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Abstract

We discuss several features of the economic and institutional environment that are important for determining the design of household debt relief programs in response to aggregate economic shocks. For example, we describe how such program features should depend on the distribution of home equity in the population, the costs of participation to borrowers and lenders, as well as on whether the shocks are temporary or permanent in nature. We analyse the Irish response to the initial COVID-19 shock—which focussed on a broad extension of temporary payment breaks to mortgage borrowers—in light of these factors. Finally, we discuss potential features of adjusted mortgage contracts that may embed some of the benefits of the COVID-19 response in future events without the need for policymaker coordination.

1 Introduction

The economic shock resulting from the COVID-19 pandemic has caused exceptional levels of disruption around the world. With more than one year having passed since the onset of the pandemic in Ireland, the depth and uneven nature of the economic shock are now apparent. Although some sectors of the economy are experiencing no effects or even positive demand shocks, in other sectors—particularly in service sectors requiring face-to-face interaction with customers—businesses and their employees have faced on-off disruptions to their incomes, which in some cases risk becoming persistent as the public health situation evolves.

These developments have curtailed repayment capacity among affected borrowers, in addition to creating elevated levels of uncertainty around their future ability to make payments. The immediate effects of these repayment challenges were delayed in most advanced economies, including Ireland, by the system-wide provision of loan payment breaks, sometimes described as moratoria (or “forbearance” in the United States), which protected borrowers from the initial liquidity effects of the economic shock. In Ireland, COVID-19 moratoria were initially issued for a maximum of six months.

The income shocks experienced by Irish households have been cushioned by state fiscal support through the Pandemic Unemployment Payment (PUP), the Temporary Wage Subsidy Scheme (TWSS) and its successor, the Employment Wage Subsidy Scheme (EWSS).² These policy responses have ensured that initial fears about widespread credit risk events in the immediate aftermath of

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² Central Bank research estimates that the effect of these schemes, relative to a counterfactual where all recipients received only the traditional form of unemployment benefit in Ireland, was to reduce mortgage repayment distress rates by more than one half ([Financial Stability Review, 2020:I](#)).

COVID-19 did not materialise, and the vast majority of borrowers who initially opted for moratoria have not requested additional support or forbearance at the time of writing.

Since the economic effects of the pandemic in Ireland and its disruption to incomes have outlasted the duration of the envisaged six-month COVID-19 payment moratoria, it is timely to assess the initial policy response, and the ways in which the (currently relatively small) subset of borrowers struggling to meet loan repayments in early 2021 could receive further forbearance and loan modifications. In this discussion, we also aim to draw lessons from developments during the pandemic so far to inform any future debates about responses to other emergencies, regardless of their source, that may lead to rapid, unexpected and ultimately temporary disturbances to economic activity.

In this note, we have four specific aims:

- (i) Outline the characteristics of the economic shock to borrower repayment capacity resulting from the COVID-19 pandemic, and the mitigating effects of fiscal supports;
- (ii) Review the economics of mortgage modifications, highlighting a range of important economic and institutional factors that should be considered when recommending responses to specific instances of widespread borrower payment distress;
- (iii) Review the responses of policymakers and mortgage market participants to borrower payment distress during the pandemic so far, in particular in light of (i) and (ii); and
- (iv) In light of the success of the pandemic response, discuss the merits of borrower optionality in mortgage contracts, which could have relevance either for the ongoing renegotiation of pandemic-related distressed loans, or new mortgage contracts.

We start from the observation that much of the prior literature on mortgage modifications relates to the Global Financial Crisis (GFC), a crisis that had at its heart a credit-fuelled asset price boom and bust in property markets, which resulted in both borrower income losses and collapses in property values (see, for example, Agarwal *et al.*, 2017; Mayer *et al.*, 2014, Piskorski and Seru, 2018). As a result, many mortgage borrowers in 2009 or 2010 were in deep negative equity and faced long-term damage to their income generating capacity and thus faced long-term insolvency. In this sense, there are significant differences between the GFC and an initially short-term emergency such as COVID-19. Most importantly, the COVID-19 shock did not have a credit-fuelled origin, featured important temporary liquidity shocks rather than widespread negative equity, and had sector-specific dimensions that were uncorrelated with previous borrower behaviour.

