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SUSPENSION OF INSURERS' DIVIDENDS AS A RESPONSE TO THE COVID-19 CRISIS: EVIDENCE FROM EQUITY MARKET

Petr Jakubik
Saida Teleu

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$$\frac{1!}{(m-1)!} p^{m-1} (1-p)^{n-m} = p \sum_{\ell=0}^{n-1} \frac{\ell+1}{n} \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p \frac{n-1}{n} \sum_{\ell=0}^{n-1} \left[\frac{\ell}{n-1} + \frac{1}{n-1} \right] \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p^2 \frac{n-1}{n} +$$

Institute of Economic Studies,
Faculty of Social Sciences,
Charles University in Prague

[UK FSV – IES]

Opletalova 26
CZ-110 00, Prague
E-mail : ies@fsv.cuni.cz
<http://ies.fsv.cuni.cz>

Institut ekonomických studií
Fakulta sociálních věd
Univerzita Karlova v Praze

Opletalova 26
110 00 Praha 1

E-mail : ies@fsv.cuni.cz
<http://ies.fsv.cuni.cz>

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Suspension of Insurers' Dividends as a Response to the Covid-19 Crisis: Evidence from Equity Market

Petr Jakubik^a

Saida Teleu^b

^aEuropean Insurance and Occupational Pensions Authority (EIOPA), Germany & Charles University in Prague, Faculty of Social Sciences, Institute of Economic Studies, Czech Republic; E-mail: petr.jakubik@eiopa.europa.eu

^bMaltese Financial Services Authority, Malta & Charles University in Prague, Faculty of Social Sciences, Institute of Economic Studies, Czech Republic; E-mail: saida.teleu@mfsa.mt

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Abstract:

The recent Covid-19 outbreak with significant increase of global uncertainties poses many challenges for financial sectors. Many supervisors took the measures aiming to safeguard resilience of financial institutions by requesting postponements any dividend distributions until uncertainties about further development will be reduced. In this respect, the European Insurance and Occupational Pensions Authority issued on Thursday 2nd April 2020 a statement requesting (re)insurers to suspend all discretionary dividend distributions and share buy backs aimed at remunerating shareholders. Although this should have a positive impact on the overall financial stability of the sector, it could also negatively influence insurers' equity prices. Hence, this paper empirically investigates this potential effect using an event study methodology. Despite negative drops were observed in some cases, the obtained empirical results suggest that they were not statistically significant for the overall European insurers' equity market when considering the event windows covering a few days after the statement was published.

JEL: G22, G28, G35, G01

Keywords: European insurance sector; suspension of dividend distributions, event study, EIOPA statement, equity market

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1. Introduction

Although the Covid-19 crisis did not originate in financial sectors contrary to the financial crisis in 2007, financial institutions were significantly affected by an unprecedented shock to financial assets and subsequent lockdowns of many economies. In addition, risk free rates were compressed for all maturities as a response to expected lower economic growth and further continuation of accommodative monetary policies. This paper focuses on the European insurance sector negatively affected by drops in market values of their assets as well as increases in values of their liabilities driven by lower discount rates.

The insurance sector's financial stability is essential to ensure the access to, and continuity of, insurance services, safeguarding the ability of the sector to continue to perform its role as risk transfer mechanism from citizens and businesses as well as its capacity to mobilize savings and invest them in the real economy. This objective requires that (re)insurers take all necessary steps to continue to ensure a robust level of own funds to be able to meet promises to policyholders and absorb potential losses. In the wake of the coronavirus outbreak, safeguarding the stability of the sector is relevant not only from a business continuity perspective, but also from a forward-looking perspective, as the sector might play a key role in supporting the economic recovery via long-term investments after the crisis. Towards this aim, the European Insurance and Occupational Pensions Authority (EIOPA)¹ has urged insurance companies to halt dividends, buybacks and bonuses. In its statement on Thursday 2nd April evening, EIOPA said that insurance companies had to take all necessary steps to continue to ensure a robust level of own funds to be able to protect policyholders and absorb potential losses. Against this background of uncertainty, EIOPA urged that at the coronavirus situation (re)insurers temporarily suspend all discretionary dividend distributions and share buybacks aimed at remunerating shareholders. In addition to the communication at European level, national supervisory authorities issued their own statements that were broadly in line with the one from EIOPA with the exception of the German Supervisory Authority (Bafin). Moreover, as a response to the EIOPA and national statements on dividend distributions, insurers made announcements that were not always in line with the recommendation of supervisory authorities. This is also because many national supervisory authorities as well as EIOPA do not have a legal power to force insurers to follow their statements.

As a response to the outbreak of Covid-19, insurance companies' equities have fallen sharply. Apart from the potential for large claims, investors

¹ EIOPA is a European Union financial regulatory institution established under EU Regulation 1094/2010. EIOPA is one of the three European Supervisory Authorities responsible for microprudential oversight of (re)insurance and occupation pension sectors at the European Union level, being part of the European System of Financial Supervision. EIOPA's core responsibilities are to support the stability of the financial system, transparency of markets and financial products as well as the protection of insurance policyholders, pension scheme members and beneficiaries.

have been worried about the impact of economic slowdown on the investment portfolios that insurers hold against their liabilities. The EIOPA statement that aimed to cut dividends could potentially negatively affect insurers' share prices further as some investors might hold insurance companies' equities largely for their pay-outs rather than capital gains that are quite low at the ongoing low yield environment. In this respect, we will test the hypothesis that the overall negative effect is offset by the positive impact stemming from the investment behaviour of the medium and long-term investors maximizing their profit over longer horizon. The reason might be that preserving firms' capital in the time of financial and economic crises with high level of uncertainty on its duration and magnitude will allow company to move through this period without any serious consequences that might lead, in extreme case, to default. In addition, such a statement could serve as a macroprudential measure helping to reduce uncertainty on potential inadequate solvency positions that would not allow absorbing the shocks implied by potential future negative consequences of the Covid-19 outbreak. Moreover, the introduction of such measure consistently across the whole sector could help to avoid any potential stigma effect that might arise in case of individual decisions at company level. Some research suggests that the efficiency of the central bank communication in relation to financial stability was reduced during the financial crises of 2007 and 2008, due to the long period necessary to align participants' actions to the direction imposed by the central bank (Tomuleasa, 2015). Hence, a quick and coordinated action preserving firms' capital might well capture raising uncertainties to avoid any potential stigma problem.

