Investor Reaction to IFRS for Financial Instruments in Europe: The Role of Firm-Specific Factors

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Abstract
We examine the market reaction to events related to the standard-setting process of International Financial Reporting Standard (IFRS) 9 for over 3,000 European firms that have adopted IFRS. We find that the market reaction to IFRS 9 is largely affected by firm-specific factors associated with information quality and information asymmetry. In particular, lower information asymmetry and higher information quality have a positive effect on market-adjusted returns. This is in conflict with the common view that IFRS 9 will improve accounting quality for those firms that need it most (namely, small firms with low liquidity and concentrated ownership structure).

Keywords: *market reaction; event study; IFRS 9; information asymmetry; information quality.*

1. Introduction

On July 24, 2014, the International Accounting Standards Board (IASB) released International Financial Reporting Standard (IFRS) 9 – *Financial Instruments*, to replace International Accounting Standard (IAS) 39. The introduction of IFRS 9 was solicited during the recent financial crisis by various international organizations, with the aim of improving accounting for financial instruments (Bischof and Daske, 2016).

Because of the potential impact of IFRS 9 on accounting quality, it is an empirical question whether firm-specific factors affect the investors' perceptions about the ability of IFRS 9 to increase shareholder value.

In the present study, we answer this question by examining whether firm-specific factors associated with information quality and information asymmetry influence the market reaction to announcements related to the standard-setting process of IFRS 9. This analysis is deemed necessary, because the evolving literature that documents capital-market effects of IFRS reporting indicates that firm characteristics require further investigation, such to better identify the drivers of the heterogeneity in the economic consequences (Daske et al., 2008; Armstrong et al., 2010; Christensen et al., 2013; Dos Santos et al., 2016). Furthermore, an understanding of the capital-market outcomes of IFRS 9 is of interest to policy makers, as it helps evaluating whether the reform leads to higher financial reporting quality, and thus benefits international investors (European Commission, 2015).

Following Onali and Ginesti (2014), we explore the impact of the IFRS 9 adoption by measuring variations in the three-day market adjusted return (MAR) and by taking into account the effect on the MAR due to several economic factors. Unlike previous studies, we also take into account variations in the MAR that are due to systematic

patterns in stock returns during the week (day-of-the-week effects), as well as Fama-French factors (FFF) and Carhart factors (CF). Such an approach allows us to considerably reduce the bias in the estimated MAR that may result from market-wide temporal patterns in returns or other firm-level characteristics.

The main results of our analysis reveal that higher pre-adoption information quality and lower pre-adoption information asymmetry have a positive impact on the MAR. Moreover, we find that financial firms react worse than non-financial firms to IFRS 9 adoption events.

We emphasize that our main contribution to the literature is twofold. First, by considering a large dataset of European listed firms, we perform a new and comprehensive investigation on the firm-level heterogeneities in the reaction to *all* events related to the standard-setting process of IFRS 9. Second, we provide novel empirical evidence of the fact that, contrary to a quite common view (see, for example, Armstrong et al., 2010), the IFRS adoption may not improve accounting quality for firms with low liquidity and high information asymmetry.

This study is organized as follows: Section 2 reviews the literature on the effects of IFRS adoption. Section 3 describes the methodology and the data. Section 4 presents and discusses the main results obtained and Section 5 concludes.

2. Literature review

There is an intense academic debate about the implications of IFRS adoption for capital markets (Daske et al., 2013; Christenen et al., 2013). Most research to date has focused on positive capital-market effects of IFRS, arguing that IFRS adoption would increase market liquidity and decrease cost of capital (Daske et al. 2008), stimulate cross-border investment (Gordon et al., 2012) and improve financial analysts'

information environment (Byard et al., 2011). In addition, some empirical studies provide support for positive share prices reaction to events that increase the likelihood of IFRS adoption (Armstrong et al., 2010; Joos and Leung, 2013).

However, the adoption of IFRS may not necessarily lead to benefits for investors (Christensen, 2012). For instance, some scholars suggest that IFRS adoption could generate costs for the preparation of IFRS reports as well as more consulting fees due to the need to acquire expertise with the new accounting framework (Hail et al., 2010). Therefore, it is plausible to expect that investors may negatively react to the IFRS adoption, if they believe that the transition costs to IFRS would exceed any benefit (Joos and Leug, 2013; Prather-Kinsey and Tanyi, 2014).