As a result of the different nature of the shock, many of the modification tools that were effective in responding to the GFC were not necessarily optimal during the early phases of the current crisis. Based on our analysis of the economics and institutional features of the pandemic, we conclude that the initial policy response in Ireland and the EU was well-targeted to address the initial challenges to mortgage borrowers' repayment capacities. Further, in the face of widespread uncertainty over future income flows for many borrowers in affected sectors, the initial continuation of temporary forbearance measures after the six-month moratoria expired in late 2020 has been in line with economic reasoning.³

We finish the paper by discussing the merits of optionality in mortgage contracts. Given that COVID-19 has highlighted the unpredictability inherent in our economic system, there are desirable features of flexible mortgage contracts that embed optionality for borrowers. Such optionality can, for example, allow borrowers to move between various levels of repayments in response to aggregate shocks without the need for policy coordination such as that seen in March and April 2020. Such contract alterations, which we explore in more detail in the paper, could potentially be appropriate to consider during renegotiations of existing mortgages for affected

³ Kelly *et al.* (2021) describe the dominance of additional temporary arrangements among those borrowers requesting further payment relief after a COVID-19 payment moratorium.

borrowers in 2021, or as features of new contracts that may improve resilience to future unexpected shocks.

We present our work as having a general appeal beyond the policy response to the COVID-19 pandemic in 2020-21, which has been evolving at rapid pace during the drafting of this research note. The characteristics of the pandemic imply that the conclusions drawn in this paper will have relevance in future crises with fast-moving shocks to borrower liquidity unrelated to *ex ante* credit and property market imbalances. While these future crises are of course currently unknowable, one can imagine that a future pandemic, an emergency emanating from climate disasters, or geopolitical risks may cause similar issues in the mortgage market to those experienced over the past year.

2 The economic effects of the COVID-19 pandemic in Ireland

The pandemic represents the second major economic crisis to hit the Irish and global economies in two decades. However, the distinctions between the two macro shocks are substantial, and lead to critical differences in the appropriateness of various policy responses.

The 2008 GFC followed a boom-bust cycle in bank lending and asset markets such as housing, driven, among other things, by poor underwriting, weak regulation, and exuberant demand. When the economy turned, unemployment rose in all affected economies, with housing market crashes leading to widespread negative equity, and income shocks proving to be long-lasting for many households. The debt overhang that followed led to sluggish recovery in many economies, with many homeowners' consumption levels being curtailed through wealth, collateral and wider general equilibrium channels (Mian, Sufi and Verner, 2017). In the Irish case, unemployment rose to 16 per cent in 2011-12, with house prices falling close to 60 per cent.

As in many other jurisdictions, the COVID-19 pandemic in Ireland led to a sharp, unexpected shutdown of non-essential, in-person economic activity in March 2020, including the issuance of stay-at-home orders and an increase in remote working. The initial effects included a year-on-year reduction in consumer spending of 22 per cent in 2020 Q2, while domestic demand fell by 5.4 per cent for 2020 as a whole. The speed of the labour market shock is incomparable to the previous crisis, with the COVID-19 adjusted unemployment rate hitting 30 per cent in April 2020, falling to 15 per cent in September, before rising to 25 per cent in January 2021 as a result of public health restrictions associated with Ireland's "third wave" of the pandemic.⁴

As the year 2020 progressed, initial fears of widespread economic damage were replaced by a focus on the specific pockets of the economy where public health measures have had the most damaging effects. Divergence of economic fortunes across sectors is clearly apparent: the initial take-up of income support schemes was more than 95 per cent of all employees in the Accommodation and Food Services sector, 84 per cent in Construction and 63 per cent in Wholesale and Retail Trade, whereas in most other sectors, income supports applied to below 25 per cent of employees (Byrne *et al.*, 2020). Beneficially from a financial stability perspective, sectors less affected by COVID-19, such as Health, Education and Public Administration, tend to have larger shares of mortgage holders.

Survey data from businesses corroborates this pattern of heterogeneity of the impact across industries. For over 70 per cent of businesses in the Accommodation and Food Services and Construction sectors, turnover was down by more than half in May 2020, relative to pre-pandemic norms. The same was true for around 25 per cent of businesses in other sectors (Lambert *et al.*, 2020). Similar heterogeneity in business outcomes across sectors also occurred across other countries (see, for example, the discussion in Alekseev *et al.*, 2020, for the United States).

