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How marketing capabilities shape entrepreneurial firm's performance? Evidence from new technology based firms in turkey

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Abstract

Prior research has shown that early development of marketing capabilities enable firms to achieve competitive advantage. The entrepreneurial orientation of the firm acts as a catalyst and impacts the market orientation and the marketing capabilities of the firm in a positive way. A high level of entrepreneurial orientation enables the firms to be innovative, take calculated risks and be proactive in their marketing-related activities. The marketing activity of the firm becomes entrepreneurial. In this empirical study, we test the various antecedents and outcomes of marketing capabilities in entrepreneurial new technology-based firms (NTBFs) in a developing country's environment. The study sample consists of 253 small and medium sized NTBFs operating in the METU Technopark, Turkey. The structural equation modelling approach using PLS was employed to test the research hypotheses. Results show that the early development of marketing capabilities of the NTBF significantly impacted performance, prompting implications for policy makers.

Keywords: Marketing capability, Marketing orientation, Entrepreneurial orientation, Competitive advantage, NTBF (new technology-based firms), Technology park

Background

Although there is a lot of evidence that entrepreneurial and market orientation impacts firm performance, there is little understanding of how these capabilities are deployed to obtain competitive advantage. This research adds to the literature on entrepreneurial marketing by drawing from the resource based and the dynamic capability theory.

This research offers new insights that Entrepreneurial Orientation impacts firm performance through Market Orientation and MC. The second contribution of this study is that it explains the mediating role of marketing capabilities between MO and firm performance. The study provides new empirical support to the dynamic capability theory explaining the impact of entrepreneurial orientation in developing market knowledge development and marketing deployment capabilities.

The NTBFs in technology parks are an important source of knowledge transfer from researchers and universities and lead to new business opportunities. The new

technology based firms (NTBFs) face numerous challenges as they move from their early start up to sustainability and growth stages. These firms operate in competitive environments facing uncertainties, risks, and competition while having limited resources. The markets often keep on shifting and are generally fragmented as the NTBFs try to find customers, and position themselves. One possible challenge is the lack of proper marketing capabilities as the firms are more focussed on technology and only use marketing as a tactical tool to market their products. The market and technological turbulence is so severe that technological competency alone is not sufficient to achieve success. These firms must integrate their technological competencies with marketing capabilities to understand customer needs to identify and pursue entrepreneurial opportunities (Dutta et al. 1999; Baker and Sinkula 2005).

In this continuously changing and dynamic scenario, successful NTBFs use marketing in a creative way to understand their customers, market and technology to differentiate their products (Hills et al. 2008). These firms are poised toward the long term and have an obsession for opportunity recognition, value creation and exploitation of the customer need (Collingson and Shaw 2001), which makes the functions of entrepreneurship and marketing critical permeating throughout the firm. Morris et al. (2002) define entrepreneurial marketing as “the proactive identification and exploitation of opportunities for acquiring and retaining profitable customers through innovative approaches to risk management, resource leveraging and value creation.” This description helps to integrate the key marketing and entrepreneurship concepts.

Marketing researchers have been mostly focusing the large corporations and resource plenty firms and have paid less attention to the resource crunched new entrepreneurial firms (Hills et al. 2008). This narrow perspective has led to the lack of research on how the entrepreneur carries out marketing in innovative, resource parsimonious way with relatively lesser developed skills and capabilities (Miles and Darroch 2006). Research on the relationship between entrepreneurship and marketing is fragmented and there is no comprehensive theory developed as yet (Kraus et al. 2010). Even though entrepreneurial marketing is a fragmented research area (Hills and Hultman 2011), it is necessary to develop tools, principles and theories in order to assist new companies, especially technology based start-ups and innovative new small firms to survive and operate in turbulent and changeable environments (Ionita 2012).

There is also a lack of research regarding the effectiveness of science and technology parks in nurturing NTBFs particularly in developing countries, therefore, this study aims to fill the gap by conducting research in one of the more established techno parks in Turkey - the METU Technopark. Previous research shows that small and medium sized companies in Turkey have generally not come up to the expectations of creating knowledge-based, innovative, and internationally competitive NTBFs (Bascavusoglu-Moreau and Colakoglu 2013). This fact underlines the need for studying the capabilities of NTBFs in Turkey in order to assess any in-competencies and problems according to which appropriate strategies and policies can be suggested to enable these firms to be able to compete in the competitive and turbulent global environment.

