

Social media adoption and export intensity: the moderating role of firm size

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Abstract

Purpose – Social media (SM) networks offer a golden opportunity for firms that particularly engage in international activities to set up sustainable customer relationships and improve competitiveness. The purpose of this study is to examine the influence of SM adoption on the export intensity (EI) of firms listed on Borsa Istanbul (BIST) for the years 2010–2020. The authors use social media index (SMI) to measure SM adoption and firm size (FSize) as a moderator on exploring the interaction of SM and EI.

Design/methodology/approach – Using a sample of 150 firms listed on the BIST Industrials Index, this study explores how the adoption of SM affects EI by using panel data analysis over the period of 2010–2020.

Findings – The results indicate that the SMI has a positive and significant effect on the EI. FSize positively moderates the interaction of SMI and EI, indicating that large firms benefit more from the SM in increasing export performance. The findings reflect high potential of EI improvement through adopting right SM policies in emerging markets.

Research limitations/implications – The sample covers only public companies listed on the BIST Industrials Index. Future studies may extend the coverage and include multiple emerging markets to draw generalized results for the export-oriented firms. This research also analyzes solely four SM networks, i.e. Facebook, Instagram, Twitter and YouTube. However, there are many other SM networks that firms use in online marketing in foreign markets. Finally, this research did not discuss the potential factors that could influence the use of SM in emerging market firms.

Practical implications – This study denotes the significant role of SM adoption on the EI of firms in an emerging market setting from the perspective of resource-based view. It presents an insightful approach in understanding the mission played by SM networks in enhancing the EI of Turkish firms. Policymakers may use the findings to develop public support programs to promote the adoption and implementation of the SM among exporting firms in emerging markets.

Originality/value – The study provides evidence on the effects of SM adoption on the EI from the perspective of emerging countries. It also helps to gain a deeper understanding of how different SM platforms contribute to the internationalization of firms.

Keywords Export intensity, Facebook, Instagram, Social-media, Turkey, Twitter, YouTube

Paper type Research paper



1. Introduction

Recent development in information and communication technologies has created revolutionary changes in business environment and has transformed the interaction of companies and people by digital means such as smartphones, social media (SM), Web blogs

and other internet-based applications, resulting in striking influences on business practices (Aronica *et al.*, 2021; Kane, 2015; Mazzucchelli *et al.*, 2021). Many firms launch Facebook pages, Instagram accounts and YouTube channels to improve customer relationship. According to Digital Global Report issued by DataReportal in 2023, 59% of the world population (4.7 billion users) use SM. Another report produced by Smartinsights (2023) show that the world's most used SM platforms are Facebook (2.9 billion users), YouTube (2.5 billion users), WhatsApp (2 billion users) and Instagram (2 billion users) by 2022. SM platforms also alter business perception and present a golden opportunity for firms by facilitating information flow with consumers and raising access to new markets (Hao and Song, 2016; Okazaki and Taylor, 2013).

On internationalization perspective, Web-based applications and capabilities reduce distances and enable firms to gain visibility and competitive advantage in cross-border markets by online marketing (Cassetta *et al.*, 2020; Olanrewaju *et al.*, 2020; Rasel, 2017; Sinkovics *et al.*, 2013; Zhang *et al.*, 2013). Companies exploit SM platforms to develop customer-oriented contents to penetrate new markets and increase export performance. In this context, SM adoption eases the interaction of firms and foreign customers and play a vital role in promoting export performance, particularly for emerging market firms (Imran *et al.*, 2017; Leonidas *et al.*, 2011). Many studies show that SM platforms stimulate e-commerce, business-to-business and business-to-consumer relationship and influence international marketing strategies (Berthon *et al.*, 2012; Brettel *et al.*, 2015; Huijun and Hurd, 2018; Kurt and Kurt, 2020; Okazaki and Taylor, 2013; Sinkovics and Sinkovics, 2020; Zahoor and Qureshi, 2017). Interactive communication also helps companies to know the preferences of customers and respond to them promptly (Hurmelinna-Laukkanen *et al.*, 2020). This interaction empowers consumers in the marketing process and pushes export-oriented firms to manage valuable analytics to access to foreign markets, shifting the power from suppliers to buyers in the global value chain (Alarcón-del-Amo *et al.*, 2018; Cavusgil and Knight, 2015; Zahoor and Qureshi, 2017). Furthermore, firms use SM channels in building new online branding opportunities, practicing innovative approaches, promoting new products and better competing with their rivals (Granata and Scozzese, 2017; Kaplan and Haenlein, 2010; Trainor *et al.*, 2014).

Despite the great potential of SM, particularly for export-oriented firms, there are relatively few studies that investigate the relationship between SM adoption and export intensity (EI) in emerging markets (Alarcón-del-Amo *et al.*, 2018; Gibreel *et al.*, 2018). Unlike prior studies that have mostly evaluated the effect of SM adoption on firm performance, this study adopts the view of SM as a resource that can be used by firms to facilitate their export performance. In this sense, this work examines the relationship between SM adoption and EI for a sample of 150 firms listed on Borsa Istanbul (BIST) for the years 2010–2020. It also explores whether firm size (FSize) moderates this relationship. This study contributes to the literature in threefolds. First, it investigates whether SM adoption serves as a powerful resource for export firms in an emerging market setting, i.e. Turkey, to obtain sustainable competitive advantages. In this frame, it follows a firm-level perspective and sets out how a firm's success in abroad markets relies on its ability of SM adoption in terms of developing and harnessing its relationships in internationalization activities. Second, this research examines whether FSize exerts a moderating role on the relationship between SM adoption and EI. Turkey is an interesting setting for this analysis. According to a report produced by Datareportal (2023), 80.8% of the population in Turkey are SM users and the share of SM in the total digital advertising is 26.8% (US\$184m) by 2022. Finally, this study analyzes four SM platforms, i.e. Facebook, Instagram, Twitter and YouTube, to explore whether the effect of the SM adoption on the EI differs depending upon the SM platform.

