

**CANADA: Financial Sector Assessment  
Program the Impact on the Insurance Sector  
of a Low Interest Rate Environment-Technical  
Note**



# CANADA

## FINANCIAL SECTOR ASSESSMENT PROGRAM

March 2014

### THE IMPACT ON THE INSURANCE SECTOR OF A LOW INTEREST RATE ENVIRONMENT—TECHNICAL NOTE

This Technical Note on the Impact on the Insurance Sector of a Low Interest Rate Environment on Canada was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed in February 2014.

The policy of publication of staff reports and other documents by the IMF allows for the deletion of market-sensitive information.

Copies of this report are available to the public from

International Monetary Fund • Publication Services  
700 19<sup>th</sup> Street, N.W. • Washington, D.C. 20431  
Telephone: (202) 623-7430 • Telefax: (202) 623-7201  
E-mail: [publications@imf.org](mailto:publications@imf.org) Internet: <http://www.imf.org>

Price: \$18.00 a copy

**International Monetary Fund  
Washington, D.C.**



# CANADA

## FINANCIAL SECTOR ASSESSMENT PROGRAM

February 2014

### TECHNICAL NOTE

### THE IMPACT ON THE INSURANCE SECTOR OF A LOW INTEREST RATE ENVIRONMENT

Prepared By  
**Monetary and Capital Markets  
Department**

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program in Canada. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations.

# CONTENTS

<b>Glossary</b>	<u>3</u>
<b>EXECUTIVE SUMMARY</b>	<u>4</u>
<b>INTRODUCTION</b>	<u>6</u>
<b>LOW RATES—WHAT IS AT STAKE FOR INSURERS</b>	<u>6</u>
<b>THE IMPACT IN CANADA</b>	<u>9</u>
<b>THE REGULATORY AND SUPERVISORY RESPONSE</b>	<u>19</u>
<b>BOXES</b>	
1. Summary of Canadian Life Insurance Sensitivity to Interest Rate Changes	<u>11</u>
2. Canadian Actuarial and Accounting Standards	<u>13</u>
3. Life Insurance Response to Lower Interest Rates	<u>15</u>
4. Recent Actions Taken by Insurance Regulators	<u>20</u>
<b>FIGURES</b>	
1. Major Economy Interest Rates	<u>12</u>
2. Sensitivities of Major Insurance Companies	<u>17</u>
<b>TABLES</b>	
1. Gross Premiums by Major Lines of Business in 2012—L&H FRIs	<u>10</u>
2. Aggregate Life Insurance Sector Performance	<u>14</u>

## Glossary

ASB	Accounting Standards Board
CALM	Canadian Asset Liability Method
CTE	Conditional Tail Expectation
EIOPA	European Insurance and Occupational Pensions Authority
FRI	Federally Regulated Insurer
GAAP	Generally Accepted Accounting Principles
IAIGs	Internationally Active Insurance Groups
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
ICA	Insurance Companies Act
IFRS	International Financial Reporting Standards
L&H	Life and Health
LTC	Long Term Care
MCCSR	Minimum Continuing Capital and Surplus Requirement
MCT	Minimum Capital Test
NFI	Non-Fixed Income
OSFI	Office of the Superintendent of Financial Institutions
P&C	Property and Casualty
PRPP	Pooled Registered Pension Plans
RoE	Return on Equity
UL	Universal Life

## EXECUTIVE SUMMARY<sup>1</sup>

**The prolonged low interest rate environment has been a source of vulnerability for the insurance sector worldwide.** Life companies in many countries are exposed to persistent low interest rates, which reduce returns on new investments, including the reinvestment of maturing assets. Low rates increase the current value to policyholders of guaranteed returns. They may react by surrendering fewer policies relative to expectations, increasing contributions into current policies where possible and buying fewer new policies. Non-life business, being short term with regular renewals, is generally less sensitive to interest rate changes.

**In Canada, the nature of life insurance business creates significant exposure to low interest rates.** Life companies have sold many permanent life insurance policies having cash values supported by guaranteed rates. Certain annuities, long term care and segregated fund products (similar to mutual funds but supported by guarantees) have created equity as well as interest-rate exposure. Some groups built up exposures through U.S. operations selling similar products. Matching long-term liabilities is often not possible, creating reinvestment risk. Some companies went into the financial crisis overly-exposed to a prolonged low interest-rate environment.

**Canadian accounting and regulatory standards, which apply to worldwide consolidated balance sheets, have required companies to respond to lower rates.** Actuarial standards on valuation of liabilities (also the basis for statutory accounting), pending a revised IFRS4 on insurance contracts, require that assumed reinvestment rates take increasing account of current market rates, which led to higher liabilities as low rates persisted. As OSFI's capital requirements are sensitive to asset and liability values, regulatory capital ratios have tended to decline as rates fell. For one group, lower interest rates contributed to significant overall losses and a need to raise new capital.

**Companies have responded by changing pricing and business mix rather than increasing risk in investment portfolios.** New business has been repriced and premiums raised on existing policies, where possible. Companies are selling fewer products with sensitivity to interest rates and equities and switching to low risk products including mutual funds. There has been significant retrenchment in the U.S. Nonetheless, a wide range of products, including permanent life insurance, continue to be available in the market, although at higher prices; and with limited exceptions, companies have not been switching into higher yield or alternative investments (a key focus of supervisory interest globally in insurance companies' response to lower interest rates). Portfolios remain overwhelmingly focused on investment-grade fixed-interest bonds.

---

<sup>1</sup> Prepared by Ian Tower, IMF Expert, with helpful inputs from Timo Broszeit (MCM), as part of the 2014 FSAP Update of Canada.

**Canadian life insurers now stand to gain from gradually rising interest rates, but the longer run impact of the low rate environment on business models remains unclear.** The effect of Canadian accounting and actuarial standards is that further increases in liabilities will have to be recognized in the short term, whatever the direction of rates. However, most revaluation losses resulting from past interest rate reductions have been recognized. Sensitivities to future interest rate trends have been reduced through hedging. In Canada, demand for life insurance and annuities remains high and insurers continue to benefit from well-established brands and distribution networks. But in the medium term, as they shift more risk to policyholders and seek to sell more non-insurance products, insurers will be focusing on business where they face greater competition from other financial institutions, including banks.

