067</i>	<i>-.158</i>	<i>-1.965</i>	<i>.052</i>
<i>New Product Development</i>		<i>.113</i>	<i>.048</i>	<i>.134</i>	<i>2.376</i>	<i>.019</i>
<i>Develop New Service</i>		<i>.322</i>	<i>.051</i>	<i>.445</i>	<i>6.249</i>	<i>.000</i>
Protect Intellectual Property Rights		-.105	.087	-.098	-1.210	.229
<i>Technological Up-gradation</i>		<i>.205</i>	<i>.071</i>	<i>.160</i>	<i>2.865</i>	<i>.005</i>
<i>Re-align Manufacturing System</i>		<i>.284</i>	<i>.078</i>	<i>.261</i>	<i>3.635</i>	<i>.000</i>
<i>Involve Suppliers and Customers</i>		<i>.185</i>	<i>.037</i>	<i>.207</i>	<i>5.066</i>	<i>.000</i>
<i>Improvement in the Existing Products</i>		<i>.328</i>	<i>.101</i>	<i>.303</i>	<i>3.259</i>	<i>.002</i>
<i>Flexible Production System</i>		<i>-.195</i>	<i>.066</i>	<i>-.174</i>	<i>-2.952</i>	<i>.004</i>
R&D Facilities to test		.025	.052	.027	.492	.623

a. Dependent Variable: Export Performance

Source: Data collected and collated by author

Technological capabilities of auto component manufacturing firms are studies such as firm's associate with research institutions, the ability of new product development, capability to develop new service, firm's capacity to protect intellectual property rights, technological up-gradation, re-align manufacturing system, involvement of suppliers and customers in export transactions, improvement in the existing products, flexible production system and R&D facilities are used to test the significant relationship with export

performance. The analyses of this research show the value of R indicating firm's Technological capabilities and export performance have a high degree of correlation (0.964) and R² is .929 indicates the variables selected for the study fits the data to the model well. The significance of F change is less than 0.05 which indicates that the firm's technological capabilities have found a significant relationship with export performance. All the ten variables were considered to predict export performance.

$$\text{Export Performance} = -.658 + (-.133 \times \text{Associate with Research Institutions}) + (.113 \times \text{New Product Development}) + (.322 \times \text{Develop New Service}) + (-.105 \times \text{Intellectual property rights}) + (.213 \times \text{Technological Up-gradation}) + (.284 \times \text{Re-align Manufacturing System}) + (.185 \times \text{Involve Suppliers and Customers}) + (.328 \times \text{Improvement in the Existing Products}) + (-.195 \times \text{Flexible Production System}) + (.025 \times \text{R\&D Facilities to test}).$$

Since the variables such as firm's association with research institutions, the ability of product development, the capability of developing new service, technological up-gradation, re-align manufacturing system, suppliers and customers' involvements in the export transaction decisions, firm's ability to improve in the existing products, flexible production system' significant values are less than the p-value of 0.05 respectively. Therefore, hypothesis statement number 2 i.e., firm's technological capabilities have a significant relationship with export performance has been accepted.

DISCUSSIONS

For the export success, the firms have an ability to gather export information, analyzing and documenting and using it in an appropriate way to achieve export goals successfully through export market research. The export market information has been shared among the departments, subsidiaries of the firm and with export-oriented firms to make them understand the changing needs of the OEM's time to time. The majority of the export-oriented firms are using direct export mode as the choice of international business since the risk involved in export marketing is less. Based on the needs and requirements of the clients in the foreign markets South Indian firms have the ability to modify and flexible enough to tune its physical and financial resources to achieve export goals. For the development of new technology, product design, new service design and patents the auto component manufacturers have tie-up with research institutions for example Indian Institute of Science.