The rest of the study is organized as follows: Section 2 reviews the literature and develops the hypotheses. Section 3 presents the data and methodology, whereas Section 4 provides the empirical findings. The paper concludes with a discussion of the practical implications of the study and avenues for future research in Section 5.

2. Literature review and hypotheses development

2.1 Conceptual and theoretical framework

Digital transformation through SM provides firms new means to process information and to develop new business lines by faster accessing to foreign markets and better engaging with new people. Neural networks on processing personal characteristics and preferences of customers enable firms to alter marketing, sales and supply chain strategies, operate in a more innovative way and reshape internationalization activities (Arenius *et al.*, 2006; Jara *et al.*, 2014; Leonidas *et al.*, 2011; Zhang *et al.*, 2013). Internet-based applications also improve business intelligence, service quality and customer relationship of firms, playing a significant role in competitiveness.

Many studies show that SM networks give firms a greater ability to take advantage of international growth opportunities, facilitate customer–firm interaction and highly contribute to increase export performance by the exchange of information and accumulation of social capital through deploying new technologies (Alarcón-del-Amo *et al.*, 2018; Okazaki and Taylor, 2013; Rapp *et al.*, 2013; Trainor *et al.*, 2014). This is particularly important for small and medium size firms (SMEs) that have difficulty in accessing to new customers in foreign markets. SM is also an important tool for improving recognition, reputation, brand management and online public relations of firms, empowering them to align with customers and raise their loyalty (Durkin *et al.*, 2013; Dutot and Bergeron, 2016; Godey *et al.*, 2016). This visibility and awareness strengthen ongoing communication and involvement of firms with the customers' needs and problems to provide them better support services and to offer novel products. It also provides companies to access potential customers in diverse markets and increase export through e-commerce (Ahmad *et al.*, 2018; Al Bakri, 2017; Brettel *et al.*, 2015; Cavusgil *et al.*, 2009). Thus, firms should develop new policies for SM adoption, and online marketing communication to increase customer value creation, and contribute to the profitability of firms (Sinkovics and Sinkovics, 2020).

There are three prominent theories that could be incorporated to explain the relationship between SM adoption and EI. The first theory is resource-based view (RBV). It is used to explain SM adoption and the extent of SM use (Kacker and Perrigot, 2016). RBV claims that firms implement strategies based on their resources and capabilities to achieve high corporate performance (Barney, 1991). SM, as a marketing avenue, offers opportunities for export firms that lack resources, knowledge and skills (Castronovo and Huang, 2012; Dhanaraj and Beamish, 2003; Zahoor and Qureshi, 2017; Zeriti *et al.*, 2014). In this study, RBV provides support for the link between SM adoption and value creation for export-oriented firms. SM platforms enable these firms to capitalize on the networks of direct and indirect relationships and help them achieve the competitive advantage of using in-hand resources (Imran and Jian, 2018). SM offers diverse networks to access information, business analytics, and social capital. Firms use these resources to enhance international market performance and to actively broaden the network of relationships abroad. Hence, SM is a viable internet-based resource capability and a powerful enabling technology that could remarkably improve EI through enhancing the decision-making behavior of customers in foreign markets. There remains, however, a lack of understanding of SM adoption as a resource in the context of RBV in emerging markets setting. Many firms in emerging markets without business networks often face with challenges abroad (Imran *et al.*, 2017).

SM adoption performs a significant role in collecting knowledge about competitors, engaging customers' needs and stimulating sales (Itani *et al.*, 2017; Tajvidi and Karami, 2017). In a recent study, Qalati *et al.* (2022) indicated the significant effect of SM adoption on the firm performance in the form of improved interactivity, reputation, relationships, visibility and customer service in emerging countries.

Firms may use SM and online communication as inimitable resources due to strong power of electronic word of mouth (Bulearca and Bulearca, 2010). For instance, Twitter messages may influence the behaviors of other consumers and may push firms to adopt new policies on meeting the needs of customers. Studies show that firms that do not have physical presence abroad may achieve better export performance by digital marketing (Aronica *et al.*, 2021; Cassetta *et al.*, 2020; Mazzucchelli *et al.*, 2021). Durkin *et al.* (2013) analyzed the SM adoption of the Irish firms and indicated that different approaches to SM vary according to customers' profile, firm resources and competency levels, showing that RBV is an appropriate option. In a study held on 42 Italian firms, Faraoni *et al.* (2017) found that firms with a high level of SM engagement have a higher perception of resource allocation.

A performance-focused theory extended from the RBV is the dynamic capability view (DCV). Many studies argue that SM can be used to create dynamic capabilities that lead to better performance and competitive advantage when it is combined with available resources in a changing environment (Cenamor *et al.*, 2019; Chuang, 2020; Guha *et al.*, 2018; Harrigan and Miles, 2014; Odoom and Mensah, 2019; Ye *et al.*, 2022). The DCV asserts that firms generate different capabilities that enable them to configure their resources to meet business goals. These capabilities may help firms to shape their orientations to remain competitive during turbulent market conditions. Particularly, firms in emerging markets leverage on internal and external capabilities to generate augmented benefits of their international activities (Odoom and Mensah, 2019). SM adoption can provide firms with dynamic capabilities that enable them to respond more quickly and effectively to changes in the markets, which can enhance their export performance by enabling them to exploit new opportunities and overcome challenges more easily.