**The regulatory regime has served Canada well in the adjustment to a low rate environment.** The effect of Canadian accounting and regulatory standards is that Canadian insurers have been subject to greater balance sheet pressures than competitors in some countries with similar business, including the U.S. and EU. Standard-setters and supervisors in Canada have resisted pressure to dampen the sensitivity of their regime to rate changes, while addressing anomalies exposed by the crisis. In the short run, key actuarial standards, including on non-fixed income investments, are undergoing timely revision to reflect recent experience and bolster valuation requirements. OSFI should also review its data collection to improve oversight of trends in non-fixed income investments (including information on duration and returns) against the possibility that insurers seek to increase such investments. In addition, OSFI should continue to closely monitor foreign operations, in particular product design and its implications for group wide interest rate risk sensitivities. A key driver of the impact of rate changes in the future will be the revised IFRS4 and its relatively market consistent approach to valuation, the anticipation of which is influencing OSFI's current redesign of its capital regime.

**OSFI could consider the development of further policy tools to support its microprudential mandate for insurance.** OSFI has taken significant policy measures in the banking sector to address broader risks. It should consider the case for tools that could similarly moderate risks in insurance such as the build-up of exposure to interest rate changes before the crisis. Market wide stress tests based on economic scenarios tailored for insurance should continue to be a key input to decisions on the use of such tools, which could include limits on higher risk types of business or additional buffers such as countercyclical regulatory capital requirements.

## INTRODUCTION

1. **The extended period of low interest rates<sup>2</sup> since 2008 poses challenges for insurance companies dependent on high returns to meet promises to policyholders.** This note outlines the reasons why the level of rates matters to insurance companies and examines the particular features of the Canadian insurance market that have accentuated the impact of low rates—including the prevalence of long term policies with fixed premiums and high guarantees and a financial reporting and regulatory framework that requires companies to recognize the economic impacts of changes in rates across their worldwide business. It highlights the varying impact on life insurance and Property and Casualty (P&C) businesses and among individual companies, reflecting their different product mixes and geographical reach. It outlines how insurance companies have been adjusting to the new environment and potential implications for the Canadian market in the future. The note also reviews the regulatory response of the Office of the Superintendent of Financial Institutions (OSFI), the prudential regulatory authority for federally-regulated insurance companies<sup>3</sup>.
  
2. **This note has been prepared on the basis of published information, drawing on discussions with market participants.** The note forms part of the 2013 Financial Sector Assessment Program (FSAP) for Canada. For the purposes of this part of the FSAP work, staff visited Ottawa and Toronto in September 2013 and met with representatives of the Government of Canada, Bank of Canada, OSFI, the Canadian Actuarial Standards Board, insurance companies, industry associations, auditors and rating agencies. The work also draws on the Detailed Assessment of Observance of the Insurance Core Principles for Canada prepared for the FSAP during an earlier mission to Canada in June 2013. The authors are grateful for the input to their work.

## LOW RATES—WHAT IS AT STAKE FOR INSURERS

3. **The level of interest rates matters to insurance companies to the extent that their promises to policyholders depend on their ability to earn certain rates of return.** They may offer policyholders explicit guarantees (e.g., a 3 percent appreciation in the policyholder's fund per annum) or implicit undertakings such as an assured lump sum in relation to a monthly or annual premium, or a certain level of annuity payments in relation to a sum invested.
  
4. **The extent of an insurer's exposure depends on its asset and liability management, but matching liabilities with assets of a similar duration may be challenging.** In a low rate environment, insurers will find it harder to meet their promises to the extent that relevant liabilities are of longer duration than assets, requiring them to reinvest at lower rates. Given the long term

<sup>2</sup> In this note, references to "rates" are to interest rates and not, unless specifically mentioned, to premium, lapse, foreign exchange or any other rates.

<sup>3</sup> Overviews of the Canadian insurance sector and regulatory framework are included in the separate FSAP report: Detailed Assessment of Observance, Insurance Core Principles.



nature of many life insurance products, exact matching of assets and liabilities across the balance sheet is unlikely to be possible nor effective economically (given for example, the options which policyholders may have been granted). The mature markets in which longer term investments are available are likely to be those with the longest duration insurance contracts, reflecting large savings pools and high demand for insurance cover. It may also be harder for insurers to sell new policies when the returns which they can promise have fallen.

**5. Changes in interest rates do not generally have a major impact on P&C and term life insurance.** The impact of rate changes varies according to the nature of policies written by insurers, now and in the past. P&C insurance risks are generally not related to financial returns and policies often renew or are repriced annually. Longer term P&C business may be vulnerable to higher interest rates, especially where accompanied by inflation leading to increased claims at the same time as investment values are declining. In life insurance, low rates have a relatively limited impact on short term insurance, where the main risks relate to death and disability; but many life insurance contracts include an investment return as well as insurance cover, which makes them sensitive to prevailing market rates, depending on their duration.<sup>4</sup>

**6. Even for policies with investment returns, rate changes will have less impact when:**

- a limited guarantee or no guarantee is offered and investment risk is essentially borne by the policyholder (e.g., unit-linked policies, segregated funds without guarantees); or
- investment risk is shared between the company and policyholder (participating policies); or
- there are limited options for policyholders to vary premium amounts, in particular to benefit from a high guaranteed rate of return when market rates have fallen; or
- the company retains the right to reprice in-force blocks of business; or
- liabilities are matched by assets of similar duration or mismatch risks are hedged.

**7. The design of insurance policies is sensitive to how they are sold, creating pressure to meet policyholder demand for competitive returns and flexible terms.** Contracts may include options for policyholders to vary premiums, make withdrawals before the maturity of the policy without a penalty, even to renew a contract at maturity on unchanged terms. Distribution arrangements via agents and advisors (often remunerated by commission) create pressures to keep policies competitive, which can conflict with risk management objectives, a tension which the risk governance arrangements of insurance companies must be capable of managing.

---

<sup>4</sup> Swiss Re "Facing the interest rate challenge," Sigma no 4/2012 discusses the impact of low rates on the global insurance sector in some depth, including cross-country comparisons.

**8. Exposures arise when rates are not just temporarily low but low for a long period.** The longer that rates are low, the more investment of new premium income and reinvestment of maturing investments (where assets and liabilities are mismatched) will have to be done at the prevailing low interest rates; and the more firms will need to reprice or redesign products to reflect lower rates. For companies with mature books of long term business, it is the evolution of rates over a period of many years that will determine whether they can meet their promises to policyholders. This requires them to make assumptions about long run future rates. How such assumptions are made should be a key focus of risk management and supervisory oversight.