The aim of this paper is to provide an empirical assessment of potential share prices drops as a response to the published EIOPA statement taking into account also the relevant announcements made by national supervisors as well as communication at firms' level. We employ an event study framework to statistically test whether any potential drops in equity prices are statistically significant. The article is organised as follows. First, we present the literature related to this study. Second, we describe the theoretical framework applied to test the mentioned hypothesis. Third, we outline the data sample for the empirical part. Fourth, we introduce the results of our empirical analysis. Finally, the last section concludes based on the obtained results.

2. Literature Review

This study could be linked to the empirical research dealing with the investors' reactions on disclosure and announcements of supervisory actions as dividend distribution could have a signalling effect to the stock markets. An impressive number of empirical studies have been written on the relationship between disclosure practices and stock return volatility in the last several years. Some studies show that disclosure can mitigate

uncertainty and volatility in equity markets (Beltratti, 2011; Ellahie, 2012; Petrella and Resti, 2013; Morgan et al., 2014), other studies find that under certain preconditions, disclosure can cause higher volatility, as market participants might misunderstand incoming information (Baumann and Nier, 2004). Moreover, disclosure should lead to a decline in the stock return volatility and cost of capital under the favourable scenario, while unfavourable disclosure might increase risk measures (Kothari et al., 2009). The literature also offers a treatment of the borderline cases when regulators disclose an uninformative signal (Ahnert et al., 2018, Sahir et al. 2020). Likewise, Petrella and Resti (2013) suggest that market reaction to the disclosure of regulatory information might depend on the type of information being disclosed. In this context, Schuermann (2014) shows that the degree of optimal disclosure frequently depends on the environment. During "normal" times supervisory authorities' disclosures on stress testing lean towards more aggregated information, while during times of crisis there is much greater need for the specific disclosure of individual financial institutions. This implies that under certain circumstances, more disclosure is not necessarily better in terms of economic efficiency (Goldstein and Sapra, 2013). Gick and Pausch (2012) conclude that banking supervisors should generally not aim at designing stress tests to completely eliminate uncertainty at the investors' side to avoid triggering some possibly extreme forms of investor behaviour. They suggest that the costs related to the disclosure of stress test results can be minimized by disclosing aggregate information.

Studies dedicated to macro prudential analysis observe rather limited or no effect of stress test disclosure results or announcements of supervisory actions, e.g. Ellahie (2012) find that the announcement of forthcoming public disclosure does not have any significant impact on equities of Eurozone banks. Schaefer et al (2013) report the reaction of the stock returns of European and US banks to several regulatory reforms and they find only a mild effect on equity prices. A quantification of volatility reaction could become a powerful tool for both policy makers and practitioners as it provides a follow-up information to any statement about volatility of an asset price in response to announcements (Neugebauer 2019).

There is a small but emerging literature on disclosures of supervisory actions and their implications (Ahnert et al., 2018). The literature suggests that transparency can promote financial stability by enhancing market discipline of financial institutions' risk-taking decisions (Goldstein and Sapra 2013). Recent empirical studies provide support for this argument (Granja 2018, Bushman and Williams 2015). Goldstein and Leitner (2018) suggest that, while disclosure can promote market discipline, simultaneously it can create certain constraints, such as reducing the regulator's ability to learn from market prices (Bond and Goldstein 2015) and collect information from financial institutions (Leitner 2015). Additionally, Morris and Shin (2002) suggest that if the precision of the disclosed information is not sufficiently high, market participants

may place unnecessary weight on the public signal causing market overreaction and coordination failures. Ahnert et.al (2018) suggest that the market reaction to the disclosure of supervisory information is to a large extent predictable. They find that banks with a less risky business model, higher capital buffer, better asset quality earns higher abnormal equity return during the release of supervisory information. Hence, this suggest that that a financial institution's return on equity and its asset quality are major predictors of the outcome of the disclosure.

The importance of communication by supervisory authority is well-established in the literature (Blinder et al. 2008, Ehrmann 2019). Gertler and Horvath (2018) indicate stock market responses in relation to various communication tools around scheduled meetings such as media interviews, speeches, and conference discussions. Scholars suggest certain challenges might arise while assessing the impact of supervisory communication on asset prices (Alan et al. 2008). First, there are numerous unobservable factors that might affect asset prices. This means that observed volatility might be the result of shocks other than the communication. Second, the communication may be endogenous. Supervisory authorities might communicate at a certain time period due to a sudden change in the economic outlook. In this case, the prices of financial variables might be more volatile, but not mainly due to statements (Reeves and Sawicki 2007). Ehrmann et al. (2007c) suggest that such endogeneity is less of a problem when the dates of statements are known in advance.

Several research papers report that economic and market conditions affect investor reactions to identical events (Gallo et al. 2016, Gupta et al. 2018). These studies suggest that the recent state of the economy or the recent direction of the market may have a bearing on the extent to which investors react to new information. Scott Docking and Koch (2005) conduct an event study to assess investor reaction to dividend increases or decreases. They find greater volatility in response to changes in dividend payment patterns when the changes were not in line with recent market trends during volatile times.

Insurance industry is typically devoted to relevant risk management activities, and there is rising need for financial markets and other stakeholders to analyse how risk information is disclosed and risk management activities are communicated (Malafronte et al. 2018). Although assessing the impact of regulatory statements on financial market have received wide attention of scholars (Bruno, et al. 2013, Neanidis 2019), there is still relatively limited research done on the regulatory statements that have different extend of binding. This paper contributes into the emerging field of literature dealing with recommendations or advisory statements of supervisory authorities, in particular for insurance companies. Moreover, the growing importance of non-banking sector have an increasing impact on the economy. Hence, the announcement of supervisory authority for insurance sector may have

effects not only on the insurance sector itself but also on the overall economy. While vast majority of the literature in this area focus on banking sectors, very limited was done for insurers. In this respect, this study contribute to the research that makes regulators and policy makers aware of potential effects and consequences of supervisory announcements and communications on financial stability.