The third theory is the social networks theory (SNT). It basically explains the process of using the benefits of SM networks for companies (Huijun and Hurd, 2018; Quinton and Wilson, 2016; Yamin and Kurt, 2018). SM networks directly connect firms with consumers and suppliers in international markets, enabling them to gain experience and knowledge and, thus, minimize the diverse impacts of physical distance. SNT asserts that SM networks assist export-oriented firms in managing the costs of overcoming foreignness in the process of obtaining information and in increasing their access to valuable resources. Customers that use SM are interconnected in various external social networks. Thus, firms can capture and deploy knowledge resources from customers through these networks to improve export performance (Cheng and Shiu, 2019). Using the data of Chinese firms from 2005 to 2017, Cao *et al.* (2022) indicated that social networks play a vital role between internationalization and firm performance. Other studies find similar results (Freixanet *et al.*, 2021; Gashi *et al.*, 2014), supporting the power of social networks on export performance.

The effect of SM differs between developed and emerging markets as SM networks usually require an efficient management system. Firms in emerging markets have limited resources, lack of experience and difficulty in acquiring information, which is necessary for export compared to the firms in developed markets. Therefore, being successful on foreign markets receive much attention in emerging markets at the firm level (Samiee and Chirapanda, 2022). Companies in emerging markets face challenges in accessing financial and technological resources in gaining power for international operations and managing

trade barriers and business risk. Potential entry barriers include limitation of resources, physical distance from host countries, operating in a different cultural environment and different business practices. Moreover, accessing data on consumer preferences, markets and legal framework is costly. On this respect, SM offers new opportunities for firms in accessing resources, knowledge and skills to increase export performance (Ren *et al.*, 2017). Many firms prefer to overcome these issues by using SM networks and virtual communities (Granata and Scozzese, 2017; Zhou and Charoensukmongkol, 2020). They use SM for online marketing, creating interactions with communities by customer management relations to increase EI (Alves *et al.*, 2016; Dutot and Bergeron, 2016; Mazzucchelli *et al.*, 2021; Zeriti *et al.*, 2014).

2.2 Hypothesis development

2.2.1 Social media adoption. SM networks provide companies the opportunity to create a direct link with customers abroad and acts as a powerful marketing tool to motivate people to purchase goods and to introduce new line of innovative products (Ren *et al.*, 2017). It also improves data management, technological upgrading of processes and better conduct of international activities. In this sense, it assists exporting firms by reducing market lag through real-time and synchronous exchange of knowledge and stimulating internalization efforts through exploiting information on customers. This competitive advantage encourages firms to integrate SM with internal capabilities and build unique capacities to differentiate themselves from the rivals (Cassetta *et al.*, 2020). This is particularly important for small firms that face difficulties with physical appearance, data collection from new customer groups and markets in competing with large firms in international markets (Zhang *et al.*, 2013). SM offers them opportunities to access abroad markets and increase marketing power. Hence, companies that effectively use SM networks become more familiar with foreign customers and their cultural habits and preferences to succeed in export.

Most of the previous studies found a positive relationship between SM adoption and export performance (Alarcón-del-Amo *et al.*, 2018; Alarcón-del Carmen *et al.*, 2015; Berthon *et al.*, 2012; Karavdic and Gregory, 2005; Mazzucchelli *et al.*, 2021; Zeriti *et al.*, 2014). Okazaki and Taylor (2013) claim that SM adoption has unique implications for improving export performance. In a study held on Spanish firms, Alarcón-del Amo *et al.* (2016) show that managers' beliefs about SM capabilities for dealing with foreign customers directly influence international business and the use of internet-based applications increase EI. Arslandere *et al.* (2020) analyzed 188 Turkish exporting firms and found that promotional activities using information and communication technologies have a positive impact on brand management but have no significant direct effect on export performance. Thus, we propose the following hypothesis:

H1. There is a positive association between social media adoption and export intensity.

2.2.2 Firm size. The effect of SM on export performance may depend on several organizational factors. FSize is one of them. It may change the degree to which SM networks enhance firm performance in consideration of international expansion (Raguseo *et al.*, 2020). Export is usually the first phase of internationalization as it has a relatively small commitment of business resources to foreign markets. It allows firms to test a foreign market for the first time, to become familiar with different national market rules, to get in contact with clients with different preferences and to develop internal resources in serving international markets (Majocchi *et al.*, 2005). In this sense, export is the optimal mode of internationalization for small firms and the international activities of these firms develop incrementally over time. On the other side, export is used by large firms in combination with

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other forms of international expansion. They use the accumulation of international experience to increase international involvement. Consequently, the export activities of firms differ significantly in terms of business size (Faraoni *et al.*, 2017).

This research spotlight on FSize as a moderating variable to assess the interaction of the SM adoption and EI. The diverse internet-based applications and expertise in large firms increase the power of strategy formulation and, thus, decision-making. Many studies find a positive relationship between FSize and export performance (Aaby and Slater, 1989; Sousa *et al.*, 2008). Therefore, we propose the following hypothesis:

H2. Firm size positively moderates the interaction of social media adoption and export intensity.

3. Data and methodology

3.1 Sample

Our sample covers 150 companies listed on the BIST Industrials Index for the years 2010–2020. We choose nonfinancial firms as they contribute 25% of the gross domestic product and account for 94% of Turkey’s exports. The sample, i.e. 150 firms also constitute 97.83% of the market capitalization in the BIST Industrials Index by 2020. We collect company-wise data from Central Depository of Turkey, Public Disclosure Platform, annual reports of firms and company Web pages. The distribution of the firms that use SM across industries is shown in Table 1, whereas Table 2 shows SM networks that are mostly used by the firms, i.e. Facebook, Instagram, Twitter and YouTube. Table 1 indicates that 90 out of

Table 1.
Distribution of companies that use social media across industries as of the year 2020

Industry	N	Social media usage		No (N)	Yes (N)
		No (%)	Yes (%)		
Food beverage	25	44	56	11	14
Textile leather	16	25	75	4	12
Wood paper printing	13	54	46	7	6
Chemical petrol plastic	29	38	62	11	18
Nonmetal min. product	15	33	67	5	10
Basic metal	18	50	50	9	9
Metal products and machinery	29	31	69	9	20
Other industries	5	80	20	4	1
Total	150	40	60	60	90

Source: Table by author

Table 2.
Types of social media used by exporting firms as of the year 2020

Social media	N	%
Facebook	82	54.67
Instagram	69	46.00
Twitter	67	44.67
YouTube	52	34.67
Total	150	100.00

Source: Table by author

150 firms (60%) adopt SM. One may note the dominance of SM adoption in the textile leather (75%) and metal products and machinery (69%) industries. To create social media index (SMI), we collect the data for Facebook, Instagram, Twitter and YouTube manually from the Web pages of the firms. We have 1,650 firm-year observations.