**9. Policyholder behavior will also vary with changes in the interest rate environment.** The incidence of lapses (where the policyholder ceases to make payments) and surrenders (where the policy is terminated early for a cash value) will be sensitive to the level of interest rates. Low rates, may, for example, lead to fewer than expected policyholders surrendering policies with valuable guarantees, or to policyholders increasing their premium payments (if permitted by the policy terms). Similarly, high prevailing interest rates may encourage higher than expected surrenders if policyholders perceive better returns to be available from taking out new insurance policies or from switching to alternative savings products. As insurance companies make assumptions on expected lapse experience and its impact (lapses on policies with no cash values can be profitable for the insurer) when pricing policies, changes in lapse experience due to interest rate movements can have a significant impact on performance.

**10. The extent to which the impact of low rates is recognized by insurers in financial reporting varies across countries.** There are no internationally-agreed comprehensive accounting, actuarial or regulatory standards for insurance business pending work on a revised IFRS4 on insurance contract valuation<sup>5</sup> and the IAIS Common Framework project in respect of the supervision of internationally active insurance groups (IAIGs).<sup>6</sup> Few countries require insurers to revalue the entire balance sheet at current market rates. In most, impacts are dampened to some degree for reporting purposes, which for insurance companies with interest rate sensitivities avoids volatility in published figures but can obscure exposure to future losses should rates not recover. Developments in accounting (the revision of IFRS4) and solvency standards (including the EU Solvency II project)<sup>7</sup> are, however, moving in the direction of greater market consistency, which may deter companies from long term business or encourage diversification into a broader range of products and markets.

**11. Insurers can respond to lower than expected interest rates in a number of ways:**

<sup>5</sup> The Insurance Contracts project of the IASB aims to provide a single principle-based IFRS to account for all types of insurance contracts, including reinsurance contracts. The IASB's latest proposals were published on 20 June for consultation until 25 October 2013. See [www.ifrs.org/current-projects/iasb-projects/insurance-contracts](http://www.ifrs.org/current-projects/iasb-projects/insurance-contracts)

<sup>6</sup> The Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame) is a set of international supervisory requirements focusing on the effective group-wide supervision of IAIGs. The IAIS is scheduled to formally adopt ComFrame in 2018. See: [www.iaisweb.org/Common-Framework--765](http://www.iaisweb.org/Common-Framework--765)

<sup>7</sup> See: [http://ec.europa.eu/internal\\_market/insurance/solvency/](http://ec.europa.eu/internal_market/insurance/solvency/)

- by lengthening the duration of assets, including non-fixed income investments, to match liabilities or otherwise investing for higher yield, accepting the additional credit or liquidity risks that may arise;
- by hedging exposures, although this may be costly and imperfect where the business is long term and there are extensive policyholder options, and can entail counterparty credit risk;
- by changing the pricing of new business, by reducing explicit guarantees or raising premiums while maintaining benefits, at some risk to market share;
- by adjusting premiums or benefits on existing business or switching customers into new policies, if contractual provisions, regulatory requirements and reputational risk considerations permit;
- by changing new product mix to shorter term policies or longer term policies with reduced benefits or by reducing dependence on investment income by cutting operating costs.

**12. Risks related to insurers looking for longer duration and increased yield are a key focus of supervisory interest.** Life insurance companies generally include some non-fixed interest, non-equity investments in portfolios for diversification as well as for the long duration that comes with direct investment in real estate, infrastructure and related assets. A concern is that insurers may increase such investments in the search for yield despite the implications for risk appetite, risk governance etc. Many supervisors have said they will be alert to such developments.<sup>8</sup>

## THE IMPACT IN CANADA

**13. The Canadian life insurance market comprises three key segments (See Table 1), but there is a variety of products.**

- Life insurance products are sold to individuals through tied agents and independent brokers, generally offering advice.
- Life insurance is also sold on a group basis, where corporate customers buy insurance coverage on behalf of all or groups of employees.
- Annuity products comprise a variety of retirement savings (accumulation) products and payout annuities.

<sup>8</sup> See, for example, European Insurance and Occupational Pensions Authority (EIOPA): Supervisory Response to a Low Interest Rate Environment, February 2013.

**Table 1. Gross Premiums by Major Lines of Business in 2012—L&H FRIs  
(Canada only)**

<i>In Can\$ millions</i>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<i>% of total</i>
Individual	1,615	1,739	1,705	19%
Group	2,237	2,192	2,646	29%
Annuities	5,977	5,497	4,715	52%
<b>Total</b>	<b>9,828</b>	<b>9,428</b>	<b>9,066</b>	<b>100%</b>

Source: OSFI

**14. Further distinctions are between participating policies, where the policyholder participates in returns on the invested assets (i.e., the return is variable) and non-participating policies; and between general fund products and segregated fund products.** The latter share characteristics with mutual funds, in that returns are linked to identified underlying investments, but unlike mutual fund managers, insurers provide guarantees to limit policyholders' exposure to investment risk.

**15. The market is mostly unregulated in relation to product design.** In Canada, there are few product design regulations and no requirements for pre-approval of new products or premiums. Such restrictions do, however, apply in the U.S. and some other jurisdictions where Canadian companies are active;<sup>9</sup> and insurance sales are subject in most countries to market conduct requirements including point of sale disclosure. There are no restrictions in Canada on the level of guarantees that may be offered (including no maximum guarantees, as have been set in some other countries). By law, segregated funds have to be offered with a guarantee, but this is currently set at only 75 percent of the principal. As in other countries, the distribution of dividends to shareholders in relation to participating policies is restricted.<sup>10</sup> In practice, the design and pricing of insurance products is highly sensitive to market demand, reflecting the close relationship between insurance companies and distributors and the prevalence of advisor sales channels.

**16. A key product is long term life insurance, often with guaranteed rates of return.** Life products range from term insurance (coverage for a fixed period) to various forms of permanent insurance (lifetime coverage) such as whole of life and universal life (UL). In the case of UL policies, policyholders make regular (usually fixed) premium payments. Amounts that exceed the cost of insurance (often debited on a level basis despite the escalating cost to the insurer through the

<sup>9</sup> For example, non-forfeiture laws in the US market as well as rate and form requirements of the US state-based insurance regulators.