In order to address our question of how various firm capabilities shape NTBFs' performance we study the impact of marketing and entrepreneurial capabilities on the performance of these entrepreneurial firms.

Theoretical framework

The resource based view (RBV) of the firm highlights the importance of both tangible and intangible capabilities as the source of competitive advantage (Barney et al. 2001). Hamel and Prahalad (1989) introduced the concept of core competencies to enhance competitiveness and firm performance. The resource based view posits that the “firms are heterogeneous and use the resources and assets in an idiosyncratic way to conceive and create value” (Barney 1991). However the RBV has the limitation for its inability to elaborate on how the resources are developed and organized (Priem and Butler 2001). The dynamic capability theory addresses these limitations by positing that the performance variation between firms is not by simple heterogeneity but it is due to the different capabilities firm possess (Eisenhardt and Martin 2000; Makadok 2001). These capabilities are a mixture of the skills and knowledge of the employees that over time embeds in the organizational routines and can be distinguished to be better than other business processes in the organization.

The capabilities consist of a “complex combination of skills and knowledge embedded in organizational routines” (Grant 1996). Dynamic capabilities are those capabilities that “enable the firm to implement strategies using new and different combinations and transformation of resources” to match the changing market conditions (Teece Pisano and Shuen 1997). It becomes important for the firm to develop capabilities that are inimitable, add value are rare and support the organisation’s business strategy (Barney 1991; Day 1994).

The marketing capabilities of the firm are influenced by internal and external factors. The internal factors are represented by market orientation and entrepreneurial orientation of the firm. The external factors are represented by technological change and market turbulence in this research. Prahalad Hamel (1990) and Day (1994) posit that the firms use various capabilities to gain a competitive advantage. Capabilities are developed when tangible and non-tangible knowledge based resources combine through integrative processes to create value for the firm. (Grant 1996). These capabilities are developed by a combination of “knowledge and skills of employees” (Grant 1991, 1996). When the employees repeatedly carry out these “tasks, complex patterns of coordination between people, and resources emerge” (Grant 1991, 1996). These “coordinated patterns are consistent, yet remain dynamic and keep on changing as the firms needs change” (Grant 1991). A salient feature of capabilities development (Prahalad and Hamel 1990) is learning through repetition. Based on these frequent application of skills and efforts, the firms are able to gradually develop capabilities.

Morgan and Vorhies (2009), Vorhies and Harker (2000) and Day (1994) have identified the development of marketing capabilities as a way to achieve competitive advantage. The entrepreneurial firms need processes to recognise, refine, and evaluate opportunities and in turn to develop goods and services to fulfil the needs of customers in selected markets, price these products accordingly, communicate product attributes and to distribute products to customers (Day 1994). According to Day (1994), marketing capabilities are those capabilities that consist of a combination of knowledge, skills and resources enabling the firm to add value to its products and services to be competitive. The repetitive application of marketing knowledge and skills, develops and polishes the marketing capabilities of the firm. Study results show that marketing capabilities play a prominent role in the performance of a firm (Hooley et al. 1999).

Marketing research, pricing, product development, channel management, promotion and market management (Vorhies and Harker (2000) are investigated as marketing capabilities in this study. These six marketing capabilities considered in this study capture both the importance and the effectiveness aspect, because a capability that is important and effective can serve as a basis for competitive advantage (Vorhies and Harker 2000). The marketing activity in entrepreneurial companies is influenced by the circumstances, and can demonstrate opportunism, innovativeness and proactiveness (Davis et al. 1991). The marketing efforts of a firm can be described by less or more entrepreneurial on a continuum depending on the environmental conditions the company is operating in (Morris et al. 2002).