3.2 Variables

We use SMI and Facebook, Instagram, Twitter and YouTube adoptions as the independent variables in our analysis. As proposed by [Slover-Linett and Stoner \(2010\)](#), SM presence is considered official if it is linked from the corporate website. We use a dummy variable taking value 1 if the firm uses Facebook, Instagram, Twitter or YouTube and 0 otherwise. SMI is calculated by summing the dummy values of Facebook, Instagram, Twitter and YouTube.

Following prior studies ([Buck et al., 2007](#); [Gao et al., 2010](#); [Lu et al., 2009](#)), we used EI as a dependent variable to measure export performance and calculated it by the ratio of export sales to total sales. We use two firm-specific control variables that may influence EI, i.e. marketing intensity (MI) and internationalization age (IntAge). The FSize is used as a moderating variable. We also incorporate industry as a dummy variable in conducting the regression analysis. [Table A2](#) in the [Appendix](#) provides the measurement of the variables.

Marketing capabilities have a vital impact on the success of companies in international markets. Firms advertise to increase demand and set up a unique position for their products. All these attempts help increase export sales. In addition, some of the branding effort held on the SM serves local as well as international markets ([Singh, 2009](#)).

International experience is vital for firms' survival and quick and easy access to foreign markets ([Kuivalainen et al., 2007](#)). Firms accumulate experience, initiate organizational learning and minimize uncertainty in target markets. [Meschi et al. \(2017\)](#) show that firms that follow this approach perform better than those that do not. Thus, we include IntAge as a control variable and compute it by the year the firm started exporting.

The EI of companies differs from one industry to another. For example, SM may be more beneficial for firms operating in industries with high level of customer engagement. Similarly, the influence of SM adoption on companies in manufacturing and technology-based industries may be stronger due to their relatively high export potential. Thus, we incorporate industry dummies based on the BIST sectoral classification in our models to control the industry effect.

We use FSize as a moderator in this study. FSize plays an influential role in the EI. Relatively small companies may have difficulties in reaching international markets due to insufficient capacity and efficiency, whereas large firms may have the ability to easily cope with international operations and may accumulate necessary resources to direct greater efforts to export ([Bonaccorsi, 1992](#); [Kang and Park, 2018](#)). Earlier studies show that large companies could better manage the risks of internationalization by using more experienced human and financial resources and using higher production capacity, whereas SM is a suitable tool for small firms if it is a cost-effective solution to reach potential customers, build customer trust and gain knowledge about foreign markets ([Calof, 1994](#); [Marolt et al., 2022](#); [Serra et al., 2012](#)). Thus, large firms have advantages in export activities ([Gao et al., 2010](#); [Lu et al., 2009](#)).

[Figure 1](#) outlines the research framework along with the hypothesized relationships.

3.3 Methodology

We estimated the following regression model to analyze the effect of the SM adoption on the EI. There are year dummies (Year) and industry dummies (Industry) in the model to control

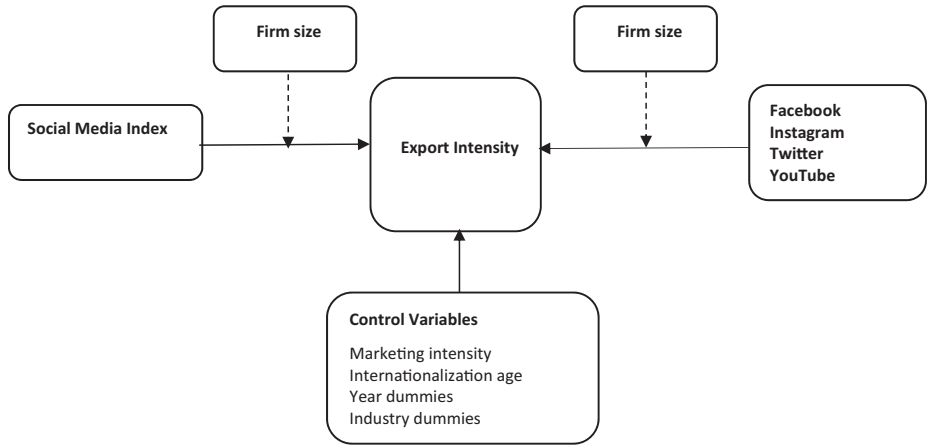


Figure 1.
Research framework

Source: Figure by authors

differences in the EI through time and industry. We also checked the moderating effect of the FSize at time t by creating an interaction term between the SMI and FSize, i.e. $SMI_{i,t} * Fsize_{i,t}$.

$$EI_{i,t} = \alpha + X_1 SMI_{i,t} + X_2 MI_{i,t} + X_3 FSize_{i,t} + X_4 IntAge_{i,t} + X_5 \sum_{k=1}^{11} Year_{i,t} + X_6 \sum_{k=1}^8 Industry_{i,t} + e_{i,t}$$

To test our hypotheses, we first used panel Tobit model for regression analysis with a lower limit specified as zero. Second, we adopted Heckman model (Greene, 2000; Heckman, 1979) to handle the potential sample selection biases in the joint estimation of the EI and export propensity, i.e. the decision to export.