<sup>10</sup> These are relatively restrictive in Canada. Under s461 of the Insurance Companies Act, a sliding scale applies related to the size of the company's book of such policies; for the largest books, only 2.5 percent of profits may be transferred to shareholders.

policyholder's life) accumulate into a fund, sometimes attracting a guaranteed rate of return.

**17. The features of policies vary, but universal life has become a standard life insurance product in North America.** Universal life products have accounted for as much as 40 percent of new product sales. The market is competitive and individual companies' market shares (of new sales) are particularly sensitive to pricing. In the past, companies tended to be slow to reprice new business when prevailing rates change. However, in the past two years there have been significant changes to increase UL premiums for new business by all the major life insurers. Given their duration and guarantees, UL policies are a key source of interest rate exposure in the Canadian market.

**Box 1. Summary of Canadian Life Insurance Sensitivity to Interest Rate Changes**

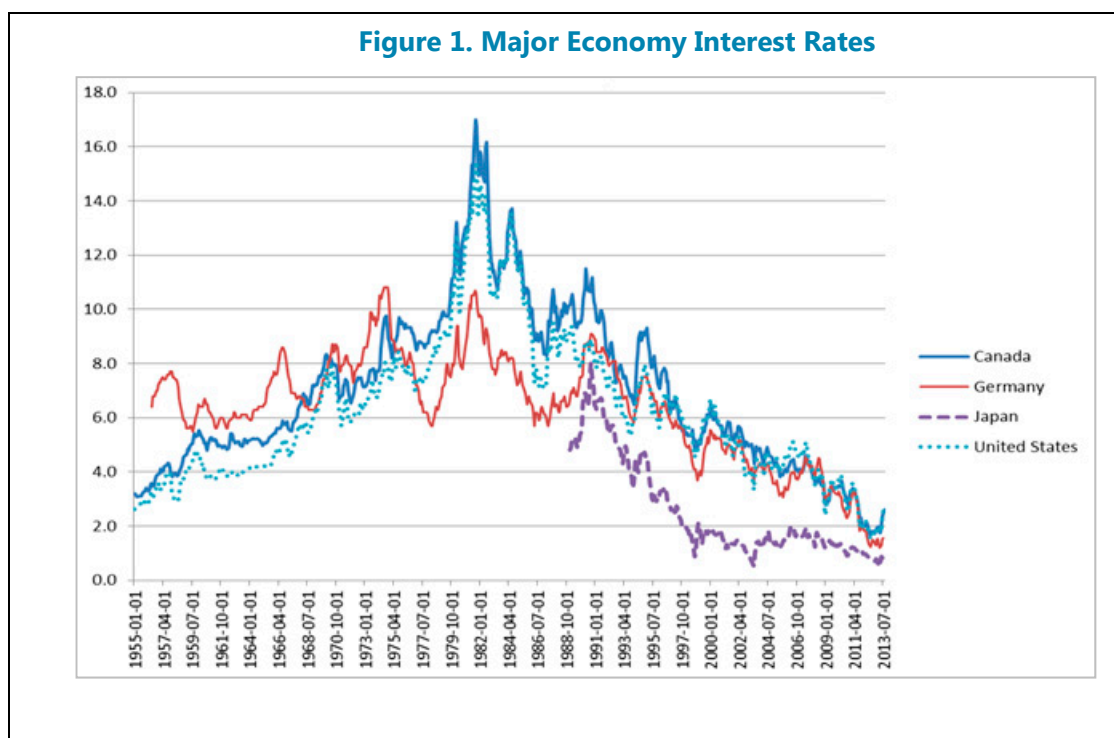
<b>Rate sensitive features</b>	<b>Canadian experience (excluding foreign operations)</b>
High life insurance penetration	In line with other major economies (>3 percent of GDP)
Long term policies	Prevalence of permanent insurance products (e.g. Universal life), long term care, annuities as part of diversified businesses
Guaranteed rates of return	Common to longer term policies – with limited or no provision for premium adjustment in case of lower rates
Sales-driven distribution	Mix of tied agents and independent, often commission-driven but most selling on an advisor basis
Availability of long maturity assets	Government of Canada bonds limited to 30 years, good supply of non-fixed income investments including infrastructure assets, with large pension fund sector driving demand
Regulation of policy terms and pricing	None except for minimum 75 percent of principal guarantee applying to segregated funds. Legislation also sets limits on dividend distribution to shareholders on participating policies
Policyholder options	Universal life are often sold with policyholder options to increase premiums etc.
Surrender penalties	Generally yes, sometimes penal (no cash value on surrender) resulting in low lapse experience
Accounting framework	Not market consistent, but prescribed assumptions on reinvestment rates require revaluation to reflect impact of rate changes over time.

**18. Other products have contributed to increased exposure to interest rate (and other market) risks, including segregated funds.** (Box 1 compares the Canadian market against features that contribute to significant interest rate sensitivity.) Segregated funds with guarantees of minimum death or withdrawal benefits entail interest and equity risk.<sup>11</sup> Critical illness and long term care (LTC) policies can entail significant interest rate exposure because of their long duration. At the same time, insurance products with more limited rate sensitivity have seen declining sales—in particular participating policies, where the policyholder's return is dependent on actual returns on invested

<sup>11</sup> Segregated fund policies are insurance products with investment features. Insurers are required to maintain separate funds for these policies where premiums are invested in bonds, equities etc., depending on the investment objectives of the funds. However, the provisions for the guarantees are held in the general funds of the insurer.

assets (as a result, only 18 percent of outstanding individual life insurance is participating, compared with nearly 30 percent ten years ago.)<sup>12</sup>

**19. The major life groups<sup>13</sup> in particular have diversified businesses, but particular challenges have arisen in foreign operations.** Canadian insurers write extensive group business (around 40 percent of total in force Canadian life insurance), which generally renews annually. To varying degrees, they offer participating policies and wealth management products. Some large insurance groups contain banks. These insurance groups cross-sell banking products offered by their bank subsidiaries to their insurance customers. The large groups are also geographically diversified, although it is in the non-Canadian operations where (in some groups) the largest exposures to low interest rates arose and where retrenchment has been sharpest. In the U.S. in particular, where they had to offer competitive variable annuity and other individual life products, Canadian-owned businesses found themselves more highly exposed to interest rate and other market risks, reflecting more generous guarantees and aggressive pricing than in Canada.<sup>14</sup>



<sup>12</sup> Source: Canadian Life and Health Insurance Association (CLHIA).

