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Do EU-Wide Stress Tests Affect Insurers' Dividend Policies?

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Abstract:
The article employs panel data to investigate whether stress test results and other characteristics associated with European insurers vulnerabilities affect dividend distributions and share buybacks. We focus on the EU wide insurance stress test conducted in 2018 and 2021 as in this way we can also capture a behaviour of insurers during the COVID-19 crisis. Our empirical results suggest that two stress tests considered had no significant impact on changes in dividend distributions. However, more resilient insurers measured by assets-over-liabilities ratio seem to have higher dividend payout ratios including share buybacks. On the contrary, higher generated profit tend to be reflected in lower payout ratio.

Keywords: dividend distributions; dividends and share buybacks; European insurers; EU-wide insurance stress test, COVID-19

The views expressed in this paper are exclusively those of the authors and do not necessarily reflect those of the institutions with which the authors are affiliated.

1. Introduction

The introduction of a regular stress test of the insurance industry has positively influenced risk management of insurance companies. Stress tests aim to test resilience against potential future adverse scenario, in particular negative macroeconomic development. In this respect, it supports more prudent and forward-looking approach taking into account different tail risk scenarios. Moreover, the Solvency II regulation based on a market consistent valuation enhance a proper reflection of all risks insurers are exposed to. Overall, insurers should not focus only on a point-in-time estimate of the riskiness of a portfolio, but also on future portfolio exposures given assumption about a future macroeconomic development. Thus, EU-wide insurance stress test conducted by the European Insurance and Occupational Pensions Authority (EIOPA) enhanced a regulation of insurance solvency position by providing a more forward-looking and flexible process for assessing risks that might not be fully captured by risk-based solvency standards.

However, considering that the market can negatively responds to capital plan objectives of an individual insurance company, and complementary to weak stress test results, insurers might have incentive to manage their financial positions. This can be visible in capital ratios (e.g. SCR or asset-over-liability ratio), but can also be explored in capital actions such as dividend payments. Several research papers investigate the implications of stress test on financial institutions, e.g., Cornett et al. (2018) find that banks involved in stress test lower their dividend payouts significantly more in comparison to non-stress tested banks. Gallardo et al. (2015) find that banks have tendencies to manage capital more proactively as stress testing matures.

Using a sample of stress test insurance companies, we examine insurer behaviour employing Solvency regulatory data. We test for changes in dividend payout ratio given the results of stress test, and macroeconomic situation. Currently, literature related to implication of insurance stress tests and other regulatory measures is rather limited. This is mainly driven by confidential nature of data. In terms of available information on resilience of individual insurance companies, there is a substantial difference between the European banking and insurance sectors. While the individual results of EU-wide banking stress tests are regularly disclosed providing additional information on banks' vulnerabilities to market participants, this is not the case for the insurance sector. Contrary to European Banking Authority, the European Insurance and Occupational Pensions Authority (EIOPA) does not have a legal power to request individual disclosure from the participants of the EU-wide insurance stress tests. Therefore, market participants might be more sensitive to any disclosed information related to insurance companies' resilience. In this context, Jakubik and Teleu (2021a) evaluate the effect of the dividend-based prudential regulation of the European insurance regulator (EIOPA) in complementing the existing solvency regulation. Their finding indicates that dividend signalling theory is relevant in the context of European insurance company' market of operation. Furthermore, Jakubik and Teleu (2021b) found that while the market does not strongly respond to the disclosure of insurance stress test information, the public disclosure seems to have impact on systemic risk.

Insurance sector-wide stress tests share some similar characteristics with banking exercises. They are forward-looking and focus on tail risks by putting weight on highly adverse scenarios. Additionally, the same scenarios are applied to all insurance and re-insurance companies to obtain consistent supervisory risk

assessments across (re)insurers. However, there are also many differences in insurance and banking exercises. While bank system-wide stress tests typically use a 3-year horizon, insurance stress tests use the concept of static exercise with instantaneous shocks. The reason is that an insurance business is much more complex with the main challenge of modelling liabilities reflecting a long-term business. Contrary, bank stress tests focus primarily on asset side as liabilities typically reflect deposits that do not require any modelling for solvency exercises. Furthermore, system-wide bottom-up banking stress tests were extensively used to determine the level of capital needed after the financial crisis in 2007 that changed in later years using stress test exercises as a supervisory tool. In the case of EU-wide bottom-up insurance stress tests conducted by EIOPA, it has never been considered as a pass-or-fail or capital exercise. Instead, the exercises have been tailored to assess the resilience of the European insurance sector to market adverse scenarios and insurance specific shocks with potential negative implications for the stability of European financial markets and the real economy. As the main evaluation metric is typically used not only a solvency capital ratio (SCR), but also an assets-over-liabilities ratio.

The paper is organized as follow. Section 2 discusses the latest literature. Sector 3 presents the methodology and results. Finally, Section 4 concludes on the main findings obtained.

2. Literature Review

The literature related to the determinants of firms' dividend policy and dividend payouts built on the theoretical model proposed by Modigliani and Miller's in 1959 on dividend irrelevance framework in the efficient market. By relaxing certain assumptions of efficient market, scholars intend to provide evidence on key factors of dividend payouts.

Existing literature on dividend policy can help to find determinants of insurer's dividend payouts. Economic theory suggests that the management of a firm might be better informed about the true value of their firms, so that dividends can be used as a form of information to investors about future cash flow. This so-called signalling hypothesis developed by Bhattacharya (1979) shows that dividend announcement inform about current and future earnings with implication on dividends. In other words, managers may use dividend changes to overcome information asymmetries by signalling revisions to earnings expectations to existing and prospective investors (e.g., Lintner 1956). Akhigbe et al. (1993) find that life insurers' stock prices response to dividend changes was less pronounced, conveying less asymmetric information than those of other insurers. This indicates that shareholders could be interested in sensitive information about future cash flows, and dividend signalling may have higher importance in the nonlife insurance industry. Following the emergency fund theory and unemployment, the life insurance sector is more prompt towards the macroeconomic environment due to the deteriorating economic conditions of individuals (Geneva Association, 2012).

Based on the data from the European Monetary Union (EMU) as a whole, Germany, and Italy, Reddemann et al. (2010) analyse the dividend policy of the European insurance industry. They find no clear empirical evidence suggesting that dividend signalling are relevant economic phenomena for Germany and the EMU. Their finding advice that insurers may cut dividends to strengthen financial stability during the crisis without necessarily having to fear adverse consequences given by investors assuming that this measure is a clear sign for

future issues. On the contrary, insurers in Italy feared more that shareholders could interpret a suspension of dividend payouts as a sign of future problems. Hence, this indicates that dividend smoothing is a relevant economic phenomenon for Italian insurance sector.

From the agency theory perspective, proposed by Jenden and Meckling (1979), diverting the company's free cash flow from shareholders' private benefit might be proceed as expropriation (La Porta et al. 2000; Faccio et al. 2001). David, et al. (2016) explore payout channel choices via the agency theory. He finds that firms with significant institutional investors are more prompt to payout the dividends in economic downturn to maintain confidence in the market. At the same time, it is suggested that the agency theory might not hold for highly regulated financial firms as a strong external monitoring is carried out by the regulators, in particular in crisis time (Casey et al. 2009, Reddmen et al. 2010)

From the regulatory perspectives, there are numerous tools available for regulators to constrain dividend payouts by insurance companies. While banks are primarily constrained by regulators in their dividend payout policy, which implies that better capitalized banks pay higher dividends (Kroszner and Strahan 1996, Casey and Dickens 2000, Theis and Dutta 2009), for insurance companies, not only a solvency capital ratio (SCR), but also assets over liabilities ratio, is typically used as an evaluation metric. The literature on insurance insolvency in relation to the macroeconomic environment, risk appetite, and portfolio choices suggests that equities of both life and non-life insurance companies fluctuate with the macroeconomic environment (Browne, et, al., 1999; Kim, 2005; EIOPA, 2018a), and economic and market conditions affect investor and shareholder reaction to identical events (Gallo et al. 2016, Gupta et al. 2018). In general, insurers are often regarded as special considering their high dependence on the financial soundness of the overall insurance sector of a country. Therefore, the insurance industry in the EU and other parts of the world is subject to a very tight financial regulation. In this respect, insurance regulators primarily aim to guarantee the solvency of insurance firms. Harrington (1981), based on his analyses of the dividend policy of U.S. life insurers, argues that high dividend payouts can weaken the financial soundness of insurance companies. His findings indicate that the dividend policy of U.S. insurance companies overall does react rather slowly to changes in firm earnings. In general, the resolution of an insurance company is three to five times more expensive than that of other financial institutions (Grace, et al., 2003), which justifies its highly regulated environment. Hence, investors prefer a high degree of leverage in the insurance sector because not just customers, but also shareholders are protected against insolvency by regulators (Lee et al. 1980, Casey, et al. 2007). This mean that shareholders can use dividend income from insurers to obtain other financial assets, simultaneously maintain a constant amount of funds in their portfolio of insurance stocks and higher level of relatively risk-free leverage.

3. Methodology

This article aims to identify whether the EU-wide insurance stress test results of 2018 and 2021 conducted by EIOPA, and pre-existing vulnerabilities as a weaker capital position or profitability can explain the changes in dividend pay-out ratio of European insurers. We use a sample of listed insurance companies at group level that participated in the EIOPA insurance stress tests of 2018 and 2021. For those companies, we consider

the period of 2015-2021. In this way, we cover also the COVID crisis and its implications to insurers' distribution policies.

As the dependent variable, we use the dividend payout ratio (DP) based on the definition employed by Reuters. We consider not only dividends payout, but also share buybacks. It is quite important aspects as a decline of dividend payout could be compensated by increase share buybacks aiming at the same target. We use a Tobit specification to account for the fact that insurance dividend payouts are truncated at zero (Amore and Murtinu, 2019).

$$y_{i,t} = \beta_0 + \beta_1 y_{i,t-1} + \sum_{j=1}^{N} \beta_{2,j} x_{j,i,t-1} + \sum_{k=1}^{M} \beta_{2,k} z_{k,i,t-1} + \varepsilon_{it} \quad (1)$$

where y_{it} denotes dividend payout of insurance company *i* at time *t*, $x_{j,i,t-1}$ represents the *j*-th variable for insurance stress test results for insurer *i* at time *t*-1, $z_{j,i,t-1}$ represents the *k*-th control variable corresponding to the specific insurer i at time t-1 and ε_{it} corresponds to an error term for insurance company *i* at time *t* that follows a normal distribution $N(0, \sigma^2)$.

Our main explanatory variables come from individual insurance stress test results. We consider the exercises for groups in 2018 and 2021, because the one conducted in 2016 was covering solos only. Among our insurance specific variables, we employ solvency capital ratios post-shocks for the tested scenarios. In particular, for the 2018 stress test, we included both yield curve up ($ST2018_{up}$) and yield curve down ($ST2018_{down}$) scenarios. The yield curve down scenario tested the resilience of the European insurance sector to a prolonged low yield environment while the yield curve down corresponds to a sudden reversal of risk premia (EIOPA, 2018b). For the 2021 exercise, we consider results for the fix balance sheet ($ST2021_f$) and the constraint balance sheet ($ST2021_c$) even if the results for constraint balance sheet are available only for the limited number of participating companies (EIOPA, 2021).

Based on the literature review of determinants of companies' dividend policy, we build a set of control variables. In particular, return on equity (ROE) as a proxy for asymmetric information, significance/size of insurance company in terms of total assets (natural logarithm of total assets denoted as TA) in the context of agency cost theory, and solvency capital ratio (SCR) and assets-over-liabilities ratio (AoL) covering regulatory perspectives. Additionally, we added GDP growth and time-fixed effects for control for changes in financial and macroeconomic environment. Considering that we are having all groups in the sample with extensive gross boarder business, we consider EU GDP instead of GDP of countries of home supervisors.

All dependent and control variables were lagged by one year given the fact that insurance pay-outs are agreed during shareholder meetings early in the financial year, based on financial information at their disposal from the previous year. This also helps us to tackle any potential endogeneity related with simultaneity.

4. Empirical results

Our dataset shows that the median payout ratio corresponds to 54% over the whole considered time period, so lightly more than half of the generated free cashflows are paid out as dividends or share buybacks. In addition, the impact of EIOPA insurance stress tests scenarios corresponds to drops in SCR below 100% for the 10th quantile, while it is not the case for the 25% quantile. As those scenarios tested were designed as extreme but plausible, the results suggest high level of resilience of the participating insurance groups. The high level of capitalisation is confirmed also by high SCR and AoL ratios over the whole observed period as the values of this indicator are sufficiently above the regulatory thresholds even for the 10th quantile. Moreover, good financial conditions of insurers are also supported by the return on equity indicator standing at 3% even for the 10th quantile. This conclusion is further strengthen by the fact that our sample covers also adverse macroeconomic development as the 10th quantile for GDP growth corresponds to -4% (Table A1).

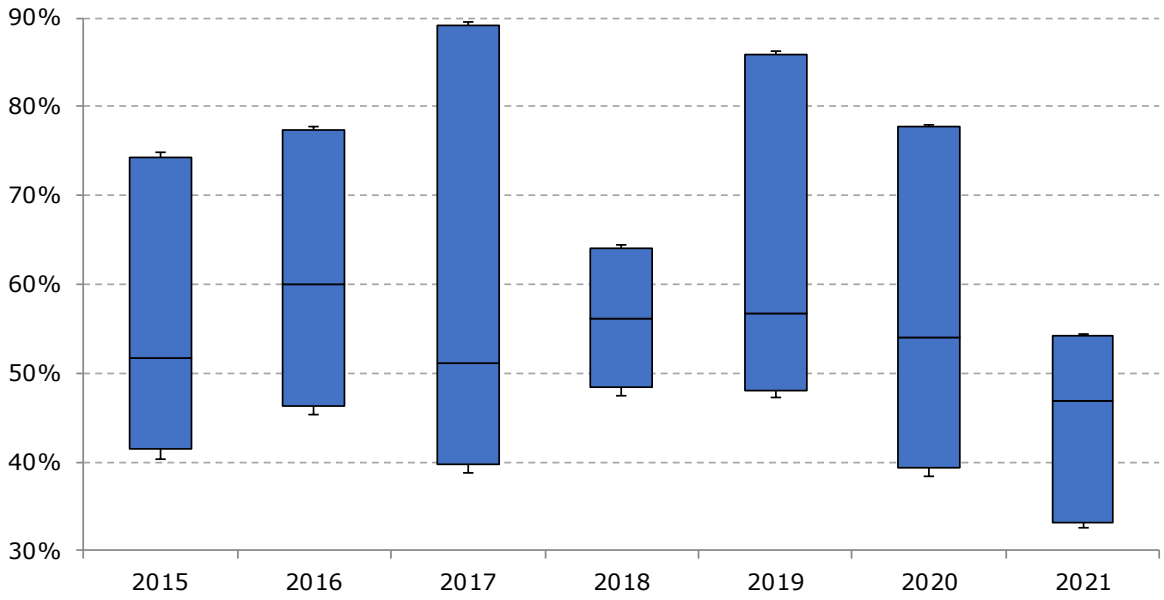
Table A1: Descriptive statistics for the dataset

Variable	Abbrevaiation	Quantile				
		10	25	50	75	90
Payout ratio	DP	25%	40%	54%	75%	100%
Stress test 2018 - yiled curve up	$ST2018_{down}$	82%	108%	139%	158%	171%
Stress test 2018 - yiled curve down	$ST2018_{up}$	65%	127%	142%	166%	181%
Stress test 2021 - fix balance sheet	$ST2021_{F}$	91%	104%	121%	157%	182%
Stress test 2021 - constarint balance sheet	$ST2021_{C}$	70%	112%	137%	158%	173%
Return on equity	ROE	3%	7%	10%	13%	19%
Natural logarithm of total assets	TA	7.58	8.54	9.59	11.09	11.35
SCR ratio	SCR	161%	180%	201%	221%	257%
Assets-over-liabilities	AoL	105%	108%	112%	122%	138%
Gross domestic product	GDP	-4%	1%	2%	3%	5%

Source: Authors' calculations

The development of distribution of dividend payout ratios including share buybacks over time suggests increased payout in 2016 (60% for the median company). This trend was reversed in 2017 for the median company, but the distribution was significantly widening suggesting that some insurers' payout ratios reached their maximums over the observed period. The increased payout ratio for the median company in 2018 was complemented by narrowing the distribution. Despite the long and stable economic growth for the period between 2015 and 2019, the median payout ratio fluctuated between 51% and 60%. Since 2020, the payout ratios has been moving down reaching their minimums in 2021 (47% for the median company) as a consequence of the COVID-19 crisis (Figure A1).

Figure A1: Distribution of payouts ratios of European insurers including both dividends and share buybacks



Source: Reuters

The results of the estimated model (1) reveals that EIOPA insurance stress test in 2018 and 2021 had no any significant impact on insurers' dividend distributions including share buybacks (Table A2). It might suggest that information related to the EIOPA stress test results were already known by the respective insurance companies and therefore did not influence their decision on dividends distributions and share buybacks. Moreover, as EIOPA has no a legal power to disclose the individual results of the EU-wide stress test exercises, insurers do not need to take into account such an information being judged by the market participants. Furthermore, the results of the two considered exercise revealed good resilient of the European insurance sectors and the majority of the participating companies were well capitalised against potential adverse scenarios. This could also drive the fact that insurers did not need to make any significant changes in their distributions based on the EU-wide stress test results.

Table A2: Results of the Tobin model for dividend distributions and share buybacks

Variable	Abbrevaiation	Estimate	Std. error	t value	Pr(>t)
Intercept		-138.345	103.5871	-1.565	0.0571 *
Lagged payout ratio	DP	0.4995	0.5025	1.349	0.1773
Stress test 2018 - yiled curve up	$ST2018_{down}$	-29.4301	59.1123	-0.498	0.6186
Stress test 2018 - yiled curve down	$ST2018_{up}$	24.1158	40.8934	0.59	0.5554
Stress test 2021 - fix balance sheet	$ST2021_{F}$	-30.5715	9686.677	-0.003	0.9975
Stress test 2021 - constarint balance sheet	$ST2021_{C}$	-34.047	5535.035	-0.006	0.9951
Return on equity	ROE	-148.471	127.3872	-1.941	0.0585 *
Natural logarithm of total assets	TA	3.4444	4.9095	0.121	0.3147
SCR ratio	SCR	5.9276	14.5892	0.846	0.5425
Assets-over-liabilities	AoL	61.6648	56.4288	1.695	0.0586 *
Gross domestic product	GDP	0.7293	2.2607	0.527	0.6651

Source: Authors' calculations

Despite the stress test results do not seem to have any significant impact on the payout ratios when control for other relevant factors, our empirical results suggest that insurers follow prudential approach with their higher payout ratios associated with better capital

positions measured by an assets-over-liability ratio (positive and significant coefficient for AoL). It suggests the relevance of dividend signalling hypothesis for European insurers.

Moreover, our results further suggest that insurers might behave counter-cyclically retaining more generated cashlows to build up capital in a good time when profitability is higher instead of increasing payout ratios. This could to some extend support dividend smoothing policy (negative and significant coefficient for ROE).

Overall, our results might be a good news for a regulators and policy makers alike suggesting that insurers apply prudent policy decreasing payout ratios in case of weaker capital position. At the same time, they seem to act counter cyclically, increasing payout ratios in good times to build up higher capital buffers and reducing in crises time. This might have a positive impact on financial stability.

Conclusion

Dividend distributions has become highly debated topic with the recent pandemic crisis. However, despite the global interconnectedness of financial system, there is currently no coordinated approach nor agreement on payout restrictions among members of various international fora as e.g., Financial Stability Board, the Basel Committee, etc. (ESRB 2020). Due to the Covid-19 outbreak, there were strong macroprudential initiatives for a wide-ranging restriction on payouts across the different financial segments, applicable to financial institutions irrespective of their capital levels. Our findings help to identify the key determinants that influence the decision of financial institutions to payout dividends and contribute to the ongoing discussion on potential effects and consequences of regulatory announcements and communications towards market participants.

As various elements of the regulatory and prudential framework are in place to constrain dividend payouts of insurers, it is important to better understand all transmission channels as well as insurers' behaviour to consider all those aspects when deciding on the appropriate supervisory measures. Moreover, better knowledge on the relevant dividend distribution aspects could allow to project a dividend income, which is sensitive to financial and macroeconomic variables, under different adverse scenarios within stress testing frameworks. Our empirical results suggest the relevance of dividend signalling as well as some elements of dividend smoothing hypotheses.

Based on our best knowledge, this is the first paper on the implications of regulatory stress tests on dividend distributions of insurance companies. Our results are in line with the conclusions available in the existing literature as well as the arguments provided in the introduction of this paper. Furthermore, it supports currently widely discussed topic by policy makers that restrictions of dividend distributions could be used as a macroprudential measure helping to reduce uncertainty on potential inadequate solvency positions in the crisis time.

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