4. Empirical findings

4.1 Descriptive statistics

Table 3 summarizes the descriptive statistics and the correlation matrix. The mean values for the EI and SMI are 0.26 and 1.20, respectively, indicating that the average EI of the firms in the sample is moderate. This is because the export activities of the Turkish firms change from company to company, depending upon the internationalization level. The mean value for the SMI shows that the firms in the sample have low level of SM adoption on average. As to the firm-specific variables, the average IntAge is 5.99, indicating that companies in the sample are new in export activities and has a moderate level of international experience.

The correlations in Table 3 show that SMI is positively and significantly correlated with all control variables. Thus, firms that have strong SMI are in a better situation to contribute to firm performance.

To check for multicollinearity, we calculated variance inflation factor (VIF), which is reported in [Table A1](#) in the [Appendix](#). The VIF value of the explanatory variables are below 10, indicating that multicollinearity is unlikely to influence our results.

4.2 Regression results

[Table 4](#) presents the results for the regression analyses. Models 1 and 3 focus on the effects of the SMI on the EI, whereas Models 2 and 4 provide the results for the interaction between SMI and FSize. The Tobit regression results in Model 1 show that there is a positive but insignificant relationship between SMI and EI, not supporting *H1*. Although it is insignificant, the positive coefficient indicates that the firm’s engagement in SM platforms creates positive value for the EI. This result corroborates the findings of the prior studies ([Alarcón-del Carmen et al., 2015](#)). The finding in Model 2 shows that the interaction of SMI and FSize has a positive and significant moderating role on the EI, indicating that large firms that have SMI experience comparatively higher EI than small firms in foreign markets. This result supports *H2*. One reason may be that cost-effectiveness, compatibility, interactivity, capability of SM networks and customer involvement are more significant in large firms compared to small ones. Large firms may also allocate more resources to SM to ensure competitive advantage and market dominance. On the other hand, small firms usually encounter the cost of implementation, lack of financial and technological resources and have limited skills in-house, when executing online marketing strategies. These results are in line with the findings of the prior studies ([Levy et al., 2005](#); [Smith et al., 2015](#)).

For robustness check, we used Heckman model. Model 3 in [Table 4](#) shows that SMI is negatively but insignificantly associated with the EI, not supporting *H1*. The findings in Model 4, however, indicate that the interaction of SMI and FSize has a positive and significant moderating role on the EI and export propensity, supporting *H2*. The Heckman model corroborates the Tobit model for the interaction term. Hence, we conclude that *H2* is supported by all models in [Table 4](#). When we look at the results in Models 3 and 4, we see that the coefficient of Lambda is positive and insignificant and the null hypothesis of “Lambda = 0” is accepted. Thus, we found no evidence that sample selection bias exists.

For the control variables, the Tobit regression results in Models 1 and 2 show that MI and FSize have a positive and significant effect, whereas IntAge has a negative and significant effect on the EI. When we look at the results of the Heckman models (Models 3 and 4), the findings for MI and FSize are similar in selection equations, whereas for IntAge, in Models 3 and 4, we identify a positive and significant relationship with the EI. One reason

Variables	Variable names	Mean	SD	1	2	3	4	5	6	7	8	9
1. EI	Export intensity	0.26	0.25	1.00								
2. SMI	Social media index	1.20	1.54	0.03	1.00							
3. MI	Marketing intensity	7.42	8.54	-0.08*	0.17*	1.00						
4. FSize	Firm size	19.67	1.81	0.11*	0.22*	-0.12*	1.00					
5. IntAge	Internationalization age	5.99	3.57	0.18*	0.36*	-0.02	0.40*	1.00				
6. FA	Facebook adoption	0.40	0.49	0.06*	0.89*	0.14*	0.21*	0.32*	1.00			
7. IA	Instagram adoption	0.28	0.45	0.03	0.87*	0.17*	0.15*	0.34*	0.72*	1.00		
8. TA	Twitter adoption	0.30	0.46	0.04	0.86*	0.16*	0.23*	0.26*	0.70*	0.66*	1.00	
9. YTA	YouTube adoption	0.22	0.41	-0.03	0.78*	0.11*	0.18*	0.30*	0.57*	0.59*	0.55*	1.00

Note: * $p < 0.05$

Source: Table by author

Table 3.
Descriptive statistics
and correlation
matrix

Table 4.
Regression results
for SMI

Variables	Tobit		Heckman's two-stage			
	Model 1	Model 2	Model 3	Model 3	Model 4	Model 4
SMI	0.007 (0.004)	-0.065(0.037)	-0.003 (0.016)	0.073 (0.044)	-0.178 (0.055)**	-1.822 (0.539)**
SMI * FSize		0.004 (0.002)*			0.008 (0.003)**	0.099 (0.028)**
MI	0.001 (0.001)*	0.001 (0.001)*	-0.002 (0.003)	0.024 (0.010)*	-0.003 (0.001)**	0.028 (0.011)**
FSize	0.045 (0.008)**	0.042 (0.008)**	0.026 (0.018)	0.170 (0.038)**	0.000 (0.005)	0.081 (0.043)
IntAge	-0.022 (0.007)**	-0.022 (0.007)**	0.041 (0.019)*	0.079 (0.023)**	0.023 (0.005)**	0.080 (0.024)**
Constant	-0.791 (0.271)**	-0.722 (0.272)**	-0.519 (0.453)	2.406 (0.813)**	0.034 (0.127)	4.112 (0.928)**
Log Likelihood	683.99	685.98				
Number of observations	1,581	1,581	1,581		1,581	
LR test	1,635.29**	1,627.72**	21.20		194.96**	
Wald chi2	92.84**	97.11**	0.798 (0.450)		0.199 (0.108)	
Lambda						

Notes: * $p < 0.05$; ** $p < 0.01$. Standard errors in parentheses. Industry and time dummies are included in all models

Source: Table by author

is that when firms begin to export, they lack international experience. They accumulate it by experiential learning throughout the years. This result is consistent with the findings of prior studies (Casillas *et al.*, 2020; Eriksson *et al.*, 2000; Meschi *et al.*, 2017).