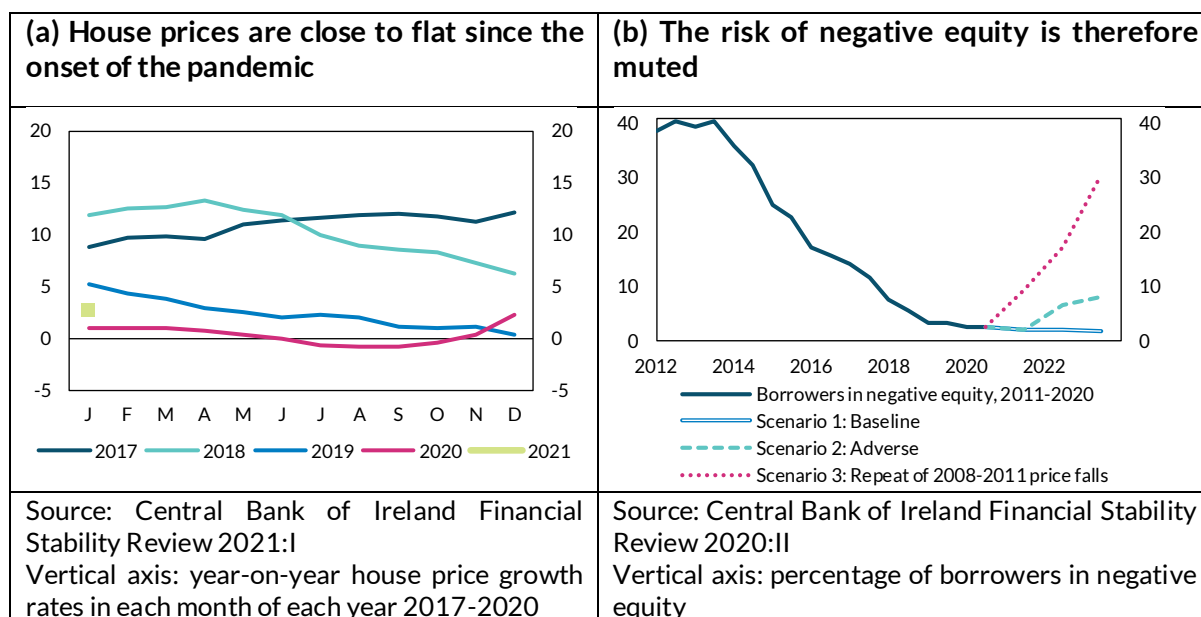
⁴ The COVID-19 adjusted unemployment rate is calculated by the Central Statistics Office based on the number of recipients of Ireland's Pandemic Unemployment Payment (PUP), who are not necessarily covered by the standard measure of unemployment defined in European Union law, in addition to recipients of traditional social protection payments related to labour market search.

While the speed of the labour shock has been unprecedented, the effect on incomes has been muted relative to the previous crisis, due to the nature of fiscal support, both globally and in Ireland. Cahill and Lydon (2021) show that median household incomes fell by only 1.7 per cent in 2020Q2, year on year, whereas without unemployment support policies, median incomes would have fallen by 20 per cent. Cahill and Lydon estimate that around half of this policy impact is due to COVID-19 income supports and around half to pre-existing supports. By contrast, in the previous crisis, workers losing their jobs could receive unemployment rates of less than €200 per week, a significant income shock that led to challenges in servicing debts.⁵

An important feature of the shock from COVID-19 is that house prices declined only modestly in 2020, with that decline reversed during the second half of the year, and followed by rapid and ever-increasing growth in 2021, in contrast to aforementioned experience in the last crisis (Figure 1a). This is in line with the experience of other global housing markets.

House prices have been kept high by a combination of weak new supply, partially driven by the public health restrictions themselves, the accommodative and unprecedented fiscal and monetary responses, forced savings rates due to movement restrictions, and the relatively strong performance of incomes in industry sectors with high participation in housing and mortgage markets. Consistent with this, research by the Central Bank of Ireland ([Financial Stability Review, 2020:II](#)) suggests that under an adverse scenario, where house prices would fall by 20 per cent, the share of borrowers falling into negative equity would not surpass 10 per cent (Figure 1b). This compares with over 40 per cent of borrowers having been in negative equity in 2012. As we discuss below, these housing market trends have important implications for the optimal design of loan modification policies.

Figure 1: House price developments and the risk of negative equity



Finally, we summarise the key differences between the two economic crises in Table A.

⁵ See, for example, McCarthy (2014) and McCann and O'Malley (2020).

Table A: key economic developments relevant for debt relief design, Global Financial Crisis (GFC) contrasted with COVID-19 pandemic

Feature	GFC	COVID-19 pandemic
House prices	Decline 55%, 2007 to 2013	Flat in 2020, rising in early 2021
Unemployment speed	Rose 4% to 15%, 2007 to 2013	Rose 4% to 30%, March to April 2020 (COVID Adjusted measure)*
Income support	Unemployment benefit under €200 per week	PUP rates of up to €350 per week, plus wage subsidy support for those retained in employment

*The Central Statistics Office (CSO) publish both the traditional unemployment measure (ILO) and a Covid-19 Adjusted Monthly Unemployment Estimate. The latter measure takes those receiving the COVID-19 payments into consideration.