3. Methodology and data

3.1. Hypothesis

As reported by Armstrong et al. (2010), pre-adoption information quality and pre-adoption information asymmetry at the firm level affected the market reaction to announcements related to the 2005 mandatory adoption of IFRS across Europe. Consistently with this finding, we put forward the following hypothesis:

H_1: *Pre-adoption information quality and pre-adoption information asymmetry influence the investors' reaction to the standard-setting process of IFRS 9.*

3.2. Methodology

Following MacKinlay (1997), we develop an event study to examine the market reaction to IFRS 9. To this aim, first of all we identify the IFRS 9 adoption events based on the public announcements provided by the IASB and the European Financial Reporting Advisory Group (EFRAG). We use the LEXIS/NEXIS database to control

for potentially confounding news during each event window. Such a procedure leads to a set of 22 IFRS 9 adoption events, which are reported in Table 1.[1]

To check whether the 22 events considered are actually relevant to investors, we examine the extent to which the Google Search Volume Index (SVI) for the keyword "IFRS 9" is higher in weeks around these events (Da et al., 2011). We run a two-sample t-test for the time period from 05/07/2009 to 06/09/2014, and we find that in the weeks around the 22 IFRS 9 events considered the SVI is significantly larger (at the 1% level).

[Insert Table 1: IFRS 9 Events]

Subsequently, we calculate the MAR as the difference between the 3-day log stock return and the log return of the proxy for the market portfolio. As a proxy for the market portfolio, we adopt the DJ STOXX Global 1800 Index Ex Europe (Armstrong et al., 2010).

To empirically test H_1, we run regressions of the MAR for each firm *i* and event *t* on a set of firm-level covariates. In particular, to take into account the incremental effect of firm-specific factors, we implement several regression models (all the variables are described in Table 2). We start from the following baseline specification focusing on factors related to information quality and information asymmetry:

$$MAR_{it} = \beta_1 + \beta_2 FINANCIAL_{it} + \beta_3 INFOQUAL_{it} + \beta_4 FINANCIAL_{it} * INFOQUAL_{it} + \beta_5 SPREAD_{it} + \beta_6 BIG4_{it} + \beta_7 INDEP_{it} + \beta_8 HERF + \beta_9 CODE + \varepsilon_{it} \quad \text{Eq. (1)}$$

The variable *FINANCIAL* is a dummy equal to one if the firm is in the financial industry and zero otherwise. Similar to Armstrong et al. (2010) and Joos and Leung, (2013), we consider financial firms those for which the primary two-digit SIC code is

[1] For events until 31/12/2012, we maintain the same interpretation as in Onali and Ginesti (2014).

either 60 or 61. The variable *INFOQUAL* is the factor with the largest eigenvalue derived from Principal Components Analysis (PCA) of the variables: *SIZE*, *MARKETS*, and *LISTED_US*.[2] For consistency with the method employed by Armstrong et al. (2010) and Joos and Leung (2013), we multiply factor scores by minus 1, so that higher values of *INFOQUAL* correspond to *lower* information quality. Moreover, we add an interaction between *FINANCIAL* and *INFOQUAL*, to estimate the incremental market reaction for those financial firms with lower quality information.

We also examine the role of asymmetric information by estimating the effect of bid-ask spreads (*SPREAD*). A larger spread would be consistent with a higher degree of asymmetric information (Ball et al., 2012; Daske et al., 2013). In addition to this variable, we also include *BIG_4* and *INDEP*. In particular, a positive coefficient on *BIG_4* would be consistent with lower information asymmetry, because Big 4 auditor firms should provide better auditing reports and stronger monitoring (Joos and Leung, 2013). A positive coefficient on *INDEP* would, similarly, indicate lower information asymmetry, because of the lack of shareholders with very large shareholdings. As Adams et al. (2011) explain, this variable captures the degree of independence of a company, and its board, from its large shareholders. The variables *HERF* and *CODE* are calculated based on prior studies (Ding et al., 2007; Armstrong et al., 2010). We define each industry according to the primary two-digit SIC code. Following Petersen, (2009) and Armstrong et al. (2010), we double-cluster standard errors at both the

