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# **How Inflation Impacts Deposit Insurance: Real Coverage and Coverage Ratio**

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## HOW INFLATION IMPACTS DEPOSIT INSURANCE REAL COVERAGE AND COVERAGE RATIO

### Executive Summary

The recent emergence of inflationary pressures across the globe has presented an additional consideration for deposit insurers. This Policy Brief considers how inflation may impact on two key concepts of deposit insurance: coverage levels and coverage ratios.

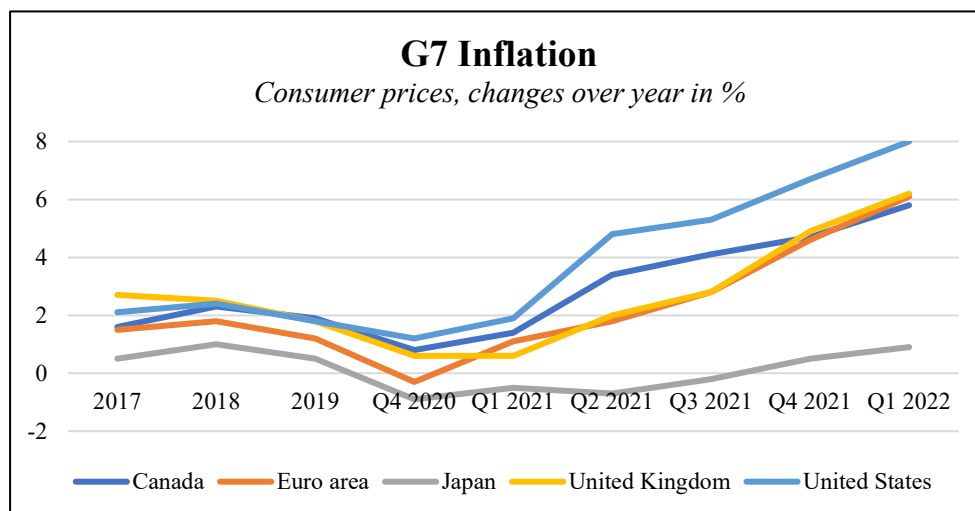
We introduce the concept of “real coverage” and using IADI data, we illustrate that the cumulative impact of inflation over the years on coverage levels may be significant as increases in general price levels erode coverage and lead to a decrease in the real terms of unchanged nominal coverage levels. Using this metric in reviewing historic increases in nominal coverage levels by a limited number of deposit insurers only, we find some indications for consideration of real coverage levels in setting policy.

Inflation affects coverage ratios, which are a prominent element of deposit insurers’ policy. The impact of inflation is highly complex and may depend on a number of variables, including the duration and sudden nature of inflation and its distributional impact on wealth and savings. Using IADI Annual Survey data from the past seven years, we investigate the correlation between inflation and both eligible and covered deposits in nominal terms.

We find evidence for both nominal covered and eligible deposits to grow at rates below inflation rates. Ignoring distributive effects of inflation on saving rates across income groups, this implies that all else equal, to hold an existing coverage ratio, deposit insurers can increase coverage levels at a ratio below inflation. An upcoming policy brief will cover the inflation considerations in international deposit insurance standards and governance arrangements.

## 1 Introduction and purpose

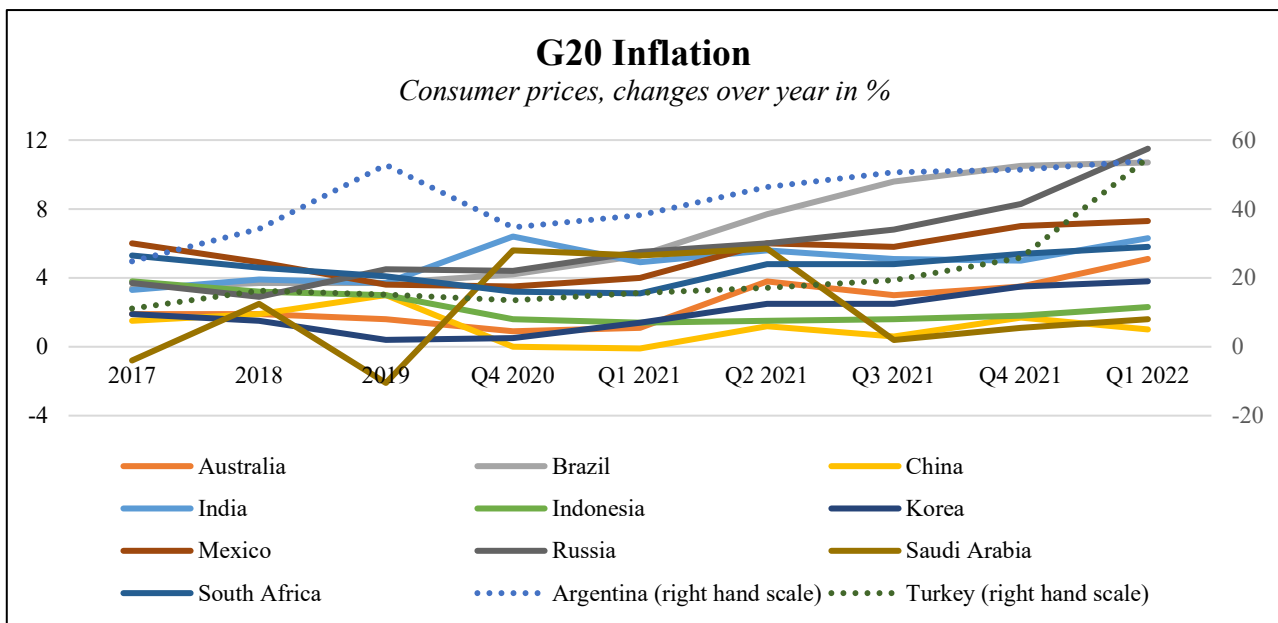
Following years of record low inflation, in several economies, inflation has picked up markedly in recent months. Growth in inflation has been particularly strong in G7 jurisdictions. Apart from Japan, where inflation has remained low, year on year inflation in the first quarter of 2022 in G7 jurisdictions has been close to 6%, or even 8% in the USA. For G7 jurisdictions (excluding Japan) current inflation figures mark multi-decade highs in some instances.<sup>1</sup>



<sup>1</sup> Data for the two charts on inflation is sourced from the Bank for International Settlements Statistics Explorer: Table K2. The exception is Brazil 2022Q1 which is sourced from the OECD.

Reasons behind this recent surge are multiple and encompass pandemic related changes in consumer behaviour, post-pandemic pick-up effects and continued supply disruptions, which in turn are related to climate change policies and/or political events such as the war in Ukraine. Essential goods have been particularly impacted where demand is often viewed as relatively inelastic to changing prices. Macklem (2022) indicated for the case of Canada that “... a broadening of price increases to everyday items like food and energy, [is] making it more difficult for consumers to avoid paying higher prices”.

Inflation in the other G20 jurisdictions is picking up as well, but not with the same intensity as in G7 economies. Apart from Argentina and Turkey, and recently Russia, currently available yearly inflation rates in these economies are not generally elevated in comparison with recent years.



Against the background of higher inflation expectations<sup>2</sup>, monetary policy makers have intensively debated the transitory nature of current inflationary effects<sup>3</sup> and the need for firmer monetary policy in early 2022. Since, most G7 central banks (exception: Japan<sup>4</sup>) have tightened monetary policy or are preparing for such steps. Whether or not persistently high inflation will prevail, will depend upon both monetary policy responses and structural factors driving inflation on which central banks have very limited control.

At its core, this paper seeks to analyse the impact of inflation on coverage offered by deposit insurers. The remainder of the paper is organised as follows. In section 2, we focus on the effects of inflation on coverage levels. We distinguish between nominal and real coverage levels and offer empirical insight into their importance. Section 3 focusses on the relevance of coverage ratios in inflationary times and section 4 offers insights in the relation between inflation and deposits. Section 5 presents concluding remarks.

<sup>2</sup> See European Parliament (2022) giving proof for elevated short-run expectations and some uncertainty as to de-anchoring of long-term expectations. For the US, expectations on 10 year-on inflation have risen recently but remain well-anchored.

<sup>3</sup> United States Federal Reserve Governor Bowman in a February 2022 speech: “In the near term, I expect that uncomfortably high inflation will persist at least through the first half of 2022. We may see signs of inflation easing in the second half of the year, but there is a substantial risk that high inflation could persist.” – see Bowman (2022).

<sup>4</sup> Japan is often an exception when discussing inflation more generally as the jurisdiction has experienced periods of sustained low inflation over the last 25 years, including many quarters of negative growth. This has, until recent times, bucked the trend of moderate price growth among G20 nations in the 21<sup>st</sup> century.

## 2 Inflation and coverage levels

Inflation is emerging as an increasing challenge for the deposit insurance community. An IADI report from earlier in 2022 noted inflation and related concerns surrounding supply chain bottlenecks, as areas of policy uncertainty throughout the next year with respect to covered deposit growth as it is “unclear whether lingering supply chain bottlenecks and emerging inflationary pressures will have any effect on covered deposit growth”.<sup>5</sup>

Given the extended period of historically low inflation rates in many economies, recent literature on the impact of inflation on deposit insurance is rather scarce. This is compounded by (until recently) some of the most expansionary monetary policy in history, which through record-low interest rates further complicate any analysis. In the following, we set out how inflation affects the coverage level of deposit insurers.

Deposit insurers offer coverage to depositors in the form of a coverage level expressed as a nominal value. This can be defined as “nominal coverage”. Through an increase in general price levels, inflation “eats up” coverage and leads to a decrease in real terms of unchanged nominal coverage levels. We refer to nominal coverage levels as corrected for inflation as “real coverage”.

The following figure shows how inflation has reduced coverage levels in real terms in several IADI jurisdictions. For each jurisdiction, cumulative reductions are computed starting from the last year in which the coverage level has been changed.<sup>6</sup> Coverage levels in real terms are computed using both changes in consumer prices (blue) and the general GDP deflator (green).<sup>7</sup> Consumer prices are taken as a deflator given their relevance for general household consumption of a typical basket of goods and services. This fits well with the very concept of building retail depositor confidence through deposit insurance coverage. The GDP deflator is a broader measure of price increases within an economy.

As the figures illustrate, by and large, use of either of the two deflators leads to similar results in computing reductions in real DI coverage.<sup>8</sup> With the exception of only six jurisdictions (Albania, Greece, Japan, Spain, Switzerland and Trinidad and Tobago), the GDP deflator leads to a slightly higher estimate of reductions in coverage in real terms.

The graph below demonstrates a wide variation in real depreciation of coverage levels across jurisdictions. Six jurisdictions (15% of the sample) show a considerable decrease of real coverage in consumer price terms by at least 50%. At the same time, 16 jurisdictions (39%) show a decrease of less than 20%. In both groups, diversity in the number of years since coverage has last been changes is considerable.

However, for the following reasons, comparing jurisdictions must be conducted with great caution:

- All else equal, the more recent the change in coverage level, the smaller the reduction in real coverage since last coverage change is expected to be. This applies in all jurisdictions, irrespective of their inflation profile.
- All else equal, high inflation generates larger decreases in real coverage.
- Coverage levels at the last time of coverage change may be very different (both in absolute and in relative terms) across jurisdictions. This should be taken into consideration when comparing the relative reduction of coverage in real terms between jurisdictions.

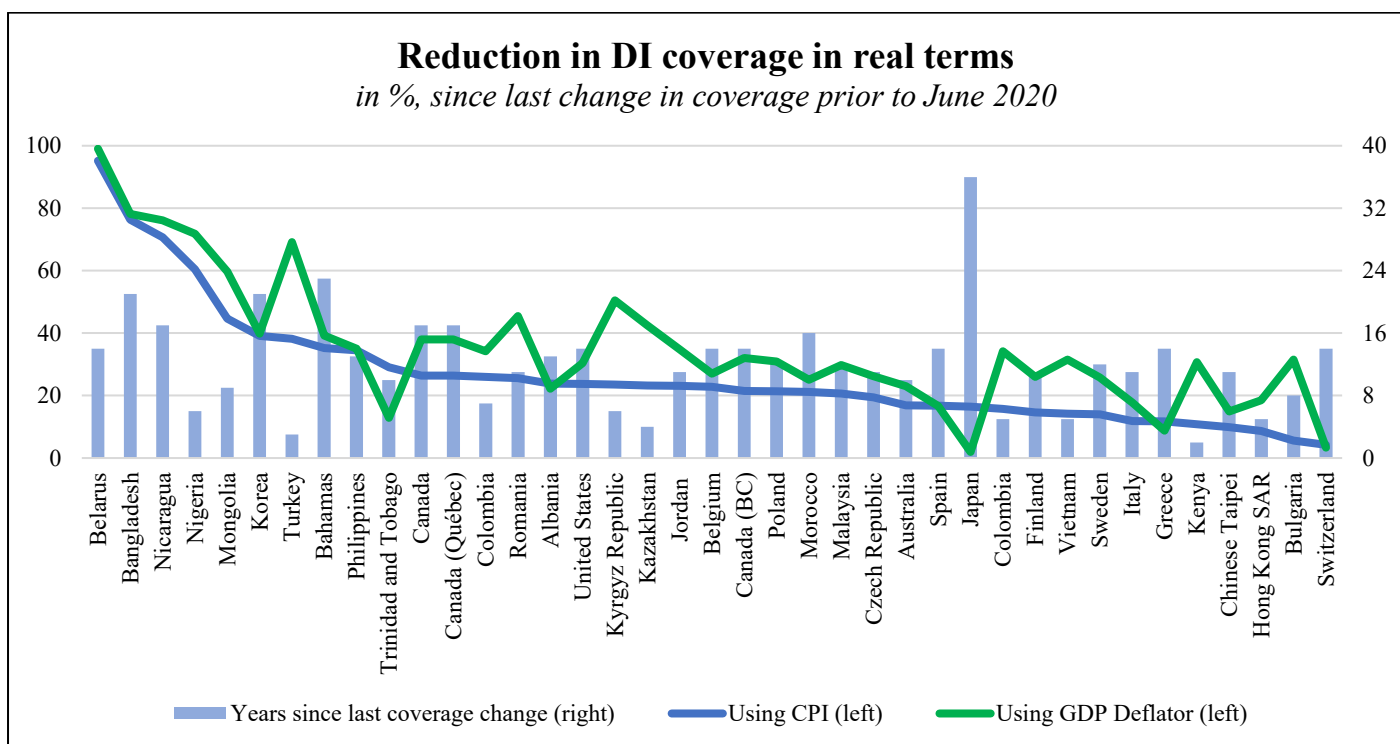
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<sup>5</sup> Van Roosebeke & Defina (2022)

<sup>6</sup> The sample is confined to those IADI members that have participated in the IADI Survey on Deposit Insurance Coverage and Scope conducted in June 2020. Jamaica has been removed from the sample as it has changed coverage levels since. Ecuador, Mexico, Ukraine and Uruguay have also been removed as these jurisdictions have indexed coverage levels to inflation.

<sup>7</sup> Data source: International Monetary Fund World Economic Outlook Database

<sup>8</sup> Particularly high deviations are observed in Bulgaria, Columbia, Hong-Kong, Kenya, Kyrgyz Republic, and Vietnam. Ascertaining the reasons behind such deviations would require an analysis of domestic considerations and are beyond the scope of this paper.



Reflecting these caveats, the following graphs<sup>9</sup> show at a domestic level and for a selection of jurisdictions, how inflation-adjusted deposit insurance coverage has evolved over time. The graphs entail both nominal and real insurance coverage over an extended period of time. Within each jurisdiction, coverage levels have been made comparable over time by expressing them in constant prices, as at the date of most recent change in coverage level. The examples provided are intended to offer a variety of historical inflation profiles, along with different styles of adjustment in the relevant deposit insurance frameworks. They are however limited to jurisdictions where sufficient data is publicly available over an extended period.

In some jurisdictions it appears that there are attempts, whether by design or otherwise, for newly set nominal coverage levels to approximate the value of past coverage levels in real terms. This can be observed in Canada, and also to a great extent in the Philippines (1978-2004) and United States (from 1934-70 and 1980-2008). For other jurisdictions (example here: EU), adjustments in nominal coverage levels do not appear to be driven mainly by inflation compensation. Reasons for these adjustments may include technical indicators<sup>10</sup> beyond the scope of this paper, but also likely to indicate the presence of political factors (which are fundamentally difficult to quantify).

Colombia and Nigeria were exposed to continued periods of high inflation throughout the early 1990s. This is reflected in extremely high levels of real coverage calculated throughout that time, which would effectively amount to blanket coverage if the same real values were in place today.

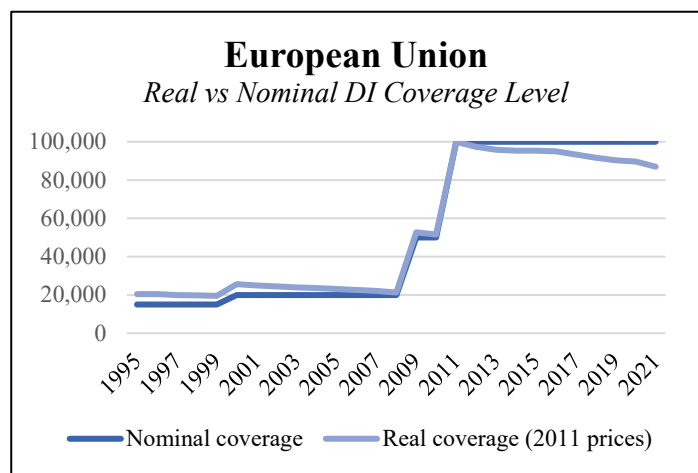
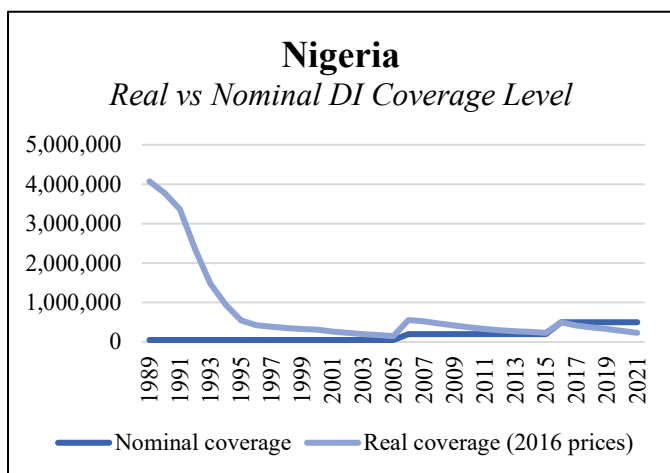
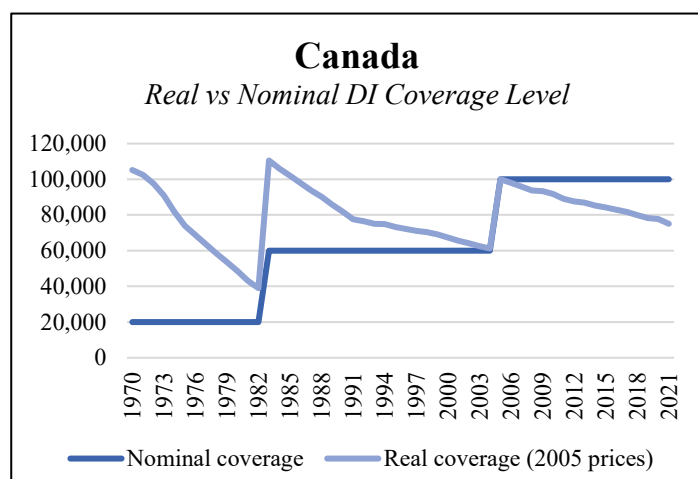
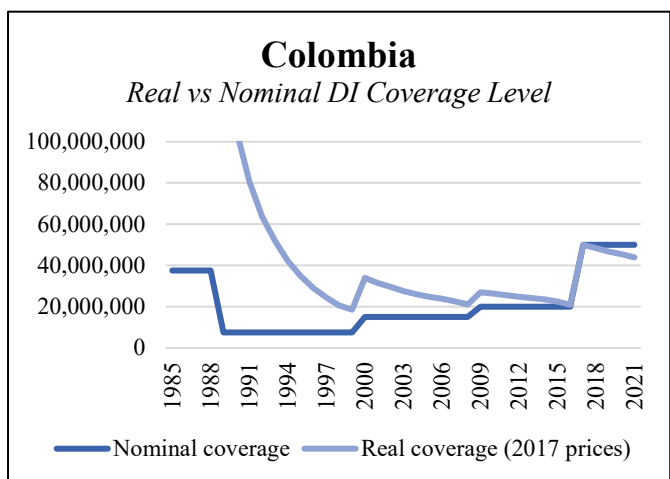
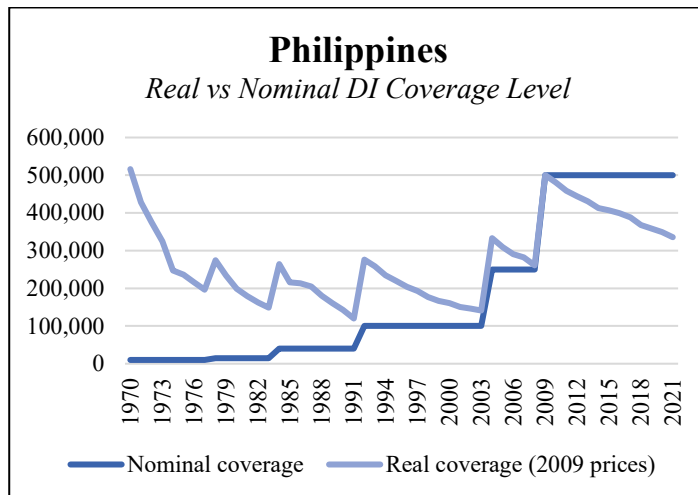
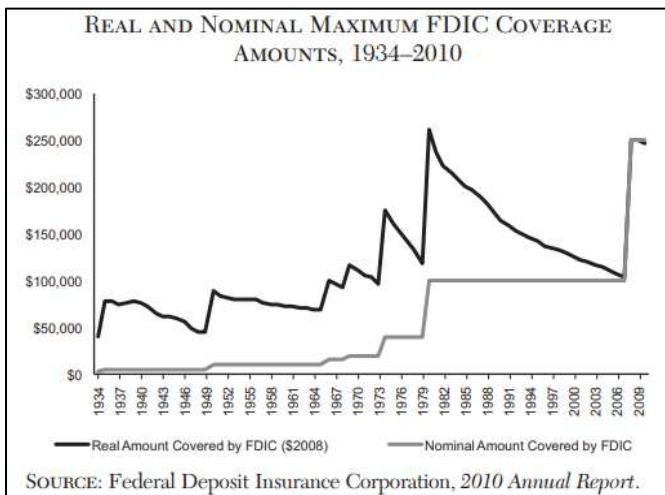
Zooming in on Canada (for demonstration purposes only) it is possible to calculate the magnitude of “real loss” in coverage permitted before covered levels were changed. At the time when changes were implemented in 1983 (CAD60,000 from CAD20,000) and 2005 (CAD100,000 from CAD60,000) the loss in real coverage as compared to the last coverage level change was 63%<sup>11</sup> and 45% respectively. Today, the loss of real value in coverage sits at 25%. This may suggest that, from a purely inflation focussed point of view only, reasons for coverage level change may not yet be sufficient. There are some themes emerging when compared with the United States of America. American authorities (through the Federal Deposit Insurance Corporation) implemented their 2007 increase when real coverage loss was in the vicinity of 60%.

<sup>9</sup> Source for following charts (excluding the FDIC, which is specified): IADI Annual Survey; International Monetary Fund.

<sup>10</sup> Quintero (2020) offers a detailed analysis of technical issues motivating coverage changes through a case study of Fogafin (Colombia) activities in 2017.

<sup>11</sup> Real loss is calculated based on IMF annual inflation data which commenced in 1970. As such, the 63% figure technically forms a lower bound.

The Philippines is an informative example given relatively frequent changes in the coverage level over the last fifty years. The five changes (1978, 1984, 1991, 2003, 2008) have been made when real losses were 62%, 46%, 55%, 49% and 22% respectively. If the most recent real loss was in-part skewed by 2008 GFC considerations, there seems to be some tendency for acting when the threshold of approximately 50% is reached. Today the real loss since the last change in coverage level is at 33%. Assuming 5% inflation, historically typical for the jurisdiction, the 50% loss mark may not be reached within five years.



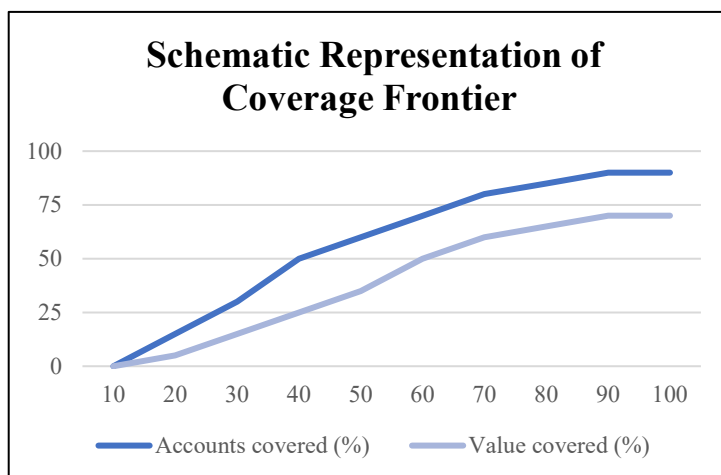
### 3 Inflation and coverage ratios

The principal public policy objectives for deposit insurance systems are to protect depositors and contribute to financial stability.<sup>12</sup> Protecting depositors against loss of funds in case of a bank failure contributes to financial stability and to economic growth as it supports the banking sector's role in financing economic activity at lower costs compared to an operating environment absent of a well-managed deposit insurance scheme.

As with all forms of insurance, deposit insurance is faced with a moral hazard risk arising from risk-taking members externalising costs of their behaviour to other members within the deposit insurance system and thus assuming too much risk. Several safeguards, both within the financial safety net and within the governance of deposit insurance schemes, should be introduced to mitigate this moral hazard risk.<sup>13</sup>

One of these factors relates to the magnitude of coverage extended by the deposit insurance scheme to depositors. Coverage should be “limited, credible and cover the large majority of depositors but leave a substantial proportion of deposits exposed to market discipline”.<sup>14</sup>

This refers to the coverage ratio, as the share of depositor accounts or deposit value covered as a consequence of the coverage level as it is set by the deposit insurer. The schematic representation shows the coverage frontier curves that are monotonically increasing and will asymptote at 100% for sufficiently large coverage levels. In this chart, the x-axis represents different levels of coverage in a generic number of currency units truncated at 100. The y-axis shows the coverage ratio, i.e. the resulting share of accounts or deposit values covered by deposit insurance. The coverage level and resulting coverage ratio should be chosen such as to fulfil the conditions set out above.



In the absence of changes in the coverage level, inflation is likely to have an impact on the coverage ratio for two reasons:

- Inflation is likely to influence total deposits as expressed in nominal terms. The extent – and even direction – of this influence is by no means trivial. Most empirical evidence focusses on how inflation – among many other factors – drives household savings rates. Findings are very diverse and offer positive, negative and no effects, depending on the jurisdiction and the investigated time periods.<sup>15</sup> However, these findings do not offer a definite answer as to the nominal changes to bank deposits to be expected with inflation. Not only are savings not necessarily identical with bank deposits. Also, the translation of savings rates into nominal savings will depend upon changes in disposable income, which again may be affected in different ways by inflation.
- The effect of inflation on the coverage ratio is likely to depend on the distribution of wealth in a society. Inflation will likely impair more heavily the savings ratio of low-income depositors, as price hikes in essential consumption such as energy or food will lower their saving rate more intensively than in higher-income parts of the population. Depending on the distribution of income and the existing coverage level, inflation will impact on the coverage ratio to different extents.

Absent changes in the coverage level, inflation may cause the coverage frontiers may change over time. Major changes in the shape of these curves, particularly if the location of a distinct “elbow” and/or “flattening” changes becomes apparent, may warrant review of existing coverage levels. The dynamics associated with inflation and these curves being correlated are complicated. Large (and in particular, sudden) increases in inflation may see household savings drawn down in the short term as the cost of living becomes more challenging; however this is but one of many potential

<sup>12</sup> IADI Core Principle No. 1

<sup>13</sup> See IADI Core Principles, Chapter III.

<sup>14</sup> IADI Core Principle No. 8

<sup>15</sup> Positive as well as negative effects in the United States (Heer & Suessmuth (2006)), positive effects in industrial countries (Masson et al (1998)) and positive but statistically non-significant in India (Chaturvedi et al (2008)).



channels for changing deposits to influence coverage levels. The following section further investigates the impact of inflation on deposits.

## 4 Inflation and deposits

The relation between inflation and deposit growth is multi-faceted. Upticks in inflation dilute the real value of deposits, and hence may offer incentives to shift/convert deposits into other financial instruments. However, such inflationary pressures may, if pushing the general level of price growth beyond central bank targets, see a corresponding contractionary monetary policy response. This drives up interest on deposits and the cost of borrowing through lending rate adjustments. Depending on the strength of a central bank's intervention, changing policy rates may mitigate some or all real losses to depositors. Also, high rates of inflation may cause economic instability, making capital market investment – as an alternative to bank deposits – less attractive to retail investors.

Context is important when investigating the relationship between inflation and deposits. Consumer responses to inflationary pressure will likely depend on the recent profile of price growth within an economy. A community that has previously experienced the consequences of sustained levels of high inflation may yield a swift response culminating in a substantial drawn down of deposits. Overall stability of the financial system, particularly expressed through the resilience of deposit taking institutions, will also play into consumer reactions. A demonstrably robust banking sector will naturally instil greater confidence in its depositors.

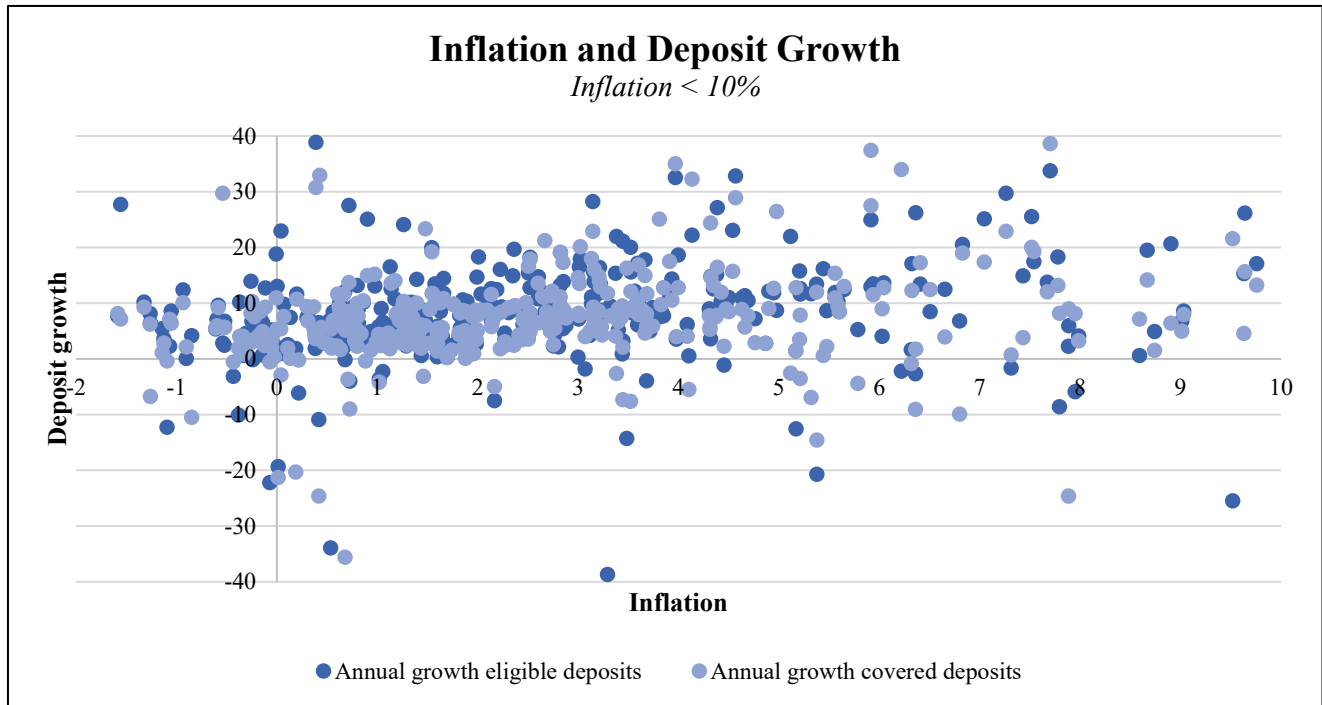
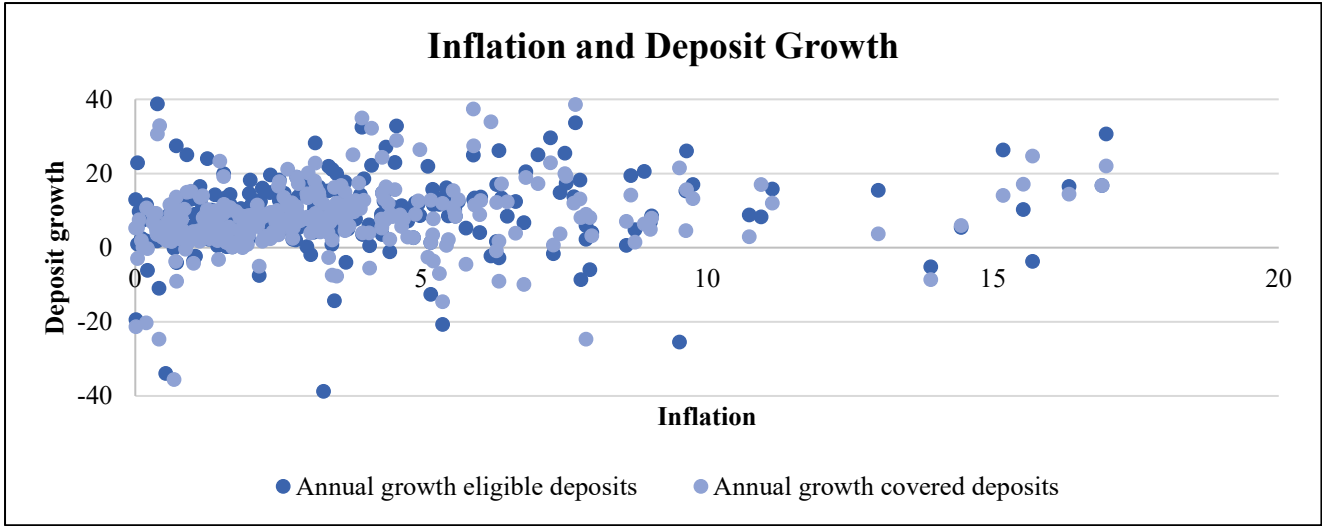
When considering potentially differential impacts of inflation on eligible and covered deposit growth, several factors are at play. One of the most important concerns differences in behaviour among high and low balance depositors. If the response to inflation (be it through increasing or decreasing deposit balances) is only observed among high balance holders, the aggregate effect on the stock of covered deposits may be somewhat limited, however changes among total eligible deposits will be more apparent. Alternatively, an inflation-motivated response by low balance depositors will have proportionately higher impact on covered deposits, while the impact on total deposits will mostly be driven by the distribution of deposits (particularly the degree of right skew in such distribution) within the banking system.

The charts below demonstrate the relationship between inflation and both eligible and covered deposit growth. This includes data points spanning the period 2015-2021 sourced from the IADI Annual Survey, and inflation numbers from the International Monetary Fund. Deposit insurance systems from approximately one hundred jurisdictions are represented. A second graph covers only those jurisdictions with inflation below 10%. A small positive association is observed for both types of deposits. Simple linear regression models indicate that this association is statistically significant with inflation coefficients amounting to 0.60 and 0.65 respectively for eligible and covered deposit growth dependent variables. However, a more sophisticated fixed effects modelling framework (methodological details omitted), accounting for jurisdiction-specific and time-lagged effects, sees the inflation relationship no longer materialise.

Inflation coefficients below one mean that nominal deposits grow at a slower pace than inflation. Ignoring distributive effects of inflation on saving rates across income groups, this implies that all else equal, to hold an existing coverage ratio, deposit insurers can increase coverage levels at a ratio below inflation. Realistically assuming (as correlation coefficients indicate) a higher decrease of savings in lower income groups, the increase of coverage levels to hold coverage ratios stable could be even lower.

Important caveats here are the limited available data on deposit growth in the IADI Annual survey, effectively shortening the time series to a seven-year period only. In addition, this period was marked by record low inflation. Whether findings from this time-period allow for conclusion also in period of higher inflation, remains to be seen. Also, national specificities may be relevant in explaining correlation between inflation and deposit growth. Thus, the aggregated analysis across jurisdictions as performed here, may not appropriately reflect these factors. Of course, inflation is not the only – and most likely not the main – driver of deposit growth. Other factors that are more (real interest rates) or less (technological changes in payments) correlated with inflation, may also high impact deposit growth.





## 5 Concluding remarks

The emergence of inflation as a priority area of consideration for deposit insurers has imposed unexpected challenges. Nevertheless, many of these issues are not new, with history presenting numerous informative case studies that may inform contemporary policy responses. Future inflationary outcomes remain uncertain, with central banks expected to adopt contractionary monetary policy stances in response. Regardless, the deposit insurance industry continues to monitor the economic situation and will endeavour to support financial stability objectives, ensuring depositors are adequately protected in the event of adverse macroeconomic shocks.

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