3 The mortgage policy response to the COVID-19 pandemic

The economic shock induced by COVID-19 was met with a strong global policy response. Fiscal authorities embarked on large-scale support packages for the real economy, bolstered by the commitment of monetary policy makers to purchase sovereign debt. Much has been written elsewhere about the breadth and decisiveness of this response.⁶ Here, we focus specifically on the mortgage market policy response.

Across Europe, market-wide debt moratoria policies comprised one important dimension of support to borrowers and lenders.⁷ In Ireland, lenders responded to the pandemic by offering loan moratoria to households and businesses; these moratoria were referred to locally as “payment breaks”. Subsequent guidance from the European Banking Authority (EBA)⁸ ensured that these moratoria did not oblige lenders to re-classify borrowers as having experienced elevated levels of credit risk, which greatly enhanced banks’ resilience to the pandemic shock by alleviating the capital costs that would have resulted from such re-classification. This favourable treatment applied to any market-wide moratoria without an individual credit assessment requirement; were banks to assess individual borrowers’ credit quality, this would imply a re-classification trigger for an increase in credit risk.

Early confirmation by the Central Bank of Ireland that availing of moratoria provided at the onset of the pandemic, without an assessment of financial distress, would not lead borrowers to obtain a record of “missed payments” or a “restructure event” on the Central Bank of Ireland’s Central Credit Register (CCR), were helpful clarifications for lenders and borrowers.

⁶ See, for example, the Central Bank of Ireland [Governor’s Blog](#), May 6th 2020, for an overview of the monetary policy response.

⁷ In the United States, the \$2tr Coronavirus Aid, Relief, and Economic Security (CARES) Act signed on March 27, 2020, also included a mortgage forbearance component (in addition to renter eviction protection and foreclosure moratoria). Specifically, borrowers with federally backed mortgages (who make up the vast majority of U.S. mortgage borrowers), were eligible for a 180 day mortgage forbearance, with the option to extend this by another 180 days. Borrowers qualified if they had experienced medical or financial hardship caused by the COVID-19 pandemic, though no documentation was required to prove eligibility. Servicers were not allowed assess additional fees or interests in connection with a CARES Act forbearance. Borrowers with federally backed loans covered under the CARES Act were reported as being current on the loan during the forbearance period. By mid-June 2020, about 8.5% of mortgages were estimated to be in forbearance, a number that fell to about 5.5% of mortgages by mid-December 2020. Combined with other forbearance programs (e.g., related to student debt), this program contributed to driving household delinquency below pre-pandemic levels, despite a substantial increase in unemployment. There is also some evidence that, despite the broad eligibility, forbearance relief ended up being somewhat targeted to those individuals most affected by the pandemic. For example, forbearance rates were significant higher in regions with higher infection rates and larger economic declines (Cherry et al, 2021).

⁸ “Guidelines on legislative and non-legislative moratoria on loan repayments applied in the light of the COVID-19 crisis”. European Banking Authority, 2 April 2020.

In addition, moratoria did not require any change in interest rates. Nonetheless, payment moratoria may have involved other potential costs to the borrower. In order to maintain a constant net present value without principal or interest payments, a payment break required either an increase in monthly repayment value upon the resumption of the regular repayment schedule, or a longer maturity date to maintain the same monthly repayment that applied before the moratorium.

Moratoria were available for all borrowers, with the adoption rate in Ireland varying across asset classes, reflecting the extent of the crisis among SMEs in particular. As of June 2020, almost 30 per cent of SME lending was subject to a moratorium, compared to 17 per cent of corporate loan balances and around 10 per cent of mortgage lending. The share of mortgages with a moratorium was around the average level among EU member states in June 2020 ([European Systemic Risk Board, 2021](#)). Moratorium program durations have varied across the continent; the Irish program's length of six months was common, but almost half of all moratorium programs involved breaks with durations longer than six months.

3.1 What has happened to borrowers as payment moratoria have expired?

A striking feature of payment break take-up in late 2020 is the relatively small share of the mortgage market that has required continued support following the expiration of the mortgage moratoria. Initially, of the ten per cent of all mortgages that were on a moratorium for three months ("payment break 1"), 49 per cent were subsequently extended by a further three months ("payment break 2"). Since the expiration, the Central Bank of Ireland has gathered information on the subsequent repayment situation facing borrowers. 10 per cent of all mortgage borrowers taking the initial payment break, or 20 per cent of those requiring a moratorium for six months, had requested further forbearance or restructuring support as of early March 2021. In the SME sector, as of end-2020, close to one-fifth of "payment break 2" loans required further support through engagement with arrears support teams, while a further one-third have initially moved back to full repayment, with extensions to the loan's term to maturity.