[2] This variable is borrowed from Armstrong et al. (2010), although it does not consider a fourth variable for the Principal Component Analysis: the accounting standard applied by the firm. We cannot include this variable in our setup, because all firms in our sample must apply IFRS. Consistent with Armstrong et al. (2010), we estimate the principal components using varimax orthogonal variation.

country and the industry level, because of the possibility of more homogeneous financial reporting practices within a certain country or industry.[3]

As a second specification, we include the FFF (1993), *SMB* and *HML*, and CF (1997), *WML*, to allow for the impact of size, book-to-market ratios, and momentum:

$$MAR_{it} = \beta_1 + \beta_2 FINANCIAL_{it} + \beta_3 INFOQUAL_{it} + \beta_4 FINANCIAL_{it}* INFOQUAL_{it} + \beta_5 SPREAD_{it} + \beta_6 BIG4_{it} + \beta_7 INDEP_{it} + \beta_8 HERF + \beta_9 CODE + \beta_{10} SMB_t + \beta_{11} HML_t + \beta_{12} WML_t + \varepsilon_{it} \quad \text{Eq. (2)}$$

To allow for day-of-the-week effects (Kaplanski and Levy, 2010), we add four weekday dummies to Eq. (2):

$$MAR_{it} = \beta_1 + \beta_2 FINANCIAL_{it} + \beta_3 INFOQUAL_{it} + \beta_4 FINANCIAL_{it}* INFOQUAL_{it} + \beta_5 SPREAD_{it} + \beta_6 BIG4_{it} + \beta_7 INDEP_{it} + \beta_8 HERF + \beta_9 CODE + \beta_{10} SMB_t + \beta_{11} HML_t + \beta_{12} WML_t + \Sigma\alpha_d D_d + \varepsilon_{it} \quad \text{Eq. (3)}$$

where d = 2, 3, 4, and 5, and:

$D_d = 1$ if d = 2 (Tuesday), d = 3 (Wednesday), d = 4 (Thursday), and d = 5 (Friday).

$D_d = 0$ otherwise.

Similar to Armstrong et al. (2010), we also replace *INFOQUAL* by the three variables considered for the PCA (*SIZE*, *LISTED_US*, and *MARKETS*). All three variables are left unchanged, and therefore they are *negatively* correlated with *INFOQUAL*:

$$MAR_{it} = \beta_1 + \beta_2 FINANCIAL_{it} + \beta_3 SIZE_{it} + \beta_4 LISTED\_US_{it} + \beta_5 MARKETS + \beta_6 SPREAD_{it} + \beta_7 BIG4_{it} + \beta_8 INDEP_{it} + \beta_9 HERF + \beta_{10} CODE + \beta_{11} SMB_t + \beta_{12} HML_t + \beta_{13} WML_t + \Sigma\alpha_d D_d + \varepsilon_{it} \quad \text{Eq. (4)}$$

Finally, we run Eq. (3) and Eq. (4) only for non-financial firms (Joos and Leung, 2013), after excluding the variables *FINANCIAL* and *FINANCIAL*INFOQUAL*:

[3] Clustering only at the country level or only at the industry level does not substantially alter our results.

$$MAR_{it} = \beta_1 + \beta_2 INFOQUAL_{it} + \beta_3 SPREAD_{it} + \beta_4 BIG4_{it} + \beta_5 INDEP_{it} + \beta_6 HERF + \beta_7 CODE + \beta_8 SMB_t + \beta_9 HML_t + \beta_{10} WML_t + \Sigma\alpha_d D_d + \varepsilon_{it} \quad \text{Eq. (5)}$$

$$MAR_{it} = \beta_1 + \beta_2 SIZE_{it} + \beta_3 LISTED\_US_{it} + \beta_4 MARKETS + \beta_5 SPREAD_{it} + \beta_6 BIG4_{it} + \beta_7 INDEP_{it} + \beta_8 HERF + \beta_9 CODE + \beta_{10} SMB_t + \beta_{11} HML_t + \beta_{12} WML_t + \Sigma\alpha_d D_d + \varepsilon_{it} \quad \text{Eq. (6)}$$

[Insert Table 2 - Variables description]