<sup>13</sup> The three major groups are Manulife Financial Corporation, Sun Life Financial Inc. and The Great West Life Assurance Company. Together, they held just under 76 percent of total life insurance assets in Canada in 2012.

<sup>14</sup> 48 percent of the consolidated assets of the top-10 insurance groups and 69 percent of gross premium are attributable to domestic business. The US is the largest foreign market for the top 3 insurance groups, accounting for 37 percent of assets and 17 percent of premiums in 2012 (i.e. before recent divestments), followed by Europe (11 percent of assets and 12 percent of premiums). Assets of Asian operations are low at 9 percent of total assets.

**20. The impact of low rates has been a product of the prevalence of long term policies and the accounting treatment of asset/liability mismatches.** The long term nature of Canadian policies is not matched by longer term available assets. The longest duration instruments issued by the Government of Canada are 30 year bonds. Some provincial government issues have been made at longer than 30 year maturities, but in limited amounts. Corporate debt instruments do not extend to 30 years.

**21. There is a good supply of non-fixed interest, non-equity investments in Canada such as direct real estate investment and infrastructure.** The Government of Canada is also encouraging the development of Public-Private Partnerships. However, investment in these types of assets (and direct investment in real estate) requires skills and expertise which insurers' investment units—focused mainly on traded securities—may not have. Only a small number of companies have developed specialist expertise (by contrast some Canadian pension funds have extensive capacity in these areas).

### Box 2. Canadian Actuarial and Accounting Standards

Canada adopted IFRS with effect from 2011. Pending a revised IFRS 4 on the valuation of insurance contracts, existing national standards apply—in Canada, the Standards of Practice of the Actuarial Standards Board provide the basis for Canadian GAAP. Insurers must also use IFRS for regulatory reporting purposes, including capital adequacy, unless OSFI requires any variations (in practice it has required none). Accounting and regulatory standards are therefore well-aligned in Canada.

For life insurers, the Canadian Asset Liability Method (CALM) is based on the prospective future cash flows of liabilities and their supporting assets. Insurers have to segment liabilities of similar classes, assign assets to each segment and derive best estimates of the value of the liabilities, using scenarios to apply margins for adverse deviation that reflect the risks and uncertainties of future cash flows. For interest rates (fixed income investments), insurers may calculate their provisions for adverse deviation using stochastic or deterministic approaches (the latter are generally used as they act as a floor). Insurers must apply a base scenario to their current reinvestment strategy, which includes use of the current risk-free yield curve out to 20 years and from 40 years, use of risk-free rates equal to the sum of half of the 60-month and the 120-month moving averages of historic long-term Canadian risk-free bond yields (this rate is known as the Ultimate Reinvestment Rate). Nine additional scenarios must also be tested, including reinvestment rates tracking current rates into the future, and any additional scenarios that the company considers appropriate. The least favorable outcome is then used to determine the provision for adverse deviation, being the difference between the best estimate and the result of the application of scenarios. The approach to non-fixed interest investments is methodologically similar but scenarios are not prescribed.

The effect of CALM in relation to interest rate risk depends on the nature of the company's liabilities, how they were priced, the extent to which they have been matched, the reinvestment strategy where there are mismatches and the application of the interest rate scenarios, including any additional, more conservative scenarios. Generally, however, in a prolonged low interest rate environment, companies are required to converge their valuation bases with current risk free rates.

**22. Canada has relatively market sensitive accounting and regulatory standards.** Actuarial and accounting standards (see Box 2) reward companies for matching assets and liabilities; and they require companies to assume reinvestment rates that over time converge with current rates. An important feature of Canadian standards is that they apply, for both accounting and regulatory

purposes, to group wide business such that companies with international operations are subject to financial and regulatory reporting on both Canadian and offshore bases.

**23. Insurance company performance has been depressed by the impact of lower rates and equity market volatility.** Canadian interest rates have fallen since 2008 in line with those in other major economies (Figure 1). Aggregate performance data (see Table 2) points to declining premium income, volatile investment income and low returns on equity (RoE) since 2008. Recently performance has improved, with the aggregate RoE recovering to 9.4 percent for the sector in 2012.

	2008	2009	2010	2011	2012
Gross premiums	84,271	78,420	73,115	72,458	73,728
Net premiums	76,527	67,947	61,646	56,389	48,890
Investment income	3,881	32,443	33,742	50,232	29,107
Net claims incurred	49,991	46,662	44,193	38,740	36,412
Expenses	19,546	19,850	22,270	21,630	21,732
ROE (after tax)	4.9%	6.7%	5.1%	3.5%	9.4%
Source OSFI					

**24. The performance of the large groups has been more varied.** The business mix of the three large groups differed greatly going into the crisis and the impact of lower rates has been uneven. One group with both Canadian and U.S. businesses has maintained a healthy RoE in each year of the financial crisis. Another's performance has been subject to considerable volatility, including a significant loss in 2010. The U.S. variable annuities business and therefore interest rate and particularly equity exposures were a major driver of the poor performance.

**25. As OSFI's capital requirements are sensitive to asset and liability values on the accounting balance sheet, capital ratios declined as interest rates fell.** OSFI has a factor based approach to capital requirements, with limited scope for internal models (except for the financial guarantees embedded in segregated funds for companies with approved models) and no credits for diversification across risk categories. As assets and liabilities grew as a result of the fall in interest rates and significant mismatches, capital ratios tended to decline, although from high levels. However, all major companies have maintained Minimum and Continuing Capital and Surplus Requirement (MCCSR) ratios that are well above the minimum of 120 percent and the supervisory target ratio of 150 percent.



**26. Companies have responded by changing pricing and business mix (see Box 3).**

- New business has been repriced (sometimes many times and with total increases of up to 40 percent) on the basis of lower guarantees and revised lapse assumptions and premiums raised on existing policies, where possible.
- Companies are selling fewer products with sensitivity to interest rates and equities, and switching to low risk products including mutual funds.
- Companies have redesigned and relaunched UL and LTC policies with explicit provisions for adjustment of premiums in defined circumstances, or with provision to pass through changes in investment returns.
- There has also been significant retrenchment in foreign operations. The two major groups most exposed to the U.S. market have closed or divested significant lines of U.S. business, including variable annuities.