4 Standard mortgage modification tools

In Ireland, mortgage modifications are generally selected from a relatively narrow suite of potential solutions, which are described in detail by McCann and O'Malley (2020). In particular, most mortgage modifications fall into one of four broad categories.

1. **Arrears Capitalization:** Arrears balances are added to outstanding loan balances and borrowers resume repayments.
2. **Term Extension:** Monthly payments are reduced by stretching maturity dates, usually towards retirement age.
3. **Split Mortgage:** Part of the mortgage principal is parked in a "warehouse", falling due in a lump sum at loan maturity; the interest rate is typically zero. The remaining balance in the "main" note is paid down as a standard amortising mortgage.
4. **Temporary arrangements** which may involve a moratorium or an interest-only period, which are time-bound in nature, but often offer the most substantial immediate liquidity relief (also see Labonne, McCann and O'Malley, 2021).

These options may be combined; for example, arrears capitalisation is sometimes combined with a term extension, to mitigate any increase in monthly repayments owing to a larger balance. The relative usage of these modification tools has evolved substantially over time. In 2011, close to 70 per cent of modifications were temporary in nature. McCann and O'Malley (2020) document that by early 2020, this tendency had been reversed with permanent changes of contract being the predominant form of modification.

In Table B, we summarise the range of modification tools that have up to now been widely available, along with alternatives that are currently uncommon in Ireland, on which we elaborate later in the paper.

Table B: Mortgage modifications currently applied in Ireland

Modification	Pros	Cons
Current commonly-used modifications		
Payment breaks, e.g. moratoria	Reduces monthly repayments; Prevents build-up of arrears during a short-term lack of liquidity.	Temporary in nature so may be unsuited to deep distress; May delay a necessary sustainable forbearance; Borrowers may need to make higher repayments after the temporary modification period.
Arrears capitalisation	Borrowers can refinance arrears after a short-term lack of liquidity; Low cost to lenders.	Borrower must make higher repayments; Unsuitable if income shocks are long-lasting.
Term extension	Reduces monthly repayments; Low cost to lenders, and can even increase NPV, depending on discount rates.	Borrower must continue debt payments further into the future (e.g. retirement). Borrower must pay more in total to service credit over a longer horizon.
Interest rate reduction	Reduces monthly repayments.	Lender possibly foregoes interest income and profitability.
Split mortgages	Can achieve large up-front reductions in monthly repayments for borrowers; All principal is still owed, which may reduce moral hazard concerns.	May lack a clear solution for warehoused debt, leading to possible uncertainty for borrower and/or lender; At retail banks, these products have often been classified as Non-Performing, requiring larger provisions for warehoused debt.

5 Pandemics and the economics of debt relief

We next describe a number of factors that are important to consider when designing debt relief programs, with a specific focus on mortgage debt modifications (see also the discussions in Piskorski and Seru, 2018; Amromin *et al.*, 2020). These factors likely differ across countries, as well as within countries over time. This suggests that the appropriate response to economic shocks is also likely to differ over time, be it the existing toolkit described above or the introduction of new tools. In each case, we review the COVID-19 pandemic and policy response in light of these economic factors. We focus on six issues that arise in the economics literature on mortgage modification:

1. Liquidity versus solvency;
2. The degree of targeting;
3. The cost of default to borrowers;
4. The cost of default to mortgage loan owners;
5. Interest rates and frictions to refinancing;
6. Mortgage ownership structure.

5.1 Liquidity and solvency

In the case of mortgage loans, perhaps the most important criterion to consider when designing debt relief programs is whether mortgage borrowers are primarily facing short-term liquidity problems, longer-term solvency problems, or both.

During the GFC, collapsing house prices meant that many individuals were in negative equity: the outstanding debt balance on the mortgage exceeded the value of the house. Economists investigated whether subsequent defaults and foreclosures were primarily driven by liquidity

shocks, by the negative equity leading to purely “strategic” defaults by individuals who could afford to make mortgage payments, or by a “double trigger” shock of both liquidity declines and negative equity (see Indarte, 2020, Ganong and Noel, 2020, and Artavanis and Spyridopoulos, 2020). The relative importance of these types of defaults is likely to differ across countries, in part depending on the borrowers’ cost of default. In the Irish setting, O’Malley (2021) highlights a non-trivial role of strategic defaults in response to a particular and temporary legal feature following the GFC. McCann and O’Malley (2020) have highlighted that liquidity shocks appear to have been deep and widespread among borrowers in mortgage default in Ireland during the last decade.