4.3 Additional analyses

For further analyses, we run the same regressions for each SM platform, i.e. Facebook, Instagram, Twitter and YouTube, to test the effect of the SM adoption on the EI. Table 5 shows the results for Facebook. The Tobit regression results in Model 1 show that there is a positive and significant relationship between Facebook and EI. The finding in Model 2 indicates that the interaction of Facebook and FSize has a positive but insignificant moderating role on the EI. Model 3 in Table 5 shows that Facebook is positively and significantly associated with the export propensity, whereas it is positively but insignificantly associated with the EI. The findings in Model 4 also show that the interaction of Facebook and FSize has a positive and significant moderating role on export propensity, but it has a positive and insignificant moderating role on the EI.

Table 6 shows the results of the regression analysis for Instagram. In Model 1, we find a positive and significant effect of Instagram on EI with the Tobit regression. The findings in Model 2 also indicate that the interaction of Instagram and FSize has a positive and significant moderating role on the EI. In Table 6, Model 4, we find a positive and significant effect of the interaction of Instagram and FSize on both the EI and export propensity with the Heckman model.

Table 7 shows the results of the regression analysis for Twitter. The Tobit regression results in Model 1 show that there is a positive but insignificant relationship between Twitter and EI. The findings in Model 2 indicate that the interaction of Twitter and FSize has a positive and significant moderating role on the EI. In Table 7, Model 4, we find a positive and significant effect of the interaction of Twitter and FSize on both the EI and export propensity.

Table 8 shows the results of the regression analysis for YouTube. The Tobit regression results in Model 1 show that there is a negative and insignificant relationship between YouTube and EI. The results in Model 2 indicate that the interaction of YouTube and FSize has a positive but insignificant moderating role on the EI. Model 4 in Table 8 indicates a positive and significant effect of the interaction of YouTube and FSize on the export propensity.

Given that the Tobit models are nonlinear, it is necessary to calculate the marginal effects and predictions to better understand the moderating role of FSize on the relationship between SMI and EI. We calculated these marginal effects for each SM platform and presented the results in Figure 2. The findings show that the FSize has a moderating effect on the interaction of each SM platform and EI (except YouTube), indicating that medium and large size companies benefit from Facebook, Instagram and Twitter in improving the EI.

The results of the additional analyses may be explained by the fact that Facebook is the most used SM platform among marketers worldwide as of January 2023. According to a global survey run by Statista (2023), 90% of the SM marketers use Facebook to promote their business, whereas 79% do so via Instagram. This finding is consistent with the results of Mazzucchelli *et al.* (2021). One reason may be that consumers prefer images/videos over text and this is more available in Facebook and Instagram. Hence, by integrating Facebook and Instagram into online marketing strategies, firms may easily access to foreign markets, increase brand awareness and improve EI (Fraccastoro and Gabrielsson, 2018; Okazaki and Taylor, 2013).

Table 5.
Regression results
for Facebook
adoption

Variables	Tobit		Heckman's two-stage			
	Model 1	Model 2	Model 3	Selection equation (export propensity)	Main equation (export intensity)	Model 4 Selection equation (export propensity)
FA	0.038 (0.012)**	-0.188 (0.119) 0.011 (0.006)	0.029 (0.055)	0.290 (0.129)*	-0.560 (0.331) 0.029 (0.017)	-2.627 (1.370) 0.152 (0.071)*
FA * FSize						
MI	0.001 (0.001)*	0.001 (0.001)*	-0.002 (0.003)	0.023 (0.010)*	-0.002 (0.002)	0.025 (0.010)*
FSize	0.045 (0.008)**	0.041 (0.008)**	0.026 (0.019)	0.170 (0.038)**	0.005 (0.012)	0.116 (0.044)**
IntAge	-0.022 (0.006)**	-0.023 (0.007)**	0.042 (0.019)*	0.076 (0.023)**	0.032 (0.011)**	0.075 (0.023)**
Constant	-0.794 (0.271)**	-0.717 (0.273)**	-0.519 (0.476)		-0.091 (0.293)	3.398 (0.946)**
Log likelihood	687.16	688.97				
Number of observations	1,581	1,581	1,581		1,581	
LR test	1,646.24**	1,640.48**				
Wald χ^2	99.35**	103.21**	18.53		44.64**	
Lambda			0.853 (0.467)		0.525 (0.264)*	

Notes: * $p < 0.05$; ** $p < 0.01$. Standard errors in parentheses. Industry and time dummies are included in all models

Source: Table by author

Variables	Tobit		Heckman's two-stage			
	Model 1	Model 2	Model 3	Selection equation (export propensity)	Main equation (export intensity)	Model 4 Selection equation (export propensity)
IA	0.025 (0.012)*	-0.229 (0.115)*	-0.001 (0.053)	0.196 (0.142)	-0.602 (0.225)**	-5.317 (1.622)**
IA * FSize		0.013 (0.006)*			0.029 (0.011)**	0.290 (0.086)**
MI	0.001 (0.001)*	0.001 (0.001)*	-0.002 (0.003)	0.025 (0.010)*	-0.003 (0.001)*	0.029 (0.011)**
FSize	0.045 (0.008)**	0.043 (0.008)**	0.025 (0.018)	0.178 (0.037)**	0.003 (0.006)	0.107 (0.041)**
IntAge	-0.022 (0.007)**	-0.022 (0.007)**	0.041 (0.019)*	0.079 (0.023)**	0.026 (0.006)**	0.086 (0.024)**
Constant	-0.799 (0.270)**	-0.746 (0.271)**	-0.507 (0.457)		-0.040 (0.154)	
Log likelihood	684.60	687.07				
Number of observations	1,581	1,581	1,581		1,581	
LR test	1,639.21**	1,633.85**			127.15**	
Wald χ^2	94.23**	99.42**	20.76		0.301 (0.135)*	
Lambda			0.798 (0.449)			