The auto component manufacturing firms have the ability to develop new products (Ex: Automatic transmissions) and new services (Ex: logistics facilities) to meet automotive manufacturers across the globe. Rapid technical upgradations are taking place in auto component manufacturing industries in terms of acquiring software run machineries, production automation, robotics and implementation of zero defect manufacturing systems, improved ability to re-align production systems, flexible manufacturing systems etc., to meet changing needs of OEM's abroad. While executing of export order, it is observed that, both client and suppliers are taken into consideration for designing and developing products and services. Nowadays it is happening through the backward and forward integration process. The firms are coming put with product cross deployment concepts which means the product used for one application in automotive industries can be used in other industrial applications. This is happening through continuous improvement in the existing products.

SUGGESTIONS

Regular market research is strongly suggested to the auto component manufacturers to understand the challenges and opportunities posed in international markets. To do so firm can take the assistance of some market research institution to conduct a survey and for the reports. The firm should progress with the documenting of intellectual capabilities based on internally generated information and externally gathered information to take appropriate export decisions. Direct mode of export is advisable to the auto component manufacturers where they can reduce market risk, financial risk and cost of transaction etc. A high commitment of export managers is suggested in terms of allocating substantial financial and human resources and formulating strategic export planning to execute export orders. Along with the manufacturing and offering of global quality standard components to OEMs, the firm should provide value-added services to the such as logistics facilities, payment of client insurance premium, financing, technical support etc.

Indian auto component manufacturing firms should have technological collaboration, strategic alliances and joint ventures with global automotive manufacturing companies. Through that, the cost of acquiring new technology gets reduced. Firms should work towards establishing R&D facilities, testing and development laboratories within the company to satisfy the changing needs of OEMs across the globe for example, offering innovative products, modified products, producing diversified products etc. The concept of product cross deployment should be followed where the products manufactured for one

application in the automotive industry, can be used in the other industrial applications with little modification where the company can reduce the cost of production and generate more export revenue. Since the quality of the components places a very important role in automotive assembly, therefore the auto component manufacturers should work towards obtaining quality certifications that are globally recognized.

Directions for the future research

The same research can be applied to the other industries which are engaged in international business. Industry comparative analysis also can be done to understand the export performance of the small, medium and large scale companies. The firm's external factors such as export market characteristics and competitive intensity which are influencing export performance can be studied. It is also advised to study the adaptation and standardization of export marketing strategies to find out whether adaptation or standardization is more appropriate for the export business. A number of multiple pertinent variables can be used to study the significant relationship with export performance.

CONCLUSIONS

In the present study, the variables such as the firm's export orientation and technological capabilities of South Indian auto component manufacturing firms have been taken into consideration to test the significant relationship with export performance. The only linear regression analysis has been used to test the significant relationship of the variables selected. Other statistical tools could also have been used for the making a better understanding of the concepts. The research has been carried out only in the southern part of India such as Tamil Nadu, Andhra Pradesh and Karnataka. The samples taken for the study are limited to 108 companies that are exporting auto components to the other countries. The research variables used in the research have been measured based on subjective in nature.

The present research tried to explore the significant relationship of export orientation and innovation capabilities with export performance of auto component manufacturing firms in South India. it is understood that an export information plays a significant role in deciding export marketing strategies. Dissemination of foreign market information is also a considerable factor for the successful export business. The auto components manufacturers are preferring to direct export to reduce the uncertainties in the foreign markets. Setting up of sales branches and having a good network in international

markets also have a positive association with export performance. Firms are coming out with innovative products due to the seriousness pioneering of advanced technology.

The auto component manufacturers in South India are able to adjust the resources needed to complete export orders. In order to develop new ideas and technology these firms have an association with research institutions both in India and outside. Today the component manufacturers are able to develop new services and products to satisfy foreign customers. It is important to register for patents and upgrade technology to cope with changing needs of OEMs abroad. To gain technological competency it is understood that, the firm should realign its manufacturing systems to improve existing products and through R&D efforts. It is also important to note that the firm should take both customers as well as suppliers into consideration during the execution of export orders strategically to achieve the desired level of export performance. The significant contribution of the study helps South Indian Auto component manufacturers to formulate better export strategies to capture market share and export revenue.

REFERENCES

- Al-Doori, J. A. and J. Ahmed. 2019. The impact of supply chain collaboration on performance in automotive industry: empirical evidence. *Journal of Industrial Engineering and Management*, 12(2): 241–53.
- Alshammari, S. D. and R. Islam. 2014. Impact of the antecedent factors on the performance of Malaysian export companies. *American Journal of Economics and Business Administration* 6(2): 89-99.
- Anic, I. D., E. Rajh, and I. Teodorovic. 2009. Firms' characteristics, strategic factors and firms' performance in the croatian manufacturing industry. *Ekonomski Pregled* 9(10): 413-431.
- Arora, V. 2014. Step on the Gas, future thought of business, a Wipro thought leadership initiative. Working Paper, 5th Edition, Jun.
- Carneiro, J. 2011. Determinants of export performance: a study of large Brazilian manufacturing firms. *BAR - Brazilian Administration Review* 8(2): 107–32.
- Chandran, V. G. and R. Rasiah. 2013. Firm size, technological capability, exports and economic performance: the case of electronics industry in Malaysia. *Journal of Business Economics and Management* 14(4): 741-757.

- Chisthy, S. K. 2013. Issues and challenges in the Indian auto component industry with special reference to Indo Thailand FTA. *Indian Journal of Management Science* 3(2): 10-21.
- Chung, H.F.L., C. L. Wang and P. Huang. 2012. A contingency approach to international marketing strategy and decision-making structure among exporting firms. *International Marketing Review*, 29(1): 54-87.
- CRISIL Report 2017. An S and P Global Company. Research Article on Automotive Components, September.
- Divakaran, P. and M. Muthukumar. 2018. A study on emerging markets in Indian automotive industry, Proceedings of the Seventeenth Asia-Pacific Conference on Global Business, Economics, Finance & Social Sciences (AP18Hong Kong Conference) Hong Kong - SAR. January 19-20, (2018). Paper ID: HK838.
- Erdila, T.S. and O. Ozdemir. 2016. The determinants of relationship between marketing mix strategy and drivers of export performance in foreign markets: an application on Turkish clothing industry. - *Social and Behavioral Sciences*, 12th International Strategic Management Conference, Antalya, Turkey.
- Gupta, A. 2018. Exporting and firm performance: evidence from India. *Indian Growth and Development Review* 12(1): 83–104.
- Ha, V.T.C., M.J. Holmes, and T.M. Le. 2020. Firms and export performance: does size matter? *Journal of Economic Studies*. 47(5): 985-999.
- IBEF Report 2021. <https://www.ibef.org/industry/autocomponents-india.asp>
- Jalali, S.H. 2012. Appraising the role of strategy implementation in export performance: a case from middle east. *Business Intelligence Journal* 5(2): 282-291.
- Kahia, M. 2017. MPRA Paper No. 77278, University of Tunis E1 Manar, posted 4 March 2017 09:12 UTC, Online at <https://mpra.ub.uni-muenchen.de/77278/>.
- Kaleka, A. and N. A. Morgan. 2017. How marketing capabilities and current performance drive strategic intentions in international markets. *Industrial Marketing Management* 10(10): 1-13.
- Karedza, G. and K. Govender. 2019. Factors impacting the export performance of SMEs: an exploratory developing country study. *International Journal of Economics, Business and Management Studies* 6(1): 165-179.
- Karymshakov, K. 2020. Determinants of export performance of SMEs in the Kyrgyz republic, Asian development bank institute. Working Paper Series, No. 1152,