Understanding whether struggling borrowers primarily face a short-term liquidity or a long-term solvency crisis is central to designing optimal policy responses. The relative relief to borrowers will need to be traded off against the fact that principal reduction programs involve more up-front costs to lenders than forbearance programs in which the missed payments are usually repaid at a later stage.

In the presence of large temporary liquidity shocks, mortgage forbearance policies such as those implemented in response to COVID-19 could prevent most defaults. On the other hand, if there were substantial negative equity, permanent income damage and scarring effects, programs that involve principal forbearance and potentially debt forgiveness should also be considered.⁹

When long-run repayment capacity challenges exist but lenders misdiagnose the situation as a temporary event, the use of temporary forbearance measures can lead to damaging long-term effects for borrowers, for lenders themselves, and for the wider financial system. Addressing such misdiagnoses was at the heart of the Central Bank’s program, initiated in 2013, to incentivise lenders to offer long-term, sustainable modifications to borrowers (Donnery *et al.*, 2018).

Whether a particular crisis is primarily one of liquidity or solvency, and whether liquidity shocks are temporary or permanent, may evolve over the duration of a crisis. For example, initial liquidity shocks due to COVID-19 lockdowns may turn into longer-term problems in households’ mortgage repayment capacity, in particular in sectors of the economy where global consumption patterns may be undergoing longer-term changes, such as tourism. Similarly, although house prices did not decline in European countries during the initial months of the pandemic, downside risks to house prices due to any tapering of fiscal policy supports, a resurgence of the virus, or a longer-than-expected path to recovery would require a changed focus.

5.2 Degree of targeting

One important decision in designing debt relief programs is whether programs should be targeted narrowly toward individuals who truly need them, or if programs should be accessible to a wide range of individuals, including those with less immediate need, which could increase the costs of debt relief while delivering less obvious improvements in welfare.

One appeal of broader eligibility is that such debt relief programs can be administered more quickly. More targeted programs, in particular those requiring extensive documentation to verify eligibility, may slow down debt relief or discourage applications, while borrowers’ circumstances are deteriorating. On the other hand, broader programs are likely to be more extensive and costly since they could also generate take-up from people without immediate need.¹⁰ The implications of wider take-up for the financial sector are more serious when assessing programs that involve some

⁹ By “principal forbearance”, we mean cases where some mortgage balances are moved into the future, such as in the case of the warehouse component of a split mortgage in Ireland. All mortgage balances remain due, but monthly obligations in the short run are determined only by the size of the non-warehoused component.

¹⁰ See, for example, Mayer *et al.* (2014) for evidence of the increase in default that followed the widespread announcement of modification eligibility in a specific case of bank failure in the United States.

principal and/or interest forgiveness, as opposed to a moratorium program which primarily involves the rescheduling of borrowers' obligations.¹¹

When assessing that more generally accessible schemes may potentially lead to greater up-front costs for lenders, one must acknowledge that these costs are partial equilibrium in nature. In general equilibrium, it may be the case that a more rapidly-deployed scheme, even with widespread eligibility, may draw a line under wider economic problems more quickly, meaning that it is advantageous to the balance sheet health of lenders in the round, through macroeconomic channels.

More generally, a number of additional factors influence the extent of optimal targeting of loan modification policies. One practical consideration is the extent of capacity of loan officers at lenders or loan servicers to actually process eligibility verifications. With limited capacity, the cost of increased targeting in terms of speed of disbursement become higher.¹²

A second factor determining the extent of precise targeting of the policy is the degree to which the effects of a particular shock are heterogeneous in a clearly identifiable way. The more heterogeneous the shock, the larger the benefits of targeting, and the more concentrated the shocks are in clearly identifiable groups, the easier the designation and verification of eligibility of targeted policies will be.

5.3 Cost of default to borrowers

One benefit of debt relief programs is that they can avoid the direct costs of default, and in particular repossession, to borrowers and lenders. The extent of these costs plays an important role in considerations of how broad and generous debt relief programs ought to be. Higher costs generally favour a more generous debt relief policy.