<b>Box 3. Life Insurance Response to Lower Interest Rates</b>	
<b>Potential responses (see para 11)</b>	<b>Canadian experience</b>
Lengthening the duration of assets or seeking higher yield	Insurance companies have made limited changes to investment strategies. Fixed income securities predominate.
Hedging exposures	Companies with significant equity exposure on segregated fund business have increased hedging significantly, reflected in reduced sensitivities.
Changing the design or pricing of new business	Most companies have repriced new UL business, slowly at first and then more frequently. Although some products with adjustable premiums have been launched, companies are more often reducing or stripping out guarantees. Participating policy sales remain concentrated in select companies.
Adjusting premiums or benefits on existing business or switching customers	Many policies do not make provision for adjustment of premiums and even where they do, raising premiums presents risks of reputational damage to insurance companies.
Reducing dependence on investment income by cutting costs	Companies are seeking to reduce costs, but the high costs of extensive legacy business (related to the long term nature of insurance products) are a constraint.
Others	Some companies have closed lines of business, particularly in Canadian individual life and U.S. individual life and variable annuities (one major group has sold all its U.S. individual business).

**27. A focus of the major Canadian companies is growing assets under management via wealth management rather than insurance.** A strategic aim of some companies is moving away from segregated fund/variable annuity business (with the associated guarantees) to mutual funds and retirement-related business (with limited or no guarantees). They have had some success in doing so in 2013, particularly when equity markets were rising strongly. Within Canada, insurers

expect to take advantage of government reforms to retirement financing aimed at increasing the coverage of occupational schemes through greater provision for pooling of contributions<sup>15</sup> which creates opportunities for insurers with strong investment expertise. In relation to insurance products, some companies aim to focus more on group relative to individual life business because of the greater scope for regular repricing and/or premium adjustments.

**28. The range of available insurance products nonetheless remains largely unchanged and there has not been a revival of participating policies.** Despite extensive repricing, a wide range of longer term products, including permanent life insurance, continue to be available in the market, although at higher prices. Sales of participating policies might have been expected to increase, because they enable companies to share risks with policyholders, while promising policyholders much of the upside if investment returns are high. In practice, companies which ceased selling participating policies in the past have not re-entered the market. Regulatory restrictions, including the limitations on the share of investment returns which may be distributed to shareholders (see paragraph 14), account for this in part (companies are also required to recognize in liabilities the present value of all expected future dividends on participating policies).

**29. Life companies are not generally seeking higher risk in investment portfolios.** With limited exceptions, companies have not been switching into higher yield or alternative investments. Portfolios remain overwhelmingly focused on investment-grade fixed-interest bonds. The major companies disclose the ratings of their portfolios in financial statements. There has been some shift in quality (for example, from AA to A, which may reflect migration of ratings on existing portfolios), but no significant increase in below investment grade holdings. As mentioned, this reflects in part the lack of available investments at longer duration (as increased matching would offer the greatest cushioning against future changes in the investment environment) and the need for specialist investment expertise (and scale) associated with some alternative investment strategies.

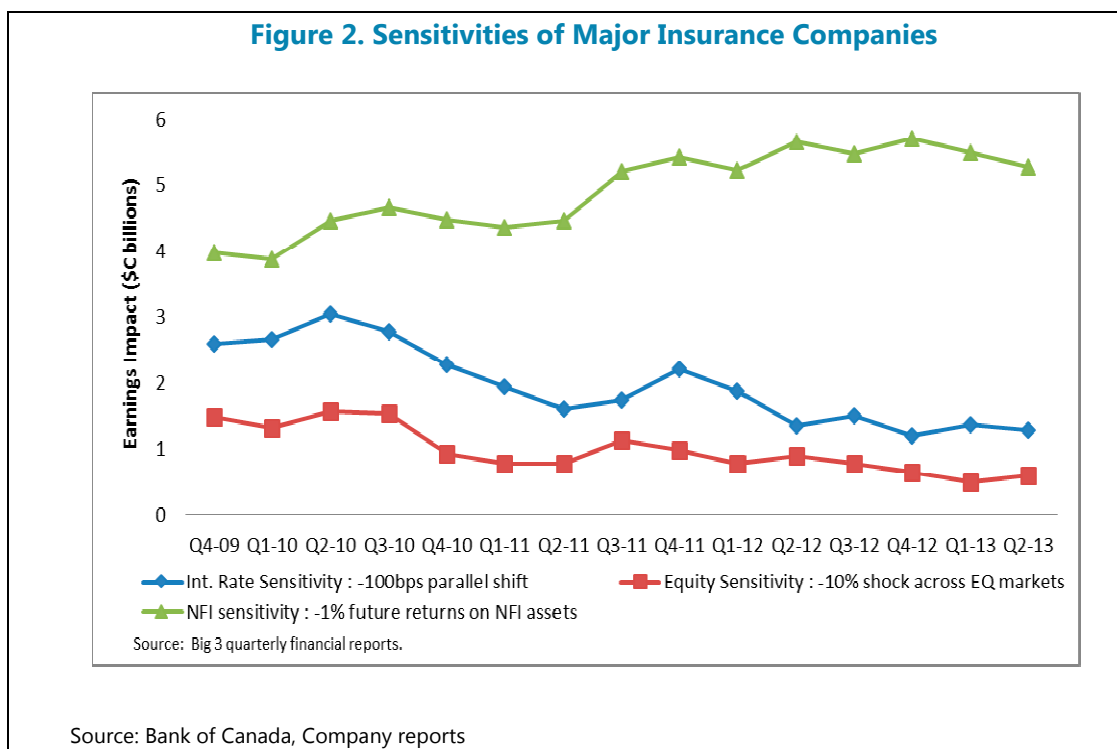
**30. Sensitivities to further reductions in rates remain, although reduced from their level before the crisis.** The effect of Canadian accounting and actuarial standards is that further increases in liabilities will have to be recognized in the short term, whatever the direction of rates. However, most revaluation losses resulting from past interest rate reductions have been recognized and sensitivities to future trends reduced through hedging. Publicly reporting insurance companies are required to make disclosures in published financial statements on their exposures to changes in key variables, including a 100 basis point reduction in interest rates along the yield curve. (These sensitivities differ from full stress and scenario testing in that they do not consider the full impact of changes in economic conditions of which the changes are likely to be a part nor do they consider management responses). The disclosures of the largest three insurance groups (see summary in

---

<sup>15</sup> Pooled Registered Pension Plans (PRPP) is a new pension vehicle for enabling employers/employees (via enrolment) and the self-employed to contribute to a pooled fund rather than separate individual funds. PRPPs would be run by a registered administrator (which could be an insurance company, bank, fund manager etc).