3.3. Data

We merged two data sources: *Amadeus* (for firm-level data), and *Datastream* (for price-level data). Our sample is comprises all the listed firms in 17 European countries (*Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom*) that have adopted the IFRS (Onali and Ginesti, 2014). Specifically, on the overall we have 3.393 firms and 79.006 firm-event observations for the period 2009-2014.[4]

4. Results

An analysis of pairwise correlation coefficients between MAR and the explanatory variables (which we do not report to save space) indicates a positive effect of information quality and a negative effect of information asymmetry: the correlation coefficients for *BIG_4* and *INDEP* are positive and significant while the coefficient for *SPREAD* is negative and significant. We also find a negative and significant correlation between *INFOQUAL* and the *BIG_4*, and *INDEP*, and a positive and significant correlation between *INFOQUAL* and *SPREAD*, in accordance with the

[4] For certain specifications requiring a merge across different datasets, the number of observations is smaller.

intuition that firms with lower information quality have higher information asymmetry.

The results reported in Table 3 are very robust across all specifications and suggest that financial firms tend to have *lower* MAR relative to non-financial firms. The coefficients on *INFOQUAL* are always negative and significant, suggesting that firms with lower pre-adoption information quality react negatively to the IFRS 9. These findings are confirmed by the positive coefficients on *SIZE* (at the 1% level) and *MARKETS* (at the 10% level). Moreover, the coefficients on the interaction term, namely *FINANCIAL*INFOQUAL*, are insignificant across all regression specifications. Therefore, we conclude that pre-adoption information quality does not have a different impact on the cross-section of MAR for financial firms relative to non-financial firms.

The coefficients on *BIG_4* are positive and significant, while those on *SPREAD* are negative and significant. *BIG_4* is supposed to be negatively related to information asymmetry, while a higher *SPREAD* reflects a higher degree of information asymmetry. Therefore, our results suggest that pre-adoption information asymmetry has a negative effect on the price reaction to IFRS 9. The other variables controlling for information asymmetry are either weakly significant (*INDEP*) or insignificant. For *INDEP*, the coefficients are positive, which reveals that a more dispersed structure of the largest shareholdings increases MAR. Thus, even the results for *INDEP* suggest that a higher pre-adoption information asymmetry *decreases* MAR. Finally, the inclusion of the FFF and CF and weekday dummies leaves our main results substantially unaltered.

The results for Eq. (5) and Eq. (6), for which financial firms are excluded, are consistent with those for Eq. (3) and Eq. (4). Specifically, the coefficient on *INFOQUAL* is negative and significant, the coefficients on *BIG_4* are positive and significant, and the coefficients on *SPREAD* are negative and significant. Moreover, the coefficient on *INDEP* remains positive, and it also becomes significant at the 1% level for Eq. (5) and at the 5% level for Eq. (6) (while being significant at the 10% level in Eqs (1)-(4)). Nevertheless, the coefficient on *MARKETS* loses significance.

Overall, these findings reveal that the pre-adoption information quality and pre-adoption information asymmetry are related with the market reaction to IFRS 9, thus supporting hypothesis H_1. In particular, our analysis suggests that firms with lower pre-adoption information quality and higher pre-adoption information asymmetry benefit less from the IFRS 9 adoption. A plausible interpretation of these results is that investors consider the implementation costs and the risk of opportunistic managerial discretion resulting from IFRS 9 more important for firms with a poorer information environment (Joos and Leug, 2013; Prather-Kinsey and Tanyi, 2014).

[Insert Table 3: Firm-level regressions: cross sectional determinants of MAR]

4.1. Robustness tests

Let us test the robustness of our results. First, we run the six regressions considered in Section 3 using different levels of clustering (*at country level, at industry level and at event level*). Second, we repeat the main analysis, after replacing the dependent variable (3-day MAR) with its values computed *three days before* and *after* the actual event as well as *five days before* and *after* the actual event. This type of tests is similar to those implemented in studies using a difference-in-differences approach such as Waldinger (2010). The results obtained (which we do not report to save space) are in

line with those reported in the previous subsection, thus confirming the validity of our main inferences. [5]

5. Conclusions

We have investigated the investors' reaction to the standard-setting process of IFRS 9 for over 3,000 European listed firms.

Our study offers novel and robust evidence that higher pre-adoption information quality and lower pre-adoption information asymmetry have a positive impact on the MAR. Thus, there is empirical evidence in favor of hypothesis H_1, according to which the investors' reaction to IFRS 9 is affected by firm-specific factors. In particular, the MAR is positively related with size, a dispersed ownership structure, market liquidity for the firm's stock, and having a Big 4 auditor. We also provide evidence that financial firms react relatively worse than non-financial firms to the IFRS 9 adoption events.

Our findings support the argument that IFRS 9 adoption may not, *per se*, lead to higher accounting quality for all firms and are starkly different from the results reported by Armstrong et al. (2010), who document an incrementally positive reaction for firms with *lower* pre-adoption information quality and *higher* pre-adoption information asymmetry in response to the compulsory IFRS adoption in 2005. These differences may be due to a change in the investors' views about the expected costs and benefits of the IFRS adoption among firms and warrant further research in order to investigate the effects of IFRS 9 once the implementation of this standard has taken place.

[5] The results are available upon request from the authors.

Finally, we observe that the interpretation of our results requires some caution, because there is still some degree of uncertainty among investors regarding the effects of IFRS 9 on financial reporting. Policymakers need to intervene and provide additional guidance, such to help investors to understand the new rules.

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Table 1
IFRS events.

N.	*Date*	*Description*	*Probability of adoption*
1	12/11/2009	IASB issues the first phase of IFRS 9.	*Increase*
2	16 /07/2010	EFRAG releases the comment letter on IASB ED - fair value option for financial liabilities.	*Increase*
3	28/10/2010	IASB issues additions to IFRS 9 for financial liability.	*Increase*
4	9/12/2010	IASB releases the ED on accounting for hedging activities.	*Increase*
5	13/01/2011	IASB and FASB publish a joint proposal on credit impairment.	*Increase*
6	31/01/2011	IASB and FASB publish a joint proposal on accounting for impairment of financial assets.	*Increase*
7	4/03/2011	EFRAG recommends that IASB and FASB finalize a common standard for financial instruments.	*Increase*
8	8/04/2011	EFRAG releases the comment letter to IASB supplementary document on impairment.	*Decrease*
9	4/08/2011	IASB proposes adjustments to the effective date of IFRS 9 from 1/2013 to 1/2015.	*Decrease*
10	16/12/2011	IASB defers the mandatory effective date from 1/2013 to 1/2015	*Increase*
11	27/01/2012	IASB and FASB inform on their common intention to reduce differences in accounting for financial instruments.	*Increase*
12	7/09/2012	IASB releases a draft of hedge accounting.	*Increase*
13	28/11/2012	IASB proposes limited changes to IFRS 9 requirements.	*Increase*
14	18/01/2013	EFRAG publishes its letter on IASB's Draft IFRS 9 Hedge Accounting.	*Increase*
15	7/03/2013	IASB revises proposal for loan-loss provisioning	*Increase*
16	22/03/2013	EFRAG releases the comment letter to IASB on the transition from IAS 39 to IFRS 9.	*Increase*
17	16/04/2013	EFRAG releases the comment letter to ED – Limited Amendments to IFRS 9.	*Decraese*
18	27/06/2013	IASB publishes amendments to IAS 39.	*Increase*
19	22/07/2013	EFRAG reports the Field-Test on ED Expected Credit Losses.	*Increase*
20	19/11/2013	IASB finalises the chapter on general hedge accounting.	*Increase*
21	17/04/2014	IASB publishes DP on accounting for macro hedging.	*Increase*
22	24/07/2014	IASB completes the reform.	*Increase*