Previous research has demonstrated the impact of external environment on the behaviour of the firms. The external environment is found to impact the structure of the organization and it increases the uncertainty of managerial tasks (Duncan 1972). The variations in the external environment impact a variety of functions of the firm, such as the strategy of the firm (Miller 1988) and marketing (Ruekert et al. 1985). Entrepreneurship stimulates marketers to be more accepting of dynamism and unpredictable and uncontrollable change in markets (Miles et al. 2011). Hence, the market turbulence is defined as the rate of change in customer composition and the change in customer preferences. The technological turbulence is defined as “the rate of technological change” (Kohli and Jaworski 1990). As the environment becomes turbulent, managers are in need for market information to make decisions (Menon and Varadarajan 1992). Firms consider market intelligence gathering as a key function (Kohli and Jaworski 1990). However the collected information must be relevant and be disseminated to the right individuals at the right time so that they can act on it (Jaworski and Kohli 1993). Over a period of time these processes turn in to business routines as the employees apply their knowledge and skills to face the opportunities presented by the environment. “These repeated applications of knowledge and skills” to manage the business and pursue new opportunities result into capabilities (Grant 1991, 1996).

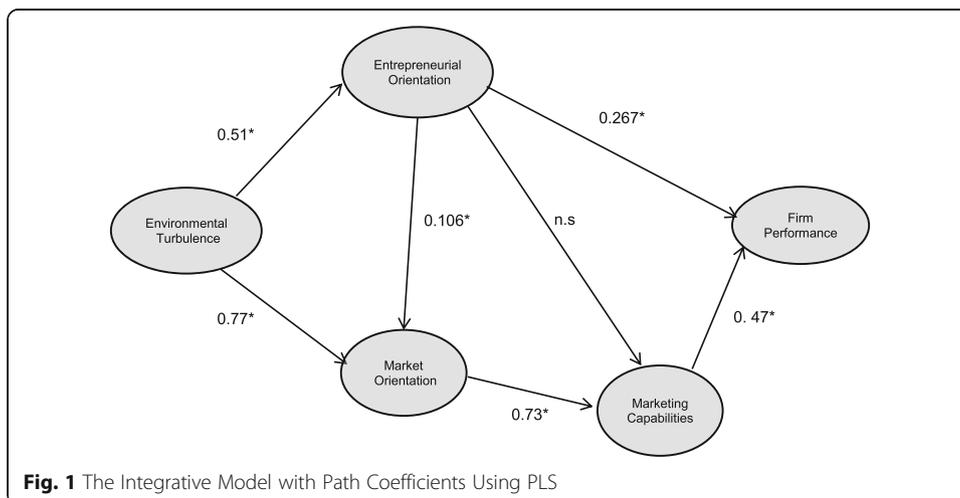
Entrepreneurial orientation measures the level of innovativeness, risk taking tendency and proactiveness in the firm (Covin and Slevin 1994; Zahra and Garvis 2000). Miles and Arnold (1991) propose that entrepreneurial orientation helps companies to strategically respond to turbulence in the environment. Also, prior research shows that there is a strong relationship between entrepreneurial orientation and firm performance (Rauch et al. 2009). The entrepreneurial firms are known by their ability to innovate, initiate change and to rapidly react in a flexible way (Naman and Slevin 1993). Naman and Slevin (1993) define entrepreneurship as “a firm behaviour in which the firm demonstrates innovativeness, proactiveness and risk-taking propensity in their decision making”. Innovativeness in a firm is defined to create an environment that encourages experimentation, new and different ideas, and creativity that can result in to new products, services, processes or technology applications. Prior research shows that innovativeness has a direct positive impact on financial performance (Rubera and Kirca 2012). Risk taking is defined as the proclivity to divert resources to those ventures and ideas that can fail but have a possibility of high rates of return. Proactiveness is defined to aggressively pursue opportunities and to remain at the vanguard of efforts (Covin and Slevin 1989). Also, it is shown that entrepreneurship directly effects marketing capability, innovativeness and sustained competitive advantage, therefore, it is essential to

develop entrepreneurial culture, marketing and innovative capabilities within companies in order to enhance their competitive advantage (Lee and Hsiyeh 2010).