Figure 2) suggest that:

- sensitivities to lower rates have fallen off since 2009 reflecting the recognition of reductions in interest rates already experienced; and
- sensitivities to changes in assumptions on their returns on non-fixed income (NFI) investments are relatively high, which may reflect companies' expectations that they will invest in a higher proportion of such investments in the future.



**31. These tests are broadly consistent with recent stress test exercises by OSFI and for the FSAP.** In addition to regular submissions made by insurers (including Dynamic Capital Adequacy Testing), OSFI undertakes periodic market-wide stress testing exercises, including an exercise undertaken in conjunction for the banking and insurance sectors with the IMF for the 2013 FSAP.<sup>16</sup> The results point to continuing exposure to reduced rates, especially in the event that rates stay low for an extended period. However, they also highlight the high sensitivity of net income and capital adequacy to equity risk and lapse experience.

<sup>16</sup> See OSFI Guideline E-18, December 2009, for a description of OSFI's general expectations on stress testing. A separate IMF Technical Note sets out in detail the stress testing undertaken for the 2013 FSAP and the results for insurance companies which participated.

**32. Insurers now stand to gain from gradually rising interest rates.** Because the impact of recent rate changes has to a significant extent already been recognized in higher liabilities and reduced net income, Canadian insurance companies would experience a strengthening of balance sheets in the case of a gradual increase in interest rates. The stress testing exercise undertaken for the 2013 FSAP suggests that MCCR ratios in particular could move up from around 215 percent (aggregate of the three major groups) to close to 300 percent over the period to 2017, based on a scenario of gradually rising rates.<sup>17</sup>

**33. Other developments in market conditions are clearly possible and would be less benign.** A sharp increase in rates could expose insurers to increased lapses as policyholders move funds to products likely to respond more swiftly (and transparently) to the new environment. But a further long period of continuing low interest rates would also be likely to create increased strain, given that large legacy books of business would have to be fully revalued at low rates, while new business volumes would be affected by the continuing low returns which insurers could offer. While there has been extensive repricing of new business and asset and liability matching is a key risk management discipline and regulatory principle, it was evident to the mission that current prices on some longer term products reflect an expectation that interest rates will recover well within the lifetime of the products.

**34. The longer run impact on life insurers' business models remains unclear.** In Canada, demand for life insurance and annuities remains high and insurers continue to benefit from well-established brands and distribution networks. The actions they have taken to reprice new business and rethink their product mix appears to have struck a balance between reacting appropriately to a changed macroeconomic environment and maintaining key aspects of their business model, including the supply of long term insurance. Their objective now is to develop business in ways which will continue to shift risk to policyholders. Companies have had success already in growing sales of mutual funds, including in Asia, where some of the major firms are seeking to expand.

**35. However, insurers are likely to face greater competition from other financial institutions, including banks.** As they shift to products with less insurance value for policyholders, life insurers may find it increasingly hard to differentiate their offering from that of banks and investment firms. In this context, a key driver of performance may be the extent to which legacy books of insurance policies continue to impose costs which could hamper effective competition.

**36. The impact on P&C insurance has been more limited than for life companies and the benefits of rising rates are also less clear.** Companies have had to adjust quickly to low rates as the flow of funds requiring investment at current rates has been much higher, relative to the overall size of the business, than in life insurance. Pricing has been adjusted swiftly to reflect companies' inability to rely on high levels on investment income. As in life insurance, there have been adjustments to the amount of investment risk companies are prepared to take and some increases

<sup>17</sup> See IMF Canada FSAP Technical Note on Stress Testing.

in securities lending, but only at the margins. Unlike the life insurance sector, P&C companies would not obviously benefit from higher rates. Much would depend on market conditions, i.e., whether companies were under competitive pressure to pass on expected higher investment returns to policyholders; and whether rate rises were accompanied by inflation, which could lead to higher claims. OSFI has introduced increased capital charges for interest rate risk in its recent revisions to P&C capital standards (the Minimum Capital Test, MCT).

## THE REGULATORY AND SUPERVISORY RESPONSE

**37. The regulatory regime has served Canada well in the adjustment to a low interest rate environment.** Canadian insurers have been subject to greater balance sheet pressures than competitors in some countries with similar business models, including the U.S. and EU, reflecting the greater sensitivity of Canadian accounting standards to changes in interest rates. Standard-setters and supervisors have faced some calls to dampen the sensitivity of their regime to rate changes. Companies with operations in the U.S. have drawn attention to the comparison between Canadian GAAP and the application of U.S. GAAP to their group-wide balance sheets, which they report as resulting in much higher numbers for equity and net income.<sup>18</sup> However, the Canadian authorities have not changed the basis of their regime in response. In this regard, they differ from the authorities in some other jurisdictions (see Box 4).

<sup>18</sup> The market to book ratios of Canadian insurance companies tend to be higher than those of U.S. insurers, which may reflect investors' appreciation that US companies could have to recognise increased liabilities in the future if low interest rates persist. One of the three major Canadian life insurance groups, Manulife, chooses to disclose accounting data based on US GAAP as well as IFRS. For the year 2012, its net income in accordance with US GAAP was Can\$2,557 million, Can\$821 million higher than on an IFRS basis, while total equity in accordance with US GAAP at Can\$41.8 billion was Can\$16 billion higher than under IFRS. (Manulife Financial Corporation, 2012 Annual Report).

#### Box 4. Recent Actions Taken by Insurance Regulators

Regulators internationally have been tracking the impact of low interest rates on life insurance sectors. Various types of action have been taken:

- In Europe, many regulators have set maximum guaranteed interest rates on new sales of standard products. These rates have been lowered, tracking long-term bond yields.
- In some countries, regulators have changed the way in which insurance company liabilities have to be valued. In Sweden, a floor was introduced on a market-based discount rate; in Germany additional reserves were required (“Zinszusatzreserve”) and in Switzerland, companies were allowed to use swap rates instead of government bond rates in the Swiss Solvency Test.
- Many countries have carried out or said that they plan to carry out stress tests, requiring companies to revalue their balance sheets on the basis of scenarios involving lower yields. The approach to stress testing has varied across countries and results are not generally published. In Europe, a planned quantification exercise by EIOPA will be the first international exercise specifically addressing low interest rates.
- Elsewhere, the low rate environment has been accompanied by a slowdown in regulatory change affecting the insurance sectors, as projects in the US (Solvency Modernization initiative), Europe (Solvency II) and the new IFRS 4 accounting standard have seen deferrals in their implementation timetables. These projects share a greater emphasis on market consistency approaches to valuation.