The relevant factors include economic costs of default to borrowers, such as lower credit scores or credit records "marked" by missed payments or forbearance (which will arise even if defaulted loans are modified and avoid repossession) or the costs involved in losing a house due to foreclosure, as well as losses that may be more social or psychological in nature (see Guiso, Sapienza and Zingales, 2013; Kuchler and Stroebel, 2020). The extent of these depends partly on whether mortgage default leads to an eventual foreclosure, which usually entails substantial personal and social costs.

5.4 Cost of default to mortgage loan owners

It is equally important to understand the costs of both default and debt relief to the ultimate owners of the mortgages, whether they are banks holding the mortgages on their balance sheets, non-bank investors who have purchased (and in some cases directly service) distressed portfolios, or investors in mortgage-backed securities.

Banks, in particular, may face regulatory capital implications from debt relief programs. Once an adverse shock has occurred, and banks acknowledge the risk inherent in loans that are being modified, provisioning requirements will rise for these loans.¹³ The macro-finance literature makes

¹¹ In the United States, which had a very broad forbearance program in response to the pandemic, there is evidence that a number of borrowers in forbearance programs continued to make their mortgage payments, suggesting that they viewed these programs primarily as an option to reduce payments in response to a possible future negative shocks, rather than being attractive even for people who can continue to make their payments.

¹² Agarwal et al. (2017) show that modification levels during the USA HAMP were driven by lenders' *ex ante* level of experience with modification issuance. Lower levels of participation in HAMP by lenders are then shown in the research to lead to weaker regional economic recovery.

¹³ The IFRS 9 accounting regime implies that, where a loan is modified and is not in default, it is classified as a "stage 2" asset, which implies that it is performing but at heightened risk. These stage 2 loans face provision coverage ratios that are orders of magnitude larger than stage 1 loans (those performing, and not at heightened risk).

the case that, when banks suffer shocks to profitability and capital from loan impairment, they are more likely to curtail their lending supply, which may exacerbate economic downturns (Bernanke, 1983; Chodorow-Reich, 2014).

5.5 Interest rates and frictions to refinancing

During many economic crises, central banks lower interest rates to stimulate the economy (Agarwal *et al.*, 2018). If mortgage interest rates respond rapidly to a decline in benchmark interest rates, monetary policy can lead to an automatic reduction in borrowers' monthly payment obligations (Di Maggio *et al.*, 2017). Unlike the payment obligations associated with forbearance policies, these interest rate reductions lead to a permanent decline in the overall payment obligations. However, borrowers may have fixed-rate mortgages, or variable-rate mortgages which do not respond rapidly to changes in the policy rate.

For fixed-rate mortgages in particular, the extent to which declining interest rates help reduce monthly debt service expenses depends in part on the ease with which borrowers themselves can refinance their mortgages. This, in turn, affects the need for relief among borrowers facing liquidity constraints, potentially including debt relief.

During periods of declining house prices and economic distress, it may not be feasible for homeowners with negative equity or without documented income to refinance their mortgages, even if such a refinancing could help both the borrower and the lender by reducing the probability of default (see Beraja *et al.*, 2019, or DeFusco and Mondragon, 2021). Therefore, programs to reduce frictions in refinancing can complement debt relief policies by permanently reducing the monthly payment obligations of some borrowers.

The effectiveness of these policies depends on the shares of fixed-rate and indexed mortgages, which vary across countries and over time; the distribution of interest rates; the extent of monetary policy reaction to the shock along with the degree of constraint imposed on monetary policy and pass-through to borrowers by the zero lower bound; and the ease of mortgage refinancing.

5.6 Ownership of mortgages

Even in the absence of government mandates, lenders and borrowers can agree to mortgage modifications. These private market adjustments would usually involve mutually beneficial transactions, whereby borrowers gain from the reduced payments or reduced principal, and lenders benefit from the associated reduction in the probability of default.

The extent of such private debt relief will depend on a number of important factors. The first factor is the extent to which the incentives of the mortgage servicers, who are often the party directly interacting with borrowers, deviate from those of the ultimate owners of the cash flows. For example, the ultimate owners of the mortgages may have an incentive to offer debt relief to borrowers, but mortgage servicers may not benefit from such a relief, leading to too few modifications being agreed among all the parties involved.

Since borrowers would almost always benefit, low rates of private debt relief are usually the result of insufficiently strong incentives or over-emphasis on short-termism among lenders. In systems with widespread government guarantees, like the mortgage market in the United States, authorities can focus on debt relief for the government-backed sector. Alternatively, they can subsidise lenders to engage in debt relief negotiations, even though such offers tend to finance an element of debt relief that would have been agreed in the absence of public subsidy.