Market orientation is a firm’s cultural phenomenon (Slater and Narver 1994) that enables the firm to concentrate efforts as per market needs. Moreover, it “represents the implementation of the marketing concept” (Kohli and Jaworski 1990). Market oriented firms “possess the ability to generate, disseminate, and respond” to market information in a better way (Jaworski and Kohli 1993). The firms with a high market orientation build a sustainable competitive advantage by refining the opportunity by understanding their customers, and then arranging the resources to deliver the desired value (Slater and Narver 1994). Firms having a strong market orientation are proactive and look in to the future customer needs to develop products to strengthen their market position (Slater and Narver 1998). Bulut et al. (2009) investigated effects of market orientation on Turkish companies’ performance. The findings indicate a strong relationship between market orientation and firm performance. Also, empirical studies have confirmed that market orientation contributed to the success of a new product (Henard and Szymanski 2001). Therefore, firms which look for enhancing market oriented behaviours should see the most instant results in the developing of more effective new products, improving their quality and advancing customer retention (Pelham 1997).

The Market orientation measures the firm’s capability of information collection, dissemination and response at the firm level (Kohli and Jaworski 1990). The marketing capability on the other hand measures the capabilities of various marketing processes i.e. ability to develop new products, price them, promote and place them, ability to conduct marketing research and manage the marketing function. The firm performance construct, is a second order construct measuring profitability and growth. Firm growth measures increase in sales in terms of market share gains (Venkatraman 1989). Sales growth and market share indicate long term and sustainable firm performance (Varadarajan and Clark 1994).

Figure 1 depicts the proposed entrepreneurial marketing framework consisting of various antecedents (Qureshi and Kratzer 2011) and outcomes. An increase in the environmental turbulence requires managers to be more adaptable and flexible in dealing with customers and competitors and with a focus on innovation and entrepreneurship.



Conservative, risk averse and reactive management practices become a liability in a turbulent environment (Achrol 1991; Webster 1981). Firms having strong entrepreneurial and market orientation conduct marketing activities in a different way. In term of the resource based view of the firm entrepreneurial and market orientation are organizational capabilities that create a unique resource leading to better performance (Hult and Ketchen 2001).

During stable environmental conditions, an incremental improvement in marketing related business practices is considered sufficient. However in a turbulent environment dynamic marketing activities become critical. The marketing team has to focus their attention on anticipating the needs of the customers and quickly responding to the moves of the competitors. Turbulence encourages firms to look for new opportunities, be quicker in decision making to find new and alternative products and market opportunities. To be successful, the firms have to deliver customised and unique solutions for various segments of the target market (Deshpande 1999; Sanchez 1999).

The firm's marketing capabilities are influenced by various internal organisational factors i.e. entrepreneurial orientation and market orientation. Weerawardena (2003) has reported the positive influence of entrepreneurial orientation on marketing capabilities. Entrepreneurship provides a filter (Bhuyan et al. 2005) that directs the market intelligence processes of the firm impacting its marketing processes. This point of view is very similar to the dynamic capabilities perspective stating that "learning, coordination and reconfiguration of key organizational competencies leads to competitive advantage" (Teece et al. 1997). The entrepreneurial orientation also has a direct impact (Keh, Nguyen and Ng 2007) on firm performance. A similar study in the context of small Turkish companies also shows that entrepreneurial orientation is positively related to the firm growth (Gurbuz and Akyol 2009).

Market orientation (Menon and Varadarajan 1992; Keller 1994) is an antecedent to the marketing capabilities of the firm. The RBV literature states that superior market orientation leads to superior performance as the firm gains a better understating of the customers, competitors, distribution channels and the market environment (Hult and Ketchen 2001). Market orientation is considered a firm's resource that impacts the development of its marketing capabilities and in turn leads to better performance. Market orientation in an entrepreneurial setting impacts financial and non-financial outcomes (Narver and Slater 1990; Deshpande et al. 1993). In this context the focus is to create new demand for an innovation; to focus their marketing on promotion and selling, to be flexible using past experience and intuition (Hills et al. 2008). Due to their strategic importance, the marketing capabilities of the firm are predicted to positively impact firm performance (Hunt and Morgan 1995).

The following hypotheses are posited from the above discussion.

H1: A higher level of environmental turbulence leads to a higher level of entrepreneurial orientation.

H2: A higher level of environmental turbulence leads to a higher level of market orientation.

H3: A higher level of entrepreneurial orientation leads to a higher level of market orientation.

H4: A higher level of entrepreneurial orientation leads to a higher level of marketing capabilities.

H5: A higher level of entrepreneurial orientation leads to a higher level of firm performance.

H6: A higher level of market orientation leads to a higher level of marketing capabilities.

H7: A higher level of marketing capability leads to a higher level of firm performance.

Method

This research survey was carried out by sending the questionnaire to a total population ($n = 150$) of NTBFs situated in the METU Technopark. The key informer (often a CEO) was asked to fill the questionnaire as he/she is supposed to know and respond well to the survey questions (John and Reve 1982). The data collection was carried out from June 2011 to January 2012. After repeated reminders we received 44 responses (29%) out of which 37 company responses were considered usable.¹ Most of the respondents were the entrepreneurs themselves as they were looking after the marketing function of the firm.

The relationships posited in the model were tested using structural equation modelling by using the PLS (Partial least squares) methodology. Structural equation modelling using PLS has become popular and has been used in other research streams such as strategic management (Hulland 1999), organizational behavior (Higgins et al. 1992) and marketing (e.g., Reinartz et al. 2004).

The PLS method, does not require strong theory and can be used as a theory building method (Gefen et al. 2000). PLS is used for causal-predictive analysis in complex model building but low theoretical information (Joreskog and Wold 1982). Due to the concerns of model identification, and relatively smaller sample size, we used the PLS based structural equation modelling instead of the covariance-based structure equation model.

METU Technopark, Turkey

Recent economic performance has created an optimistic environment and Turkey is being considered as the fastest growing economy with an annual average growth rate of 6.7% (Economic Outlook, 14.06.2012) in Europe and among the OECD countries based on its recent economic performance.

Turkish government is paying special attention to the development of various technology development zones (TDZ) in the country. Technology Development Zones Law defines TDZs as "Sites integrating academic, economic, and social structures at or near the campuses of research universities; advanced technology institutes; R&D centers or institutes; or a technopark involved in these same areas of work. These sites act as a place where new technology based firms produce new products or services using latest technology based on R&D. At present there are 59 trade development zones out of which 44 are operational. (<http://www.invest.gov.tr/en-US/investmentguide> retrieved 7 June, 2015).

Located in the capital city of Ankara, the Middle East Technical University (METU) has more than 23,000 students, 1400 of which are foreign students from 68 countries. The University offers 40 undergraduate programs within five faculties. METU pioneered the science and technology park movement in Turkey in the 1980's and as a result the first technopark in Turkey was founded in 1991 as a joint stock company by Middle East Technical University Development Foundation (METUTECHNOPOLIS, ppt, 2011) and today, it is the biggest science park in Turkey (UNIDO, 2012). The METUTECH is located in the

university campus on 40 ha construction area. METUTACH hosts around 150 technology based firms. The existing company profile of METUTECH companies is based on ITC, software, defense and electronics etc. METUTECH provides incubation support services in the area of international marketing, IPR, strategy and legal issues.

METUTECH was formed in order to support the formation and development of companies which were using high-technology, ensure the development of technology and also enhance collaboration between university and industry. Besides, it was aimed to contribute to studies that aim to facilitate the transfer of university research results into economic values and enhance the country's competitive position in the international arena through uplifting its economic and technological level (METU-TECHNOPOLIS, 2011). The objectives of METUTECHNPARK are to promote international collaboration, networking, support innovation and entrepreneurship and to create a suitable environment for technology transfer and to promote university based startups and spinoffs.

There are 150 companies working in the METUTECHNPARK, 75% of which are small-medium sized companies. https://www.unido.org/fileadmin/user_upload/Europe_and_Central_Asia_Regional_Conference_on_Industrial_Parks_as_a_tool_to_foster_local_industrial_development.pdf. Export values of METUTECH is increasing year by year, with 2.9 million dollars in 2002, it reached 198.1 million dollars by 2010. METU-Technopark is considered a successful model for promoting technological innovation, technological entrepreneurship, commercialization and technology transfer (Al-Mubarak and Busler 2012).

Measurement

The constructs used in the study are based on previously developed and used scales. The respondents were asked to assess their firm on a Likert scale.

Environmental turbulence was used as a second order construct consisting of market turbulence and technology turbulence. Market turbulence is measured by considering the change in the composition of customers over a period of time and the change in preferences of the firm's customers over time (Jaworski and Kohli 1993). Technological turbulence is measured by taking in to account the change in technology in an industry over a period of time (Jaworski and Kohli 1993).

Entrepreneurial orientation measures the innovative, proactive and risk seeking attributes of the firm. High entrepreneurial orientation indicates that the entrepreneur values innovation, proactiveness and has a high tolerance for risk. The items for this scale are based on the scale of Naman and Slevin (1993).

Market orientation is measured using modified scale based on the scale developed by Jaworski and Kohli (1993). This scale consists of three sub constructs i.e. market intelligence generation, dissemination of market intelligence within the company, and responsiveness to market intelligence. The marketing capability construct was measured using the scale developed by Vorhies and Harker (2000). Respondents were asked about various marketing capabilities in their firm ranging from new product development, pricing, promotion and distribution of products along with marketing research capabilities and marketing management capabilities. Each of these sub-constructs was measured with multiple items.

Many researchers in the strategic management literature have measured the firm performance construct by keeping in view two dimensions i.e. financial performance

(profitability, ROI, ROA etc) and market performance (market share and sales growth etc). This study has used the scale developed by Spanos and Lioukas (2001) that consists of market and financial performance. The market share and sales growth indicators measure the market performance. The return on investment and return on sales indicators measure financial performance. The respondents assessed their firm’s performance relative to their main competitors.

Results of hypothesis testing

Most of the survey respondents were the entrepreneurial CEOs themselves who were involved in the marketing activities of the firm and therefore had the necessary understanding to respond to the questions.

The scales used in the research were tested using confirmatory factor analysis (CFAs). The scales were tested to check the item loadings, unidimensionality, discriminant and convergent validity (Hair et al. 1998). All the constructs used in the study exceeded the loading threshold of 0.50. Discriminant validity (Churchill 1979) was also tested using factor analysis. The items had higher loadings with their corresponding factors in contrast to their cross loadings. The internal consistencies (reliabilities) as given in Table 1 are within acceptable limits (Nunnally 1978).

The hypothesized model was tested using a PLS based structural equation modelling program called SmartPLS (Ringle et al. 2005). Summated scales of the various constructs were used. The empirical results are presented in Fig. 1.

Marketing capability construct consists of various capabilities i.e. capability for new product development, conducting market research, capability to price, promote and distribute the products and the capability to manage the market management function. The factor loadings represent the strength of the interrelations between marketing capability and the sub constructs. The factor loadings are presented in Table 2. The market management indicator sub construct had a high value of 0.845, followed by promotion

Table 1 Reliability estimates for the measures

	Chronbach Alpha (Reliability)
Marketing Capability	0.817
Market Research	0.952
Pricing	0.626
Product Development	0.926
Channels	0.871
Promotion	0.862
Market Management	0.868
Environmental Turbulence	0.69
Market Turbulence	0.772
Technological Turbulence	0.722
Market Orientation Scale	
Intelligence Generation	0.721
Intelligence Dissemination	0.820
Responsiveness	0.813
Entrepreneurial Orientation Scale	0.69
Firm Performance	0.93

Table 2 Factor Loadings for various constructs used in the model

Environmental Turbulence	
Market Turbulence	0.867
Technology Turbulence	0.908
Entrepreneurial Orientation	
Proactiveness	0.879
Risk Taking	0.799
Innovativeness	0.694
Market Orientation	
Information Generation	0.912
Information Dissemination	0.912
Response	0.914
Marketing Capability	
Marketing Research	0.824
Marketing Management	0.845
Product Development	0.702
Channels	0.730
Pricing	0.514
Promotion	0.826
Performance	
Market share growth relative to competition	0.637
Growth in sales of our products and or services	0.673
Business profitability	0.551
Return on Investment	0.561
Return on Sales	0.566

(0.826), market research (0.824), channels (0.730) product development (0.702) and pricing (0.514).

The factor loading of the various sub constructs of the Entrepreneurial orientation construct i.e. innovation, proactiveness and risk taking had a value higher than 0.694. Market orientation consists of intelligence generation, dissemination and response. The factor loadings of all the sub constructs of the marketing orientation construct had a loading higher than 0.91. Market and technological turbulence had a factor loading higher than 0.86.

The coefficient of reliability and the average variance extracted (AVE) was also obtained using PLS to assess the measurement models. The coefficient of reliability had a value of 0.8 to 0.9 for all of the constructs indicating the internal consistency of the constructs. The AVE value was between 0.5 to 0.81 for all constructs.

Testing of the overall model

The results of the model in the form of path coefficients are presented in Fig. 1. Most of the hypotheses posited in the study are supported. The impact of environmental turbulence on market orientation (0.77) and entrepreneurial orientation (0.51) was found to be high and significant.

Entrepreneurial orientation has significant impact on market orientation. However it does not have any significant impact on marketing capabilities and therefore hypothesis

H4 is not supported by the data. Entrepreneurial orientation directly and indirectly impacts firm performance through mediating variables such as market orientation and marketing capabilities. Entrepreneurial orientation with a weight of 0.267, has a direct impact on firm performance. Market orientation had a very high impact on marketing capability with a weight of 0.73, followed by that of marketing capability on performance with a weight of 0.47.

The above findings suggest that the NTBFs (new technology based firms) need to continuously focus on the development of marketing capabilities to attain firm performance. The environmental turbulence along with the entrepreneurial and market orientation has a direct and indirect effect on the marketing capability of the firm. Table 3 depicts the total effects i.e. direct and indirect effects of various constructs on firm performance. Marketing capability has the highest total effect on performance (0.477), followed by environmental turbulence (0.387), market orientation (0.348) and entrepreneurial orientation (0.217).

Marketing capability with an R^2 of 0.361 has the highest explanatory share for firm performance. Emphasis on the building of strong capabilities in the areas of marketing, market and entrepreneurial orientation can enable firms to attain higher firm performance.

Discussion and implications

All hypotheses posited in the study except H4 are found to be statistically significant and therefore support the entrepreneurial marketing model in Fig. 2.

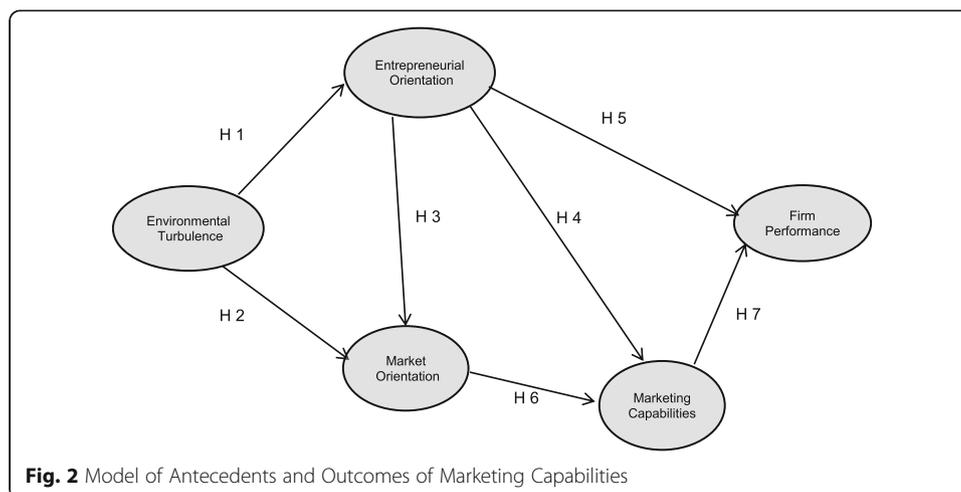
Environmental turbulence significantly impacts on the entrepreneurial and market orientation of the firm. This requires firms to be adaptable and flexible in dealing with competitors and customers to be innovative and entrepreneurial. Strong entrepreneurial and market orientations, leads to a different approach and perspective to the marketing function.

In a turbulent environment, the firm owners need to be entrepreneurial while emphasizing the marketing function. A strong entrepreneurial and market orientation enables firms to make quick decisions and thus opens new opportunities. The entrepreneurial firm has to customise its marketing efforts and to come up with variety of products and services for various segments (Deshpande 1999; Sanchez 1999). As a result the firms engage in innovative, proactive, opportunistic, risk taking, customer focussed, and value added marketing activities (Morris et al. 2002).

Market orientation also significantly impacts marketing capabilities. Market orientation capabilities influence and augment the marketing capabilities of the firm (Menon and Varadarajan 1992; Keller 1994). Entrepreneurial orientation and marketing capability significantly impact the firm performance. Entrepreneurial orientation is also reported to impact the marketing capabilities of innovative firms (Weerawardena 2003).

Table 3 Total effects

	Entrepreneurial Orientation	Market Orientation	Marketing Capabilities	Firm Performance
Environmental Turbulence	0,512	0,77	0,524	0,387
Entrepreneurial Orientation		0.107	-0.035	0,250
Market Orientation			0,730	0,348
Marketing Capabilities				0,477



The research findings have the following managerial implications. The new technology based firms are recommended to invest in developing entrepreneurial and market orientation to further develop marketing capabilities for better firm performance. A strong entrepreneurial orientation not only helps managers to identify and pursue new opportunities, but also helps them to identify and arrange the resources necessary to pursue these opportunities. Entrepreneurs need to proactively engage in acquiring information to predict future trends and then develop strategies accordingly (Moorman 1995).

This information acquired is used in discovering the unmet latent needs that are not apparent to competitors (Jaworski et al. 1993). The knowledge of these latent needs helps and guides the firm to develop the relevant marketing capabilities. Firms with higher marketing capabilities have a competitive advantage as compared to firms with a lower degree of marketing capability. The research further suggest that market research, market management in terms of segmentation, managing the marketing programs and promotion are relatively more important marketing capabilities in the context of the small new technology based firms. It is recommended that resources shall be allocated for the development of these capabilities on a priority basis. Turkish small technology firms should develop their marketing skills in order to enhance their brand value and by doing so, to get a longer-term competitive advantage which will lead to high performance.

Conclusions

This research has provided useful insights into the marketing capability construct and the different variables impacting it in the case of Turkish small technology firms. It may be noted here that the market orientation has a direct positive impact on the development of marketing capabilities, while entrepreneurial orientation has indirect effect through market orientation on marketing capability. Firms having higher level of marketing capabilities demonstrate a higher performance. The results of this research reinforce the capability theory and the role of marketing capabilities in achieving sustainable competitive advantages (Day 1994; Vorhies and Morgan 2005) particularly considered critical for the development and growth of NTBFs.

This research contributes to the entrepreneurship and marketing interface literature and verifies the proposition that higher levels marketing capabilities lead to higher firm performance (Morris et al. 2002). Furthermore, this study fulfils a gap in the literature regarding new technology based firms in Technoparks and provides useful insights to the nurturing of small and medium size companies that operate in the METUTECH.

There are however some limitations of this research: One of the limitations of the study is the use of the key informant approach (Campbell 1955; John and Reve 1982). While the use of key informant approach is common in marketing research, it poses potential validity problems (Phillips 1981). The literature recommends the use of multiple informants (Hogarth and Makridakis 1981) to overcome this problem; however some researchers report that CEOs of small firms provide reliable and valid data comparable to multiple informants (Zahra and Covin 1993). John and Reeve (1982) suggest that the key informant bias can be minimised if the researchers take due care to find the right respondent. In our study in most of the cases the entrepreneurs themselves were the respondents to the questionnaire. However due to the importance of the key informant issue the results of this study may be interpreted with caution.

Another study limitation is the number of companies who responded to the survey. Even though the total number of companies in the Technopark was 253, just 37 of them completed the survey. Such a condition can be explained by the lack of willingness of companies to take part in exploratory research because of a survey fatigue common in such research.

Since this study was conducted in one geographical location i.e. METU Technopark, it is therefore recommended to replicate this research in other technoparks and locations as well to confirm the results.

Endnotes

¹A significant number of the total 150 small and medium sized tenant firms in the Park are support organizations (both public and private). Therefore excluding these service firms the response rate of the targeted NTBFs was higher than 24.6% (around 25%).

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Authors' contributions

Dr. Shahid is the main author. Dr. Nergis provide access to the METU technology park and contributed in the literature review. Prof Mian helped in the writing and analysis. All authors read and approved the final manuscript.

Competing interests

There are no competing interests of the authors.

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