Notes: * $p < 0.05$; ** $p < 0.01$. Standard errors in parentheses. Industry and time dummies are included in all models
Source: Table by author

Table 6.
Regression results
for Instagram
adoption

Table 7.
Regression results
for Twitter adoption

Variables	Tobit		Heckman's two-stage			
	Model 1	Model 2	Model 3	Model 3	Model 4	Model 4
TA	0.016 (0.013)	-0.302 (0.120)**	0.006 (0.056)	0.204 (0.143)	-0.808 (0.317)**	-4.762 (1.604)**
TA * FSize		0.016 (0.006)**			0.040 (0.016)**	0.258 (0.084)**
MI		0.001 (0.001)*	-0.002 (0.003)	0.025 (0.010)**	-0.002 (0.002)	0.029 (0.011)**
FSize	0.045 (0.008)**	0.041 (0.008)**	0.027 (0.019)	0.171 (0.038)**	0.004 (0.009)	0.111 (0.041)**
IntAge	-0.021 (0.006)**	-0.022 (0.006)**	0.043 (0.020)*	0.082 (0.023)**	0.029 (0.009)**	0.080 (0.024)**
Constant	-0.784 (0.270)**	-0.711 (0.271)**	-0.546 (0.492)	2.384 (0.812)**	-0.063 (0.230)	
Log likelihood	683.05	686.61				
Number of observations	1,581	1,581	1,581		1,581	
LR test	1,637.07**	1,627.10**				
Wald χ^2	91.13**	98.61**	17.97		63.16**	
Lambda			0.865 (0.490)		0.441 (0.207)*	

Notes: * $p < 0.05$; ** $p < 0.01$. Standard errors in parentheses. Industry and time dummies are included in all models

Source: Table by author

Variables	Tobit		Heckman's two-stage			
	Model 1	Model 2	Model 3	Model 3	Model 4	Model 4
YTA	-0.013 (0.013)	-0.095 (0.144)	-0.077 (0.054)	0.027 (0.160)	-0.226 (0.212)	-13.597 (3.971)**
YTA * FSize		0.004 (0.007)			0.007 (0.011)	0.707 (0.209)**
MI		0.001 (0.001)*			-0.003 (0.001)**	0.029 (0.010)**
FSize		0.045 (0.008)**	-0.002 (0.003)	0.028 (0.010)**	0.010 (0.005)*	0.139 (0.039)**
IntAge		-0.020 (0.006)**	0.028 (0.019)	0.181 (0.038)**	0.024 (0.005)**	0.080 (0.024)**
Constant		-0.792 (0.268)**	0.043 (0.019)*	0.079 (0.023)**	-0.135 (0.122)	3.017 (0.834)**
Log likelihood	682.76	682.92	-0.552 (0.468)			
Number of observations	1,581	1,581			1,581	
LR test	1,611.29**	1,610.92**				
Wald χ^2	90.93**	91.32**	22.21		214.84**	
Lambda			0.812 (0.462)		0.199 (0.100)*	

Notes: * $p < 0.05$; ** $p < 0.01$. Standard errors in parentheses. Industry and time dummies are included in all models

Source: Table by author

Table 8.
Regression results
for YouTube
adoption

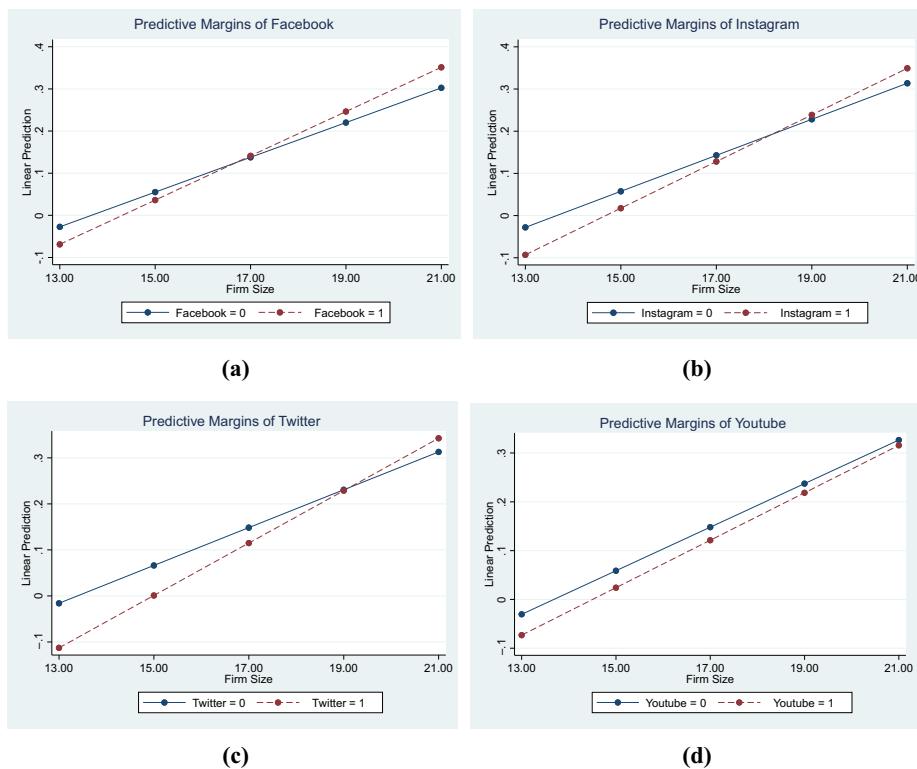


Figure 2.
Marginal effects of
different social media
networks adoption

Notes: (a) Facebook adoption; (b) Instagram adoption; (c) Twitter adoption; (d) Youtube adoption

Source: Figure by authors

However, the results contradict with the findings of some other studies (Berthon *et al.*, 2012; Fernandes *et al.*, 2016). Those studies indicate that in case of a firm's internationalization, Instagram, Twitter and YouTube play a more relevant role, especially for large firms, compared to other SM networks. They bring together different groups of people that generally do not know each other but share a common interest (Constantinides and Fountain, 2008). Thus, they are more effective in promoting products and reinforcing networking activities with customers.