3. Methodology

The assessment of potential impact of the EIOPA statement is conducted via an event study that measures the impact of an economic event, such as the statement on dividend distribution, on equity prices by using financial market data. In this respect, we follow an event study methodology described e.g. by Brown and Warner (1985), Thompson (1995), and MacKinlay (1997). Furthermore, Boehmer, Mucumeci and Poulsen (BMP) test, which is also known as the standardised cross-sectional test, is employed (Boehmer et al, 1991). However, when a specific event shows a slight cross-correlation, the test statistics reject the null hypothesis too often when this hypothesis is true (Kolari and Pynnönen (2010). Hence, the issue of cross-sectional correlation in event studies with partially overlapping event windows is addressed by following the approach of Kolari and Pynnönen (2010). Given the considered event window for testing the impact of EIOPA statement is identical for all companies, we used the Adjusted Boehmer, Mucumeci and Poulsen (Adj-BMP) test, that provides more robust test statistic (Kolari and Pynnönen, 2010). This test takes cross-correlation and inflation of event-date variance into account in improving the power of test statistics. Apart from the mentioned parametric methods, a non-parametric rank test proposed by Corrado (1989) is used as a robustness check.

The investigated event happened on 2nd April 2020 in the evening after market close. Hence, the event day could be denoted as 3rd April. Given the rationality in equity markets, the effects of an event should be reflected in the observed security prices, and a measure of the event's economic impact can be constructed using equity prices collected over a relatively short period. Therefore, the event window is set up from Thursday 2nd April denoted as T_1 to Tuesday 14th April 2020 denoted as T_2 corresponding to 7 working days – one day before the event and five days after. In this way, we also include the first working day after the Easter holiday.

Event studies assess the impact of the investigated event on equity prices by calculating their abnormal returns as the difference between the observed and expected returns. The observed daily logarithmic return of insurer i at time t is calculated as follow.

$$R_{i,t} = \ln(P_{i,t}/P_{i,t-1}) - 1 \quad (1)$$

where

$P_{i,t}$ is equity closing price of insurer i at time t .

The expected returns of insurers' equities are estimated via simple ordinary least squares (OLS) regression employing the STOXX Europe 600 Index as a proxy for market return using daily data for the period prior the event window that we can denote as $[T_0, T_1 - 1]$. In concrete, the period since the beginning of 2017 until 1st April 2020 was employed.

The abnormal return of insurer i at time t can be expressed as

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t}) \quad (2)$$

where

$R_{m,t}$ is daily logarithmic market return at time t and α_i and β_i (representing beta of insurer i) are the estimated parameters from an ordinary least square (OLS) regression.

Furthermore, the abnormal return observed trough the time and across the securities are aggregated. Given n insurers, the cumulative average abnormal return for the event window is calculated as

$$\overline{CAR} = \sum_{t=T_1}^{T_2} AAR_t \quad (3)$$

where

$$AAR_t = \frac{1}{n} \sum_{i=1}^n AR_{i,t} \quad (4)$$

where T_1, T_2 represents the first and the last day of the considered event window.

The null hypothesis that the cumulative average abnormal returns are zero could be tested via the following test statistic (MacKinlay, 1997).

$$t_S = \frac{\overline{CAR}}{\sqrt{var(\overline{CAR})}} \quad (5)$$

where the variance of abnormal cumulative returns could be calculated as

$$var(\overline{CAR}) = var(AAR_t)L = \sigma^2 L \quad (6)$$

where L is the length of event window and σ^2 corresponds to a standard error of the average abnormal return cross all insurers estimated on the sample prior the event window corresponding to the interval $[T_0, T_1 - 1]$. The test statistic t_S is asymptotically standard normal distributed under the null hypothesis.

However, Brown and Warner (1985) showed that the cross-sectional test is prone to event-induced volatility. Thus, the test has a low power. Hence, we employ a standardized cross-sectional test (BMP test)

proposed by Boehmer, Musumeci and Poulsen (1991), that is robust to the variance induced by the event. The test statistics can be defined as

$$t_{BMP} = \frac{\overline{SCAR}}{\sqrt{var(SCAR)}} \quad (7)$$

where

$$var(\overline{SCAR}) = var(SAAR_t)L = \sigma_s^2 L \quad (8)$$

$$\overline{SCAR} = \sum_{t=T_1}^{T_2} SAAR_t \quad (9)$$

$$SAAR_t = \frac{1}{n} \sum_{i=1}^n SAR_{i,t} \quad (10)$$

$$SAR_{i,t} = \frac{AR_{i,t}}{\sqrt{var(AR_i)}} \quad (11)$$

where σ_s^2 corresponds to a standard error of the average standardised abnormal return cross all insurers estimated on the sample prior the event window corresponding to the interval $[T_0, T_1 - 1]$ and $\sqrt{var(AR_i)}$ is a standard error of the abnormal return corresponding to a standard error of the model for expected market returns for insurer i estimated by OLS regression.

The test statistic t_{BMP} is asymptotically standard normal distributed under the null hypothesis.

Furthermore, the Adj-BMP test is performed using the following statistics.

$$t_{AD_BMP} = t_{BMP} \sqrt{\frac{1-\bar{r}}{1+(n-1)\bar{r}}} \quad (12)$$

where \bar{r} is the average of the sample cross-correlations of the estimation period residual – corresponding to the period $[T_0, T_1 - 1]$.

The test statistic t_{AD_BMP} is asymptotically distributed as $N(0, 1 + (n - 1)\bar{r})$ under the null hypothesis.