**38. Nonetheless, Canadian regulators and actuarial standard-setters are taking appropriate steps to review aspects of their approach in light of the crisis.** Early actions were taken to develop actuarial and capital standards in respect of options and guarantees attached by life insurance companies to segregated fund products. OSFI has also revised its capital standards for lapse risk in response to experience in the crisis that the requirements were too high in relation to the underlying risks. Supervisory work, especially on the large three groups, has given priority to how insurers have been addressing the risks in the low interest rate environment.

**39. Key actuarial standards, including on non-fixed income investments, are now undergoing timely revision to bolster valuation requirements.** It is important in Canada, where the Actuarial Standards Board’s Statements of Practice provide the basis for both the accounting and regulatory valuations of insurance liabilities that OSFI and the ASB cooperate to identify and respond when the standards need to be developed. In practice, OSFI has been supportive of the ASB on changes that will respond to recent experience.<sup>19</sup> Broadly, the aims of the revisions are:

- to better align the framework for reinvestment assumptions where companies are using the deterministic approach (see Box 2) with the calibration of the stochastic approach (CTE 60 to 80). As the deterministic approaches are currently resulting in higher liabilities, this is likely

<sup>19</sup> See Actuarial Standards Board, “Notice of Intent to Revise Economic Reinvestment Assumptions within the Practice-Specific Standards on Insurance Contract Valuation: Life and Health (Accident and Sickness) Insurance (Section 2300)”, 21 December 2012. See: <http://www.actuaries.ca/members/publications/2012/212112e.pdf>

to require some adjustment to the prescribed interest rate scenarios which companies must use, in particular the scenario under which reinvestment rates track current rates into the future; and

- to develop a more appropriate standard on anticipated investment returns in excess of risk-free interest rates in relation to non-fixed income (NFI) investments. The revision will address the limited prescription in the standards in this area, in comparison with the standards for interest rate risk (which include a baseline and nine prescribed scenarios—see Box 2). This has created scope for insurance companies to use assumed reinvestment rates that may be higher than should generally be allowed for under the prudent principles underlying the valuation methodology. The need for a revised standard now is reinforced by the increasing extent to which companies are assuming that they will be reinvesting more in NFI instruments in future.

**40. OSFI should review its data collection to improve oversight of trends in NFI investments.** As mentioned, insurers are not generally increasing their non-fixed interest investments yet; and in respect of some types of more specialized investment (infrastructure assets etc), it seems unlikely that they would do so without developing greater expertise. Nonetheless, as companies are assuming greater investment in NFI instruments in the future, it would be timely for OSFI to improve its capacity to monitor any such increased investment in practice and the risks it may entail by collecting more information on the duration of investments and on actual returns. In particular, OSFI should monitor the design of products offered by foreign subsidiaries/ branches and its implications for group wide risk sensitivities.

**41. OSFI's investment regulations should also be strengthened.** In the nature of the valuation requirements which allow insurers to take account of the current yields on assets in their assumptions about reinvestment rates, companies have some incentives to invest in higher yielding assets for asset and liability management purposes and this needs to be accompanied by a more robust framework of requirements on FRIs' investments in higher risk and more complex assets. OSFI should consider reviewing its policy on investments, for example its Prudent Person Approach Guideline<sup>20</sup> to strengthen the requirements on investments and in particular to add explicit requirements that FRI invest only in assets whose risks it can properly assess and manage and on investments in complex or less transparent forms of instruments. Exemptions for larger companies in the Investment Limit Regulations, which establish portfolio limits on commercial lending, real property, and equities, should also be reviewed.

**42. A key driver of the impact of rate changes in the future will be the revised IFRS4.** The latest draft of the revised IFRS4, which Canada is committed to adopting, confirms that it is likely to introduce a relatively market consistent approach to the valuation of insurance contracts. Companies are concerned that given the nature of their life contracts, net income and/or equity

<sup>20</sup> OSFI Guideline B1, Prudent Person Approach, January 1993. (See also the FSAP report Detailed Assessment of Observance of the Insurance Core Principles, assessment of Insurance Core Principle 15.)

numbers will be more volatile than now. OSFI faces some strategic challenges in deciding whether to continue to align regulatory reporting and capital requirements with accounting standards or whether to override the accounting standards for regulatory purposes.

**43. OSFI is now redesigning the life insurance capital regime to prepare for IFRS4.** It is doing so on the basis that the capital framework will have to bear more of the burden of providing a cushion against adverse events in future (IFRS4 may not accommodate provisions for adverse deviations as Canadian GAAP does at present), and that some buffer against volatility in the capital adequacy ratios would be desirable.

**44. OSFI could also consider the development of further policy tools to assist in its micro-prudential mandate for insurance.** OSFI has taken significant policy measures in the banking sector to address broader risks. OSFI should consider the case for tools that could similarly moderate risks in insurance such as the build-up of exposure to interest rate changes before the crisis. The arguments for a policy approach concern less the potential threat of a build-up of market wide risks to financial stability, although serious losses at insurance companies affecting stability cannot be ruled out. Rather, they arise from the potential for companies to build up long term commitments which can be met in full only in case of broadly benign economic conditions; and for the response to unexpected conditions to have significant adverse impacts on present and future policyholders, through adjustment to pricing and premiums and reduced availability of certain products, even as companies continue to meet current policy requirements.

**45. Market wide stress tests based on economic scenarios tailored for insurance should continue to be a key input to decisions on use of such policy tools.** Recent experience has underlined the value of full market wide stress-testing based on scenarios which include changes in a wide range of economic variables and which enable supervisors to assess the impact of the stress and the ways in which management respond to restore capital ratios to minimum requirements. Such scenarios have to be appropriately severe and insurance risk-specific.

**46. A policy approach could include use of capital buffers.** A framework of buffers that would enable companies to absorb some of the impact of changes in economic conditions relative to assumptions could help prevent the need for sharp adjustments to pricing and product availability. Such buffers could be built up in times of rising capital ratios. Such an approach could be beneficial both in the context of IFRS implementation and more immediately—if the outlook is for interest rates to rise, many companies will see their capital ratios strengthen significantly. They may benefit from the retention of at least some of that surplus against future unexpected changes in economic conditions. OSFI's Guideline A-4 on Setting Internal Capital Targets is a positive step in this direction.