Table 2
Variables description

Variables	***Measurement***	***Source***
SIZE	Natural logarithm of total assets	*Amadeus*
BIG4	Indicator variable equal to 1 if the firm was audited by the big four auditor, and 0 otherwise.	*Amadeus*
LISTED_US	Indicator variable equal to 1 if the company is listed on a U.S. stock exchange and 0 otherwise during the event year.	*Amadeus*
MARKETS	Number of exchanges on which the company is listed during the event year.	*Amadeus*
SPREAD	Average daily bid-ask spread calculated as: (ask–bid)/(ask+bid)/2 using daily closing bid and ask data.	*Datastream*
INDEP	Indicator variable equal to 1 if BvD independence indicator is A-, A, o A+, and 0 otherwise. For *INDEP* = 1, there is no shareholder with more than 25% direct or total ownership.	*Amadeus*
INFOQUAL	The highest eigenvalue factor derived from principal components analysis of the variables: SIZE, LISTED_US, and MARKETS. Factor scores are multiplied by -1, so that a higher value for *INFOQUAL* corresponds to *lower* information quality (Armstrong et al., 2010).	*Authors' calculations*
FINANCIAL	Indicator variables equal to 1 if the firm's two-digit SIC industry code is 60 or 61, and 0 otherwise.	*Amadeus*
HERF	Sum of squared market shares (percentage of sales over total sales in the industry as defined by the two-digit SIC industry code) for all firms in that industry.	*Authors' calculations*
CODE	Indicator variable equal to 1 if the country of origin of the firm is a code-law country.	*La Porta et al. (1998)*
SMB	Fama-French Small-Minus-Big factor.	*Kenneth French's website*
HML	Fama-French High-Minus-Low factor.	*Kenneth French's website*
WML	Carhart Winners-Minus-Losers factor.	*Kenneth French's website*

Table 3

Firm-level regressions: Cross-sectional determinants of 3-day MAR

	Eq. (1)	Eq. (2)	Eq. (3)	Eq. (4)	Eq. (5)	Eq. (6)
FINANCIAL	-0.001***	-0.001***	-0.001***	-0.001***		
	(-3.247)	(-3.028)	(-3.239)	(-3.556)		
INFOQUAL	-0.001***	-0.001***	-0.001***		-0.001***	
	(-2.856)	(-2.852)	(-2.863)		(-2.792)	
FIN. * *INFOQU.*	-0.000	-0.000	-0.000			
	(-0.884)	(-0.894)	(-0.915)			
SIZE				0.000***		0.000**
				(3.008)		(2.511)
LISTED_US				-0.000		-0.000
				(-0.225)		(-0.408)
MARKETS				0.000*		0.000
				(1.673)		(1.589)
BIG4	0.002***	0.002***	0.002***	0.001***	0.002***	0.001**
	(3.934)	(4.062)	(3.893)	(3.150)	(3.322)	(2.495)
INDEP	0.001*	0.001*	0.001*	0.001*	0.001***	0.001**
	(1.876)	(1.848)	(1.852)	(1.673)	(2.583)	(2.281)
SPREAD	-0.014***	-0.014***	-0.014***	-0.011***	-0.014***	-0.010**
	(-3.341)	(-3.289)	(-3.212)	(-2.986)	(-2.578)	(-2.225)
HERF	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.986)	(-1.343)	(-1.011)	(-0.869)	(-1.406)	(-1.373)
CODE	-0.000	-0.000	-0.000	-0.001	-0.000	-0.001
	(-0.253)	(-0.340)	(-0.252)	(-0.819)	(-0.299)	(-0.962)
HML		0.236***	0.211***	0.212***	0.212***	0.213***
		(12.996)	(10.125)	(10.171)	(9.417)	(9.467)
SMB		-0.117***	-0.221***	-0.221***	-0.222***	-0.221***
		(-7.962)	(-12.096)	(-12.195)	(-11.814)	(-11.924)
WML		-0.105***	-0.150***	-0.150***	-0.154***	-0.153***
		(-7.973)	(-12.923)	(-12.941)	(-13.199)	(-13.183)
Weekday dummies	NO	NO	YES	YES	YES	YES
Constant	0.006***	0.005***	-0.006***	-0.012***	-0.006***	-0.012***
	(10.706)	(9.870)	(-5.108)	(-6.223)	(-4.694)	(-5.243)
Sectors	76	76	76	76	74	74
Countries	17	17	17	17	17	17
Firms	3933	3933	3933	3933	3576	3576
Observations	79,006	79,006	79,006	79,006	71,934	71,934
R-squared	0.002	0.025	0.034	0.035	0.034	0.034

Notes. Table 3 reports the results for the cross-sectional determinants of the 3-day MAR. Standard errors are clustered at both the industry and country level for Eq. (3) and Eq. (6). *** Denotes significance at the 1% level, ** Denotes significance at the 5% level. * Denotes significance at the 10% level.