Moreover, as a robustness check, non-parametric rank test proposed Corrado (1989) for a single day and further elaborated by Campell and Wasley (1993) for a multiday event period is used. In a first step, we transform abnormal returns into ranks. Ranking is done for all abnormal returns of both the event and estimation period. If ranks are tied, the midrank is used.

$$K_{i,t} = \frac{rank(AR_{i,t})}{1+M+L} \quad (13)$$

where M is the number of observations in the estimation period $[T_0, T_1 - 1]$.

The null hypothesis that the cumulative average abnormal return is zero could be tested via the following test statistic.

$$t_{RANK} = \sqrt{L} \frac{\bar{K}_{T_1, T_2} - 0.5}{\sqrt{var(\bar{K})}} \quad (14)$$

where $var(\bar{K})$ represents variance of average rank of abnormal returns estimated for both estimated period and event window corresponding to the period $[T_0, T_2]$.

$$\bar{K}_{T_1, T_2} = \frac{1}{L} \sum_{t=T_1}^{T_2} \bar{K}_t \quad (15)$$

$$\bar{K}_t = \frac{1}{n} \sum_{i=1}^n K_{i,t} \quad (16)$$

This test statistic t_{RANK} is asymptotically standard normal distributed under the null hypothesis.

4. Data Sample

The impact of the EIOPA statement was tested for equity prices of 33 European (re)insurers listed via the described methodology. In order to measure market return, we employ the STOXX Europe 600 Index. Additionally, we use daily data for insurance companies for the period prior the event window to calculate expected returns. In concrete, the period since the beginning of 2017 until 1st April 2020 that can be denoted as $[T_0, T_1 - 1]$ was used.

Simple descriptive statistics show that negative abnormal returns were observed in most cases (for almost 85% of the sample) on Friday 3rd April 2020 after the publication of the statement with average value -3.23%. However, many of those daily negative abnormal returns were recovered by positive abnormal returns in two subsequent working days after the weekend with average values 0.67% and 2.55% respectively (see table below). The positive trend in market performance was again changed on Wednesday 8th April with average negative return 1.08%. However, these losses were fully recovered on Thursday 9th April before the Easter holiday. The negative return was then recorded on the first working day after the holiday, Tuesday 14th April, with average market drop by 2.11%.

Table 1: Abnormal returns for 33 European (re)insurers listed

Business line	Country	Insurance company	Beta	Abnormal return							14-Apr Cumulative
				02-Apr	03-Apr	06-Apr	07-Apr	08-Apr	09-Apr		
Life	NL	Aegon NV	1.599	3.33%	-7.24%	0.98%	3.84%	-0.62%	2.31%	-5.12%	-2.53%
	IT	Poste Italiane SpA	1.162	4.48%	1.83%	-1.65%	-0.77%	1.42%	-1.51%	-0.37%	3.44%
	NL	NN Group NV	1.178	2.39%	-5.54%	-0.68%	1.60%	-0.25%	1.55%	-4.31%	-5.23%
	CH	Swiss Life Holding AG	1.104	-0.69%	-0.74%	1.25%	2.17%	-0.73%	0.76%	-1.64%	0.39%
	NO	Storebrand ASA	1.197	-2.97%	-1.74%	4.46%	2.13%	-4.67%	-1.87%	3.35%	-1.32%
	FR	CNP Assurances SA	1.480	5.45%	-8.51%	-0.52%	6.71%	-3.97%	2.77%	-6.06%	-4.13%
	GB	Phoenix Group Holdings PLC	1.079	-4.11%	-7.20%	-1.46%	2.69%	-0.66%	4.01%	-2.41%	-9.14%
	GB	Legal & General Group PLC	1.373	2.88%	-9.24%	10.40%	6.39%	-3.84%	6.17%	-3.90%	8.85%
	GB	Prudential PLC	1.512	-1.23%	-0.92%	4.88%	3.05%	-3.68%	-2.00%	-4.14%	-4.05%
	GB	Old Mutual Ltd	1.091	-10.82%	-1.55%	-3.83%	10.79%	-1.97%	-0.65%	3.01%	-5.02%
GB	St. James's Place PLC	1.161	-0.06%	-2.80%	-0.71%	2.74%	1.72%	3.15%	-0.33%	3.70%	
Composite	NO	Gjensidige Forsikring ASA	0.718	-1.54%	0.08%	-0.51%	-1.38%	1.67%	-1.16%	4.88%	2.04%
	FR	AXA SA	1.187	-1.14%	-3.49%	1.28%	1.85%	-0.40%	-0.37%	-0.95%	-3.23%
	IT	Assicurazioni Generali SpA	0.932	1.54%	-0.27%	-0.50%	0.16%	-0.01%	-0.79%	1.45%	1.58%
	BE	Ageas SA	1.076	11.58%	-4.37%	-6.66%	-4.09%	0.48%	-1.06%	-5.09%	-9.21%
	CH	Baloise Holding AG	0.974	-0.67%	1.18%	1.07%	5.30%	-1.18%	1.96%	-0.49%	7.15%
	FI	Sampo plc	1.062	5.86%	-3.49%	-2.74%	3.23%	-0.85%	0.11%	1.45%	3.58%
	ES	Mapfre SA	1.007	0.40%	-1.40%	2.78%	3.22%	-1.95%	1.80%	-0.81%	4.04%
	CH	Zurich Insurance Group AG	1.105	0.43%	-8.40%	-2.68%	0.53%	-0.66%	0.01%	-0.83%	-11.60%
	NL	ASR Nederland NV	1.158	2.57%	-5.15%	-1.35%	1.44%	-1.63%	3.47%	-1.60%	-2.27%
	DE	Allianz SE	1.232	-1.97%	-0.24%	1.35%	0.35%	-1.07%	0.45%	0.90%	-0.23%
CH	Helvetia Holding AG	1.005	-0.15%	-2.22%	3.75%	2.23%	-0.51%	0.44%	2.70%	6.24%	
GB	Aviva PLC	1.114	2.93%	-5.52%	1.16%	6.07%	-4.99%	2.57%	-3.91%	-1.68%	
Non-Life	GB	Beazley PLC	0.747	2.27%	-10.67%	0.20%	6.94%	7.43%	1.37%	-8.80%	-1.25%
	GB	Admiral Group PLC	0.625	0.05%	-1.91%	-3.47%	0.12%	-0.05%	-0.47%	-0.62%	-6.36%
	GB	Hiscox Ltd	0.686	-3.70%	-1.96%	2.10%	4.57%	1.61%	7.06%	-20.39%	-10.72%
	DK	Tryg A/S	0.601	2.53%	0.13%	0.29%	3.45%	0.54%	-0.98%	1.82%	7.78%
	GB	RSA Insurance Group PLC	0.971	-0.38%	-5.35%	0.98%	2.03%	-5.63%	-1.51%	-3.28%	-13.13%
GB	Direct Line Insurance Group PLC	0.715	-4.11%	-5.20%	5.44%	3.39%	-8.26%	3.24%	-5.23%	-10.73%	
Re-insurance	FR	Scor SE	1.198	2.57%	-2.95%	4.01%	-0.58%	2.25%	3.01%	-5.00%	3.29%
	CH	Swiss Re AG	1.085	2.28%	0.63%	-0.01%	1.68%	-1.60%	1.61%	-0.64%	3.94%
	DE	Muenchener Ruckversicherungs Gesellschaft	1.153	0.43%	-2.23%	1.89%	1.19%	-0.68%	1.11%	-0.41%	1.29%
	DE	Hannover Rueck SE	1.107	0.84%	-0.08%	0.58%	1.11%	-2.75%	2.60%	-3.02%	-0.72%
Average		1.073	0.64%	-3.23%	0.67%	2.55%	-1.08%	1.19%	-2.11%	-1.37%	
Average cumulative			0.64%	-2.58%	-1.92%	0.63%	-0.44%	0.74%	-1.37%		
Share of negative returns				42.42%	84.85%	42.42%	12.12%	75.76%	33.33%	75.76%	57.58%