- <https://www.adb.org/publications/determinants-export-performance-smes-kyrgyz-republic>.
- Kim, M. and W. Azizi. 2009. The relationship between innovativeness, strategy types, environment and the export performance of small and medium size enterprises (SMEs) of Malaysian manufacturing sector. *The business review, Cambridge*, 13(2): 145-154.
- Kumar, A. and S. Dubey. 2017. The Indian automotive industry: an international trade perspective. Working Paper. Export-Import Bank of India. <https://www.eximbankindia.in/Assets/Dynamic/PDF/Publication-Resources/ResearchPapers/81file.pdf>.
- Kumar, C. P. and S. Singh. 2014. Taxonomy for measurement of firm-level export performance. *Universal Journal of Industrial and Business Management* 2(8): 193-199.
- Linda, A. 2017. Internationalization: entering the Russian market, unpublished bachelor thesis, Lahti university of applied, faculty of business and hospitality management sciences Ltd.
- Malca, O., J. P. Vinces, and A. Fransico. 2019. Export promotion programmes as export performance catalysts for SMEs: insights from an emerging economy. *Small Bus Econ*, <https://doi.org/10.1007/s11187-019-00185-2>.
- Mitra, A.K, and B.P. Joshi. 2014. International competitive advantage of India in auto-component 'bumpers and parts thereof ITC HS - 870810 with selected and economically most important countries of the world. *International Journal of Engineering Research and Management Technology* 1(5): 116-126.
- Mohamad, O, T. Ramayah, and H. Puspowarsito. 2011. Incidence of marketing activities in medium-sized manufacturing firms in Indonesia: comparing export intenders and non-export intenders. *International Journal of Business and Society* 12(1): 89-102.
- More, R. Z. and K. Jain. 2013. Innovation and competitiveness among the firms in the automobile cluster in Pune. *Knowledge Forum: Annual International Conference Paper @ Pune*, <https://doi.org/10.1080/2157930X.2013>.
- Mughal, J. 2012. Assessing the impact of marketing channels on the sales of auto mobile parts: A Study of Recco Auto Parts. *Arabian Journal of Business and Management Review*. 1(12): 86-125.
- Musuva, A.M, M. Ogutu, Z. Awino and J. Yabs. 2013. The influence of firm capabilities on the internationalization and performance of publicly quoted companies in Kenya. *DBA Africa Management Review* 3(2): 40-58.

- Poturak, M. and T. Duman. 2014. The role of marketing standardization/adaptation strategies on manager's satisfaction with export performance: proposal of a conceptual framework, *Russian Federation European Journal of Economic Studies* 10(4): 251-262.
- Sahoo, T., D.K. Banwet and K. S. Momaya. 2010. Strategic technology management in practice: dynamic sap-lap analysis of an auto component manufacturing firm in India. *Global Journal of Flexible Systems Management* 11(1) and (2): 13-24.
- Schroder, M. 2017. Viet Nam's Automotive Supplier Industry: Development Prospects under Conditions of Free Trade and Global Production Networks, *ERIA: Economic Research Institute for ASEAN* 1(5): 1-56.
- Stoian, M.C, 2010. Internationalization and international marketing –export behavior, international marketing strategy and export performance in Spanish small and medium sized enterprises. PhD thesis, Department of Business Economics Autonomous University of Barcelona.
- Stoian, M.C. and A. R. Criado. 2010. Analyzing export behavior through managerial characteristics and perceptions: a multiple case-based research. *Journal of Global Marketing* 23(4): 333–348.
- Tang, R.Y. 2011. An empirical study on the factors influencing international marketing strategy development among successful exporters in Australia. DBA thesis, Southern Cross University, Lismore, NSW. Tenneco Inc, 2017, Annual Report.
- Tiwari, R. and K. Kalogerakis. 2017. Innovation pathways and trajectories in India's auto component industry, Working Paper Number 98, Hamburg University of Technology (TUHH) Institute for Technology and Innovation Management Am Schwarzenberg-Campus 4.
- Torayeh, and M. Neveen. 2011. Manufactured exports and economic growth in Egypt: co-integration and causality analysis. *Applied Econometrics and International Development* 11(1): 111-135.
- Uyar, K. and B. Oralhan. 2017. Innovation capability and export performance of Turkish export firms. *Chinese Business Review*, 16(10): 471-480.
- Vestring, T., T. Rouse, U. Reinert, and S. Varma. 2015. Making the move to low-cost countries. Bain & Company Inc., 131 Dartmouth Street, Boston, Massachusetts 02116
- Workman, D. 2017. Automotive Parts Exports by Country, Working Paper. September 24, BY.