5. Conclusions and discussions

Information technologies and the Web-based applications have profoundly changed business environment and have provided several opportunities for companies and consumers. Among the new technologies, SM networks are particularly important to explore as they significantly contribute to remarkable changes in marketing practices, customer behavior and e-commerce, stimulating the convergence among economic units, enabling firms to learn the preferences of consumers more precisely and better developing

marketing strategies in foreign markets. These capabilities become more vital, particularly for export-oriented firms in emerging markets that have limited physical and financial resources to perform successfully abroad.

This study examines the effect of SM adoption on EI for a sample of 150 firms listed on BIST Industrials Index in Turkey for the years 2010–2020 and seeks to address how different SM networks contribute to influence the export performance of firms. The results show that there is a positive and significant relationship between SM adoption and EI. Moreover, the FSize has a positive and significant moderating role on the relationship between SMI and EI and increases the significance level. Thus, large firms may leverage SM networks to create value and interest in foreign markets and to guide potential customers abroad through online marketing. This will increase customer loyalty, spread brand awareness and enhance the export performance of emerging market firms through the benefits and practices that foreign customers deploy online.

Another interesting result is that Facebook and Instagram have a positive and significant effect, whereas Twitter and YouTube have a positive but insignificant effect on the EI when they are analyzed alone. In this context, the findings show that Facebook and Instagram have a strong influence on the EI of firms for building customer interaction as shown by the earlier studies (Popp *et al.*, 2016; Wang *et al.*, 2020). These results support the findings of the prior studies (Alarcón-del-Amo *et al.*, 2018; Cassetta *et al.*, 2020; Mazzucchelli *et al.*, 2021).

5.1 Implications of the study

This study denotes the significant role of SM adoption on the EI of firms in an emerging market setting from the perspective of RBV, evidencing that SM adoption enhances corporate capabilities in increasing export performance. On this respect, it adds value to the existing works devoted to SM as most firms in emerging countries have unclarity concerning the consequences of SM on international market activities. In this frame, this research presents an insightful approach in understanding the mission played by SM networks in enhancing the EI of Turkish firms. The exporting firms in Turkey should notify that they could improve export performance by developing technological and nontechnological capabilities and competences related to SM and by having a strong intention to adopt and use SM platforms. These networks will help the operations of firms and will guide them to better deal with customers abroad. Thus, companies should shape their export strategies by seriously considering the benefits of SM and by having a positive attitude toward using it.

On this respect, the establishment of a coordinated hub for SM adoption and implementation may be promising for the export firms. In this framework, a single department may take the responsibility for SM adoption but the implementation may be decentralized at different departments within the firm as indicated by Felix *et al.* (2017). Moreover, companies in developing countries need more advanced skills to manage SM channels for achieving a competitive positioning in foreign markets and improve the awareness of potential consumers with different cultures about their products and services. This requires high level of SM platform maintenance and frequent updates of information. Customers expect a strong interactivity, responsive actions and two-way communication from firms, implying that they must recruit a dedicated team or improve the capabilities of existing employees. Finally, policymakers may use the findings of this study to develop public support programs to promote the adoption and implementation of SM among exporting firms in emerging markets.

5.2 Limitations and future research

This study has some limitations that would offer fruitful research avenues for scholars. First, this research covers only Turkish exporting firms. Future studies may extend the coverage and include multiple emerging markets to draw generalized results for the export-oriented firms. The large sample and cross-country as well as cross-sectorial analysis would help to explore the role of the industry on SM adoption and implementation in international markets more deeply as some industries may employ more IT resources to develop their capabilities and competencies in foreign markets. Second, this study analyzes solely four SM networks, i.e. Facebook, Instagram, Twitter and YouTube. However, there are many other SM networks that firms use for online communication and marketing in foreign markets. In this study, we had difficulty in collecting the data for these networks from the websites of companies. Future studies may increase the coverage and conduct an extensive survey to collect deep data on the adoption and use of these SM platforms in emerging markets. Finally, this research did not discuss the potential factors that could influence the adoption and use of SM in emerging market firms. Future works may run surveys to collect primary data on the evaluation of SM on the eyes of managers to get more refined results.

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Variable names	VIF	SQRT VIF	Tolerance	R^2
EI	1.03	1.01	0.97	0.02
SMI	1.20	1.10	0.83	0.16
MI	1.07	1.03	0.93	0.06
FSize	1.23	1.11	0.81	0.18
IntAge	1.31	1.14	0.76	0.23
Mean VIF	1.17			

Table A1.
Variance inflation
factors (VIFs)

Source: Table by author

Variable	Code	Measurement
<i>Dependent variable</i>		
Export intensity	EI	The export sales divided by the total sales of the company
<i>Independent variables</i>		
Social media index	SMI	$SMI = FA + IA + TA + YTA$
Facebook adoption	FA	If the firm has a Facebook account, the dummy variable is "1", otherwise it is "0".
Instagram adoption	IA	If the firm has an Instagram account, the dummy variable is "1", otherwise it is "0".
Twitter adoption	TA	If the firm has a Twitter account, the dummy variable is "1", otherwise it is "0".
YouTube adoption	YTA	If the firm has a YouTube account, the dummy variable is "1", otherwise it is "0".
<i>Moderating variable</i>		
Firm size	FSize	Natural log of total assets
<i>Control variables</i>		
Marketing intensity	MI	The ratio of marketing expenditures to total sales
Internationalization age	IntAge	The number of years as the first year of export of the firm

Table A2.
The definition of the
variables

Source: Table by author

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