Source: Thomson Reuters

Note: Abnormal returns are estimated via ordinary least squares (OLS) regressions employing the STOXX Europe 600 Index as a proxy for market return using daily data for the period prior the event window.

In order to better assess the impact of the EIOPA statement, we also need to consider the relevant communication of National Supervisory Authorities (NSAs) that might be reflected in equity market development. Some NSAs had issued their own statements before the one issued by EIOPA. This was the case for the NSAs from Switzerland, Norway, Italy and the United Kingdom that complied to certain extent with the EIOPA statement. However, the degree of alignment with the EIOPA statement differed. The UK regulator (PRA) urged insurers to pay close attention to the need to protect policyholders when making decisions on shareholder pay-outs and staff bonuses in 2020, but did not directly force to cancel existing or future dividends. Similarly, Italian supervisory authority (IVASS) sent a letter to the insurance and reinsurance undertakings with head office in Italy requesting them to use extreme caution, at solo and group level, in the distribution of dividends and in the payment of the variable remuneration component of key managers. IVASS also declared close monitoring of the compliance with these recommendations. Swiss regulator (FINMA) explicitly welcomes the decision of all Swiss financial institutions to suspend their share buyback programmes. Finally, the Norwegian regulator (Finanstilsynet) expected the undertakings' boards of directors to review the distribution of profits for the 2019 financial year in

light of the current crisis and economic uncertainty. Based on their review, Finanstilsynet also expected the boards of directors, if necessary, to submit new proposals to the undertakings' general meeting on dividend payments and other pay-outs.

Hence, in the mentioned cases, EIOPA statement might not have a significant impact as market prices might already contain potential effects. Moreover, the German Federal Financial Supervisory Authority (BaFin) as a response to the EIOPA statement announced that did not consider a blanket ban on distribution of insurance companies necessary, but the dividend policy had to take into account the individual situation of insurers. Hence, we also use the "reduced sample", where compared to the "full sample", insurers from Switzerland, Italy, Norway, the United Kingdom and Germany are excluded. Additionally, Switzerland is not EU member state and the full responsibility lies only with the Swiss Financial Market Supervisory Authority (FINMA).

Moreover, as many NCAs do not have a direct legal power or did not strictly banned dividends, we also have to analyse the communication at insurance company level. In this respect, Italian and Swiss insurers in the sample payed out the dividends.² This was also the case for 3 out of 6 and 1 out of 2 insurance companies in the sample from the United Kingdom and Norway respectively. Moreover, all German insurers in the sample maintain the payment of dividends and a share payback.

Furthermore, even for those countries where NSAs strongly supported the EIOPA statement, some insurers still paid out dividends. This was the case for one Spanish insurer³ and one French insurer⁴. Considering the individual announcement at insurance company level, we further exclude French insurer Axa SA from the "reduced sample" as the announcement on decision to pay dividends was done within the event windows we consider. On contrary, the announcement of Spanish insurer Mapfre SA happened in the end of April, out of the event window, therefore should not have any impact on the equity prices in the timeframe considered.

The complete list of the actions and corresponding days at national and company level is provided in Table 2.

² Assicurazioni Generali SpA - the Board of Directors confirmed the proposal to distribute dividends, but to divide it into two tranches.

³ In April 30th, Mapfre SA announced to pay dividends on June 25, 2020.

⁴ In April 3rd, Axa SA announced that the draft resolutions to pay a dividend remained unchanged.

Table 2: Communication regarding dividend distribution at NCA and company level

Country	NCA	Date of the Announcement	In line with EIOPA statement	Statement	Insurance company	Date of the Announcement	In line with EIOPA statement	Statement
NL	DNB	02/04/2020	Yes	DNB calls on insurers to temporarily postpone dividend payments and share buybacks.	Aegon NV	03/04/2020	Yes	Aegon convenes AGM, complies with EIOPA and DNB calls to postpone dividend.
					NN Group NV	06/04/2020	Yes	NN Group follows recommendations of EIOPA and DNB regarding dividend distributions.
					ASR Nederland NV	08/04/2020	Yes	ASR to follow EIOPA and DNB recommendations to temporarily postpone dividend and share buyback program.
IT	IVASS	30/03/2020	Partially	IVASS recommends that undertakings use extreme caution in the distribution of dividends.	Poste Italiane SpA	20/03/2020	No	Dividend payment date confirmed at 24 June 2020.
					Assicurazioni Generali SpA	10/04/2020	Partially	The Board of Directors confirmed the proposal to distribute a dividends, but to divide it into two tranches.
CH	FINMA	25/03/2020	Partially	FINMA additionally recommends that boards consider carefully the level of upcoming dividend distributions.	Swiss Life Holding AG	24/04/2020	No	Annual General Meeting of Swiss Life Holding Ltd, shareholders approved all resolutions proposed by the Board of Directors, including the total gross dividend distribution.
					Baloise Holding AG	03/04/2020	No	By holding the AGM on the scheduled date, Baloise with the consent of the shareholders will pay out the proposed dividend.
					Zurich Insurance Group AG	01/04/2020	No	Zurich Insurance says shareholders approve dividend of CHF 20 per share.
					Helvetia Holding AG	24/04/2020	No	The shareholders followed the proposal of the Board of Directors regarding appropriation of net profit from 2019 and in accordance with the long-term dividend policy – increased the dividends.
					Swiss Re AG	03/04/2020	No	Confirming their original dividend proposals.
UK	PRA	31/03/2020	Partially	PRA reminded to pay close attention to the need to protect policyholders and maintain safety and soundness when considering any distributions to shareholders or making decisions on variable remuneration.	Phoenix Group Holdings PLC	07/05/2020	No	Phoenix Group reaffirms intention to pay final dividend.
					Legal & General Group PLC	03/04/2020	No	L&G confirms its intention to pay dividend.
					Prudential PLC	08/04/2020	No	Prudential resisted pulling payouts.
					Old Mutual Ltd	24/03/2020	No	The company declared a final dividend of 75 cents per share to be paid on Monday, 4 May 2020.
					Aviva PLC	08/04/2020	Yes	Aviva plc (“Aviva”) announced that the Board of Directors has agreed to withdraw its recommendation to pay the 2019 final dividend to ordinary shareholders in June 2020.
					Beazley PLC	18/05/2020	Yes	The Beazley board decided not to pay a first interim dividend for the six months ending June 30, 2020.
					Admiral Group PLC	27/04/2020	Partially	The Board recommended an unchanged normal dividend of 56.3p per ordinary share, but suspended the recommendation to pay a special dividend of 20.7p per ordinary share.
					RSA Insurance Group PLC	08/04/2020	Yes	RSA announced the suspension of their dividends after regulatory pressure.
					Direct Line Insurance Group PLC	08/04/2020	Yes	Direct Line Insurance Group PLS has taken the prudent decision to withdraw the full year 2019 dividend.
					Hiscox Ltd	08/04/2020	Yes	The Hiscox board has decided that the resolution to approve the 2019 final dividend of 29.6 cents per share, which was scheduled for payment on 10 June 2020, will no longer be put to shareholders.
					St. James's Place PLC	30/04/2020	Yes	The Board has made a decision to withhold 11.22 pence per share, or around one-third of the proposed 2019 final dividend, until such a time when the financial and economic impacts of COVID-19 become clearer.
NO	FSA	16/03/2020	Partially	the Norwegian Financial Supervisory Authority (FSA) expect the board of directors to re-evaluate the proposed allocation of the annual result for 2019, including dividends, as a result of the coronavirus outbreak.	Storebrand ASA	30/04/2020	No	The Board reaffirms its commitment to the dividend policy and plans an ordinary dividend next year.
					Gjensidige Forsikring ASA	22/04/2020	Yes	The Board has resolved to withdraw the dividend proposal in response to regulatory stance. It is the Board's intention to distribute dividends to shareholders as soon as the situation will allow for it.
FR	ACPR	03/04/2020	Yes	ACPR issued a press release on April 3, in alignment with EIOPA April 2 Statement, to recommend insurers refrain from paying dividends.	CNP Assurances SA	17/04/2020	Yes	The proposal had been made to allocate the entire income of 2019 to the new budget instead of paying a dividend.
					Axa SA	03/04/2020	No	The draft resolutions to pay a dividend remained unchanged.
					Scor SE	25/05/2020	Yes	The Board of Directors of SCOR SE, which met on May 25, 2020, has decided to propose to the Shareholders' Meeting of June 16, 2020, that no dividend be distributed for the 2019 fiscal year and that the entire income for that year be allocated to distributable earnings.
BE	NBB	01/04/2020	Yes	The NBB strongly urges insurers to suspend their planned dividend payments until at least October 1, 2020.	Ageas SA	08/04/2020	Yes	Ageas adjusted its distribution for the year 2019.
FI	FIN-FSA	24/03/2020	Yes	FIN-FSA issues recommendation to insurance companies to refrain from dividend distributions and payment of large amounts of variable remuneration.	Sampo plc	06/04/2020	Yes	Temporary postponements to dividends are likely.
ES	DGSFP	06/04/2020	Yes	DGSFP issued a press release on April 6, confirming alignment with the April 2 EIOPA Statement, asking insurers not to pay dividends during the COVID-19 outbreak.	Mapfre SA	30/04/2020	No	The Board of Directors has resolved to pay, on June 25, 2020.
DE	BaFin	02/04/2020	No	BaFin reaffirms its expectations, published on March 24, 2020, that financial institutions should refrain from share buybacks and carefully weigh dividends, profits and bonuses. On the other hand, BaFin did not consider a blanket ban on distribution of insurance companies to be necessary.	Allianz SE	03/04/2020	No	Allianz maintain both its dividend for 2019 and a share buyback worth €1.5 billion.
					Muenchener Rueckversicherungs Gesellschaft AG in Muenchen	03/04/2020	No	German reinsurer Munich Re, which declined to comment on the EIOPA statement, announced on Tuesday it was scrapping a share buyback but keeping a €9.8 per share dividend, despite a profit warning (MUNICH RE stuck to its dividend proposal).
					Hannover Rueck SE	02/04/2020	No	The Executive Board and Supervisory Board have proposed a total dividend of EUR 5.50 per share.
DK	DNB	02/04/2020	Yes	The Dutch central bank (DNB) urged Dutch insurers to suspend their dividend payments and share buyback plans in light of the coronavirus pandemic.	Tryg A/S	27/03/2020	Yes	Tryg's Supervisory Board decided to move to a full year dividend decision for 2020.