A related consideration is the geographic concentration of mortgage ownership. Researchers have documented substantial negative price spill-overs from mortgage default and foreclosure. Foreclosure can cause nearby property prices to decline, which may push neighbouring borrowers deeper into negative equity. Lenders with geographically concentrated mortgage portfolios should thus be more willing to engage in private market debt relief programs, since they are more likely to

internalize the negative externalities from foreclosures. By contrast, lenders with more diverse portfolios may need more incentives to achieve the social optimum.

6 An assessment of the immediate policy response to the pandemic

In light of the aforementioned six economic factors of importance for debt relief policies, we now review the policy response to the pandemic in the Irish mortgage market.

6.1 Liquidity versus solvency

In many ways, the early stages of the pandemic appeared like a textbook example of a liquidity shock, where longer-term questions of solvency of borrowers were not pertinent, and the hope for a quick “v-shaped recovery” was widespread. There were no general declines in house prices, or immediate indications of a permanent reduction in households’ ability to make payments. From this standpoint, the focus on payment moratoria rather than loan write-offs or longer-term relief was well-suited to a crisis that led to substantial, albeit temporary, liquidity shocks for individuals.

6.2 Degree of targeting

The initial response was highly non-targeted, in that the simple declaration by the borrower of a need for relief was sufficient to qualify for a moratorium in Ireland. The benefits of more restrictive eligibility criteria would probably have been small, and would likely have been outweighed by the costs of reaching fewer individuals facing temporary liquidity shocks and of offering moratoria more slowly. In this sense, the EU-wide moratorium guidelines issued in April 2020, and implemented in almost all member states, represent a particularly well-designed policy response, with few implementation frictions and a rapid offer of relief, in response to an exceptional shock, available to all who sought it.

The larger-than-expected roll-off after the first three months of payment moratoria in Ireland described above suggests that many borrowers may have initially requested relief as a precautionary response to unprecedented levels of uncertainty. The roll-off was accompanied by modest changes to mortgage terms or monthly repayments for those borrowers, with minimal cost for either lender or borrower, or substantial moral hazard issues arising.

It is likely that targeting would have led to substantial implementation delays. By way of context, Labonne, McCann and O’Malley (2021) estimate that between fifty and sixty thousand SFS files were completed per year at the height of the mortgage arrears crisis in 2011-2013. Given that around 80,000 borrowers available of payment moratoria, most within the space of one to two months in 2020 Q2, the likelihood is that any additional reporting requirements to improve targeting would have simply overwhelmed the capacity of lenders to administer the moratorium scheme.

Looking beyond the initial pandemic response, the existence of a detailed mortgage arrears framework in Ireland, which was a necessary response to the previous crisis, ensures that targeting will be a natural consequence of engagement between lenders and borrowers for post-moratorium additional support. This framework, which ensures that lenders are provided with a rich information set as part of the renegotiation process, is outlined in detail by Donnery *et al.* (2018) and McCann and O’Malley (2020).

6.3 Cost of default to borrowers

In Ireland, moratoria did not lead to a change in borrowers’ credit records in the Central Credit Register, meaning the policy response did not entail a missed-payment classification for borrowers, which is likely to have greatly increased the attractiveness of the scheme. While monthly repayments rose for borrowers who did not or could not extend their mortgage term, the design was such that the Net Present Value of loan repayments remained constant.

From a moral hazard standpoint, there are two broad issues to consider: (i) whether the scheme's design means that those not requiring relief are likely to avail of it, as in Mayer *et al.* (2014) in the USA mortgage market; and (ii) whether the scheme leads to *ex post* changes in risk-taking behaviour, due to the relief offered or the expectation of further similar relief.

On (i), the fact that all principal and interest payments continued to fall due, with only a change in the scheduling of payments, suggests that the scheme was not a cause for moral hazard concern, in particular given that in the prevailing low-interest rate environment, delaying payments into the future had little effect on their present values.

On (ii), it must be acknowledged that any protective policy may invoke moral hazard concerns by mitigating the worst outcomes of over-borrowing. In the case of the Irish mortgage moratoria, for example, Gaffney and Greaney (2020) show that borrowers with higher origination loan to income and loan to value ratios were more likely to access a moratorium. The availability of such relief, combined with greater take-up among those taking *ex ante* greater risks, does suggest some marginal increase in the likelihood of future risk-taking due to incentive effects. Our assessment is that, given the nature of the shock, and the fact that the relief offered during moratoria was small in the context of a typical 25-30 year mortgage, it is likely that these effects are small.

Moving beyond these initial moratoria, the Irish system seems well-equipped to mitