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Negative Interest Rates and the Insurance Industry – Summary

A Survey of Risk-Management Capabilities and Practice

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Negative Interest Rates and the Insurance Industry

A Survey of Risk-Management Capabilities and Practice

Section 1: Introduction

Since 2008, we have lived in a world of unconventional monetary policy. Faced with limits to the effectiveness of their traditional tools of monetary policy, central banks around the world have extensively utilized nontraditional policy tools in the exercise of monetary policy. Foremost among these tools have been asset purchases (quantitative easing, or QE), forward guidance and negative interest rate policy (NIRP).

While those in North America are more familiar with QE and forward guidance, NIRP has been used extensively in Europe and Asia. Beginning in 2012, central bankers in the European Union, Japan, Switzerland, Sweden and Denmark[1] have imposed negative interest rates (NIR), effectively charging interest rather than paying interest on certain deposits at the central bank. NIRP has been long lived in these jurisdictions—every policy interest rate that has moved into negative territory remains negative today. These jurisdictions have experienced widespread reductions in interest rates—government and corporate bond yields, deposit rates and loan rates for individuals and businesses. It has recently been reported that a Danish bank is offering negative rates on residential mortgages (Collinson, 2019) and that UBS had imposed NIR on deposit accounts in its home country of Switzerland that exceed 500,000 euros (Winters, 2019). Countries with NIRP exhibit low interest rates across the yield curve, including NIR on long-term government bonds, and on corporate bonds.

Recognizing that NIRP could pose significant risks to the insurance industry, the Joint Risk Management Section of the Canadian Institute of Actuaries, the Casualty Actuarial Society and the Society of Actuaries (SOA) have undertaken this study of NIR and the insurance industry. This study has three primary objectives, addressed in the three main report sections:

> Section 3 reviews the history of NIR, analyzing the evolution of policy interest rates, government bond yields and corporate bond yields in those jurisdictions that have employed NIRP compared with the US, which has not.
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> Section 4 provides an overview of existing literature related to NIR, including literature on the drivers of NIRP, the effectiveness and unintended consequences of NIRP, the effect of negative rates on the insurance industry, and insight into the likelihood of NIRP's future use.
>
> Section 5 provides results of a study of practicing actuaries gathering information on their familiarity with NIR and NIRP, their opinions on the effectiveness and unintended consequences of NIRP, and their firms' modeling and risk-management practices related to NIR.

Bringing together these three elements, we aim to assist the industry in developing appropriate plans and responses to address risks related to NIR.

[1] This also includes central banks in Hungary, which was not considered in this report, due to a combination of the country's small gross domestic product and the modest level of its NIRP, −0.05% on a secondary policy rate.

To set context for the discussion to follow, we introduce several terms as used throughout the paper. "NIR" refers to a negative nominal interest rate, as contrasted with a real interest rate, which may be negative if a nominal rate is positive but is lower than the rate of inflation. NIR is an inclusive term and can refer to interest rates on loans or deposits, interest rates on bonds and other debt instruments issued by government or corporate issuers, or interest rates set by central banks for monetary policy. "NIRP" is a narrower term referring to monetary policy under which a central bank sets one or more of its policy interest rates below zero. A "negative rate jurisdiction" is a jurisdiction experiencing NIR since 2012 (we use the term "jurisdiction" rather than "country" in recognition that the Eurozone is supranational), and in some instances, we use the more specific term "negative policy rate jurisdiction" to highlight discussion that is specific to policy interest rates.

Section 2: Executive Summary

Since 2008, central banks around the world have extensively utilized nontraditional policy tools in the exercise of monetary policy. This report focuses on one of those tools—Negative Interest Rate Policy (NIRP) and has been undertaken by the Joint Risk Management Section of the Canadian Institute of Actuaries, the Casualty Actuarial Society and the Society of Actuaries in recognition that NIRP could pose significant risks to the insurance industry. This report includes three distinct threads of research—an analysis of historical interest rates under NIRP; a review of existing literature related to NIR and NIRP; and results of an actuarial practitioner survey of awareness of NIR, opinions regarding the effectiveness of and risks associated with NIRP, and insurance company modeling and risk management practice related to NIR. Considerations for the pension system are out of scope of the report, though many of the risks and implications of NIRs described for the insurance industry would be applicable to the pension system as well.

We summarize our findings and results by section, followed by a summary of our primary conclusions.

2.1 Negative Interest Rates in Recent History—Section 3

NIRP was first implemented in Denmark in 2012. The European Central Bank (ECB) did not follow until mid-2014, with Sweden and Switzerland then quickly following suit. The Bank of Japan then implemented NIRP in early 2016. Since then, all five jurisdictions have maintained NIRP, and as of May 2019, the rates ranged from a high of −0.05% in Japan to a low of −0.75% in Switzerland.

As NIRP has been implemented, government bond yields have fallen across the yield curve, and there has not been evidence of significant yield curve steepening in any jurisdiction. For three of the five jurisdictions, 10-year government bond yields have fallen below zero at some time during this period, and the five-year has fallen below zero for all of them. In most cases, the spread between the 10-year government bond yield and the policy rate has fallen in the time since NIRP was implemented, and no jurisdiction shows a significant increase in this spread. During most of the period of NIRP, the US yield curve has shown greater steepness than yield curves in the NIRP jurisdictions, with the US 10-year spreads becoming comparable only after the Federal Reserve (Fed) began implementing steady increases in 2017.

Corporate bond yields have also fallen steadily since the introduction of NIRP, as measured using Standard & Poor's corporate bond yield indices. Spreads on corporate bonds were more difficult for us to evaluate, because we did not have access to full yield curve data for either government or corporate bonds and because the average duration varies for the different countries' corporate bond yield indices. However, measured against either policy rates or 10-year government bond yields, corporate spreads do not indicate any significantly increasing patterns, and spreads in the Negative Rate Jurisdictions are generally lower than US spreads over this period.

2.2 Review of Existing Literature—Section 4

We have reviewed and summarized literature addressing several key elements related to NIRP—factors driving the introduction of NIRP, effectiveness and unintended consequences of NIRP, measures to improve the effectiveness of NIRP, and literature related to the insurance industry. This literature indicates that natural interest rates have fallen over the last few decades—primarily due to demographic factors and increased risk aversion—and that this trend is likely to persist, which reduces the effectiveness of conventional monetary policy measures.

Just as our empirical analysis suggests that NIRP has been effective at reducing interest rates across the spectrum of debt instruments, the literature—with some exceptions—finds that NIRP has been effective at reducing interest rates and increasing both credit supply and investment activity. Some critics of NIRP argue that it may constrain, rather than expand, bank lending because of reduced interest margins. While some authors have found such behavior among a subset of banks, the literature indicates that, broadly, banks have responded to NIRP with increased lending as policymakers expect.

The literature generally finds that adverse consequences of NIRP have not arisen to any significant degree. Several authors have studied the impact of NIRP on bank profitability, finding that the banking sector as a whole has effectively offset reduced interest margins with a combination of increased lending volume and increased revenue from other sources. The literature does find that some banks, particularly those whose business model is heavily weighted toward retail depositors and whose capitalization is low, have suffered greater adverse effects but in most cases have been able to respond in ways that mitigate these effects. More broadly, some authors have studied the effect of NIRP on variables related to systemic financial stability risks, generally finding little adverse impact to date. While adverse consequences have not arisen, authors are consistent in cautioning that "have not" does not mean "will not."

While monetary policymakers have found the effectiveness of NIRP to be acceptable under the modestly negative rates implemented to date, most authors still believe that a sub-zero lower bound exists beyond which deeper negative rates would be ineffective. A body of research has suggested mechanisms by which this lower bound could be eliminated. Such mechanisms include development of digital currency to replace or supplement physical currency, as well as means to impose fees or taxes on cash holdings. This research argues that more deeply negative rates may be desirable in some circumstances and that policymakers should not be constrained in their ability to implement them.

Research into the effect of NIRP on the insurance industry are limited, with most literature being general in nature and with little of the empirical analysis seen for the banking sector. Authors unaffiliated with the insurance industry have warned about the risk of NIRP to the financial stability of the insurance industry, as well as the financial stability of the pension system, but little industry literature studies this risk. There is a need for additional research—both empirical and projection-based—into the industry's financial risks and potential responses. There is also a need for research into regulatory changes that may be needed to enable the industry to navigate the effects of negative rates. Such changes might include adjusting capital requirements to consider the risks of NIR as well as adjusting the floors on guaranteed interest rates to consider negative rates. In the US, several reserving or capital requirements rely on formulas or scenarios that do not accommodate NIR.

2.3 SOA Survey on Negative Interest Rates—Section 5

The practitioner survey on NIR found participants were only modestly aware of NIR and NIRP throughout the world. Participants perceived much greater risks than benefits arising from NIRP, both for their firms and for the economic system. Solvency and profitability risks to the financial sector were low on their list of adverse consequences, however, with such consequences as excessive risk-taking and increased inequality ranking considerably higher among the participants' list of concerns.

Actuarial modeling capabilities related to negative rates were moderate, with 50% to 70% of participants responding capabilities in asset and liability software and in their scenario generation. Fewer than 30% of participants indicated that they do include negative rates in their modeling exercises, with a larger number using modeling methods or assumptions that prevent or suppress the impact of negative rates. A similarly small number responded that negative rates are considered in their enterprise risk management (ERM) program in any formal way, although about 40% indicated that their firms hedge against declining interest rates.

2.4 Conclusions—Section 6

We conclude that the results of NIRP to date have generally met policymakers' expectations, with minimal adverse consequences. Because of this and because the natural rate of interest is expected to remain low, one may expect that, in the next economic downturn, more central bankers—including the US Fed—are likely to implement NIRP and that rates are likely to move more deeply into negative territory. The risk of adverse consequences remains high, including risks to the insurance industry. Insurance industry research to date is inadequate to assess the magnitude of these risks, and additional research is needed in this area and in the area of potential regulatory actions to help ensure stability (see the Conclusion and Section 4.5 for discussion of potential research topics). As a whole, survey participants and their firms appear under-prepared for negative rates in terms of both modeling practice and ERM. Additional work is needed on both an industry-wide scale and at the firm level to evaluate and respond to the risks posed by NIR.