Source: National Competent Authorities' and insurance companies' websites

5. Empirical results

We employ the described methodological framework to empirically test the impact of the EIOPA statement on the insurers' equity prices. In this respect, we started with a simple test statistic (5) proposed by MacKinlay (1997). First, we check the significance of abnormal return changes for a single day window using the test statistics defined by formula (5).

Table 3: Test statistic for single days

	02/04/2020	03/04/2020	06/04/2020	07/04/2020	08/04/2020	09/04/2020	14/04/2020
Average abnormal return	0.64%	-3.23%	0.67%	2.55%	-1.08%	1.19%	-2.11%
Test testistic t_5	1.2439	-6.2304	1.2896	4.9193	-2.0771	2.2898	-4.0808
Cumulative distribution function	89.32%	0.00%	90.14%	100.00%	1.89%	98.90%	0.00%
Significance of negative abnormal return		***			**		***

<i>Reduced sample</i>							
	02-Apr	03-Apr	06-Apr	07-Apr	08-Apr	09-Apr	14-Apr
Average abnormal return	4.08%	-4.28%	-0.43%	2.09%	-0.67%	1.44%	-2.75%
Test testistic t_5	6.3604	-6.6824	-0.6753	3.2626	-1.0408	2.2508	-4.2873
Cumulative distribution function	100.00%	0.00%	24.97%	99.94%	14.90%	98.78%	0.00%
Significance of negative abnormal return		***					***

Source: Own calculations

Note: Test statistics are calculated according to formula (5). The numbers for cumulative distribution function provide the quantiles for a standard normal distribution. It means for the numbers close to 100% abnormal returns are significantly positive, for the numbers close to 0% abnormal returns are significantly negative. ***, **, * represent a confidence level lower than 1%, 5% and 10% for the significance of negative abnormal return.

The obtained numbers for the test statistics suggest a significant drop in equity prices on 3rd April on the first day after the publication of the statement and further on the sixth day after the publication. On the contrary, the test statistic indicates a significant positive development in insurers' equity prices on the third and fifth days after the publication for both samples (see Table 3). Contrary to the reduced sample, for a full sample, a significant decrease and increase in prices could be observed also on the fourth and the second day after the publication respectively.

We further statistically test whether the negative drops are not compensated by subsequent increases using the concept of average cumulative abnormal return as defined by formula (3) for different event windows from one day to seven days (2nd April – 14th April).⁵

⁵ 4th, 5th, 11th and 12th April 2020 correspond to weekends while 10th and 13th concur with the Easter holidays.

Table 4: Test statistic for different lengths of event window

	02/04/2020	03/04/2020	06/04/2020	07/04/2020	08/04/2020	09/04/2020	14/04/2020
Average cumulative abnormal return	0.64%	-2.58%	-1.92%	0.63%	-0.44%	0.74%	-1.37%
Test teststisc t_5	1.2439	-3.5259	-2.1344	0.6112	-0.3822	0.5859	-1.0000
Cumulative distribution function	89.32%	0.02%	1.64%	72.95%	35.11%	72.10%	15.87%
Significance of negative abnormal return		***	**				
<i>Reduced sample</i>							
	02-Apr	03-Apr	06-Apr	07-Apr	08-Apr	09-Apr	14-Apr
Average cumulative abnormal return	4.08%	-0.21%	-0.64%	1.45%	0.78%	2.23%	-0.52%
Test teststisc t_5	6.3604	-0.2277	-0.5758	1.1326	0.5476	1.4188	-0.3069
Cumulative distribution function	100.00%	40.99%	28.24%	87.13%	70.80%	92.20%	37.95%
Significance of negative abnormal return							

Source: Own calculations

Note: Test statistics are calculated according to formula (5). Each column represents the event window starting from 2nd April and ending on the day reported in the header of the column. ***, **, * represent a confidence level lower than 1%, 5% and 10% for the significance of negative abnormal return.

The empirical results for the full sample reveal that the negative drop in equity prices after the publication of statement was significant only when considering the event window up to two days after the event (see Table 4). For the event windows starting from 2nd April and ending from three to seven days after the publication, a null hypothesis that the cumulative average abnormal returns are zero could not be rejected for the full sample. Moreover, for the reduced sample, the null hypothesis could not be rejected for any of the considered event windows. This suggest that there was no any statistically significant drop in equity prices after the publication of statement.

However, as the cross-sectional test used could have a lower power, we further employ a standardized cross-sectional test (BMP test).

Table 5: BMP test statistic for different lengths of event window

	02/04/2020	03/04/2020	06/04/2020	07/04/2020	08/04/2020	09/04/2020	14/04/2020
Average cumulative st. abnormal return	0.6636	-2.0294	-1.4901	0.5268	-0.4456	0.5085	-1.0488
Test teststisc t_{BMP}	1.4823	-3.1984	-1.9120	0.5834	-0.4397	0.4561	-0.8670
Cumulative distribution function	93.09%	0.07%	2.79%	72.02%	33.01%	67.59%	19.30%
Significance of negative st. ab. return		***	**				
<i>Reduced sample</i>							
	02-Apr	03-Apr	06-Apr	07-Apr	08-Apr	09-Apr	14-Apr
Average cumulative st. abnormal return	3.3784	0.1056	-0.4358	1.1337	0.6584	1.6642	-0.3047
Test teststisc t_{BMP}	6.7102	0.1480	-0.4972	1.1163	0.5777	1.3273	-0.2240
Cumulative distribution function	100.00%	55.88%	30.95%	86.79%	71.83%	90.78%	41.14%
Significance of negative st. ab. return							

Source: Own calculations

Note: Test statistics are calculated according to formula (7). Each column represents the event window starting from 2nd April and ending on the day reported in the header of the column. ***, **, * represent a confidence level lower than 1%, 5% and 10% for the significance of negative abnormal return.

Although, the significance for BMP test slightly decreases compared to the previous results, it did not change the main conclusion (Table 5).

Furthermore, as this event study contains only one identical event window for all insurance companies included in the sample, BMP-adjusted test is used to address cross-sectional correlation (Kolari and Pynnonen, 2010).

Table 6: BMP-adjusted test statistic for different lengths of event window

	02/04/2020	03/04/2020	06/04/2020	07/04/2020	08/04/2020	09/04/2020	14/04/2020
Average cumulative st. abnormal return	0.6636	-2.0294	-1.4901	0.5268	-0.4456	0.5085	-1.0488
Test testistic t_{AD_BMP}	1.4635	-3.1579	-1.8877	0.5760	-0.4341	0.4503	-0.8560
Cumulative distribution function	92.33%	0.10%	3.28%	71.29%	33.60%	66.98%	20.18%
Significance of negative st. ab. return		***	**				

<i>Reduced sample</i>							
	02-Apr	03-Apr	06-Apr	07-Apr	08-Apr	09-Apr	14-Apr
Average cumulative st. abnormal return	3.3784	0.1056	-0.4358	1.1337	0.6584	1.6642	-0.3047
Test testistic t_{AD_BMP}	6.2718	0.1383	-0.4648	1.0434	0.5400	1.2406	-0.2093
Cumulative distribution function	100.00%	54.89%	34.00%	82.28%	68.41%	86.46%	42.63%
Significance of negative st. ab. return							

Source: Own calculations

Note: Test statistics are calculated according to formula (12). Each column represents the event window starting from 2nd April and ending on the day reported in the header of the column. ***, **, * represent a confidence level lower than 1%, 5% and 10% for the significance of negative abnormal return.

The BMP adjusted test further confirm our conclusion (Table 6). Moreover, the non-parametric rank test using test statistic defined by formula (14) was employed as a robustness check (Campell and Wasley, 1993).

Table 7: Rank test statistic for different lengths of event window

	02/04/2020	03/04/2020	06/04/2020	07/04/2020	08/04/2020	09/04/2020	14/04/2020
Average rank of abnormal returns	0.5784	0.3760	0.4451	0.5436	0.4981	0.5240	0.4921
Test testistic t_{RANK}	0.5423	-1.2136	-0.6586	0.6029	-0.0292	0.4071	-0.1443
Cumulative distribution function	70.62%	11.25%	25.51%	72.67%	48.83%	65.80%	44.26%
Significance of negative st. ab. return							

<i>Reduced sample</i>							
	02-Apr	03-Apr	06-Apr	07-Apr	08-Apr	09-Apr	14-Apr
Average rank of abnormal returns	0.9508	0.5129	0.4917	0.5649	0.5266	0.5610	0.5163
Test testistic t_{RANK}	2.6303	0.1066	-0.0839	0.7574	0.3473	0.8720	0.2521
Cumulative distribution function	99.57%	54.25%	46.66%	77.56%	63.58%	80.84%	59.95%
Significance of negative st. ab. return							

Source: Own calculations

Note: Test statistics are calculated according to formula (12). Each column represents the event window starting from 2nd April and ending on the day reported in the header of the column. ***, **, * represent a confidence level lower than 1%, 5% and 10% for the significance of negative abnormal return.

Conclusion

A negative impact of the ongoing Covid-19 crisis on insurers is expected to gradually reduce their high level of pre-crisis solvency positions in most cases, increasing vulnerabilities towards potential further economic deteriorations. From a broader financial stability perspective, it is important that this crisis, which is predominantly an economic crisis, does not evolve into a financial crisis. Considering extremely high level of uncertainty on future economic developments, the EIOPA statement on postponing dividend distributions until this uncertainty resides, aims at preserving firms' capital. This should ensure insurers' smooth transition through the distress period limiting any serious consequences that, in case of further adverse developments, might ultimately lead to a financial crisis and, potentially, the need for a public sector intervention.

Towards this aim, in the 2nd April 2020, the European Insurance and Occupational Pensions Authority issued a statement requesting (re)insurers to suspend all discretionary dividend distributions and share buy backs aimed at remunerating shareholders. The statement could help to reduce uncertainties on a potential adverse evolution of solvency positions that would not allow absorbing the shocks implied by the expected negative implications of the Covid-19 outbreak. However, it could also adversely affect insurers' equity prices driven by investment behaviour of short-term investors maximizing their immediate profits. Hence, this paper empirically investigate whether such a potential negative effect of the statement could be statistically significant taking into account also the statements issued at national level and announcements at company levels that were in some cases not in line with the EIOPA statement. Based on the event study methodology, the obtained empirical results suggest that despite a negative impact were observed in some cases, it is not statistical significant for the overall European insurers' equity market. These results seems to be robust to different specifications using parametric tests as BMP or adjusted BMP as well as non-parametric rank test.

The obtained empirical results point out that market investors make a rational assessment focusing on long-term rather than short-term profits. This is based on the assumption that insurers with robust solvency positions can withstand financial and macroeconomic shocks, such a drop in equities or credit downgrades, without any significant forced selling and therefore mitigating rather than amplifying the crisis. As insurers have a crucial role in the economy providing a long-term funding and act as shock absorbers transferring risks from households and corporate sectors, the issued statement could contribute to ensure overall financial stability of the European insurance sector to support the real economy allowing quick economic recovery and avoiding a deep and long recession.

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Univerzita Karlova v Praze, Fakulta sociálních věd

Institut ekonomických studií [UK FSV – IES] Praha 1, Opletalova 26

E-mail : ies@fsv.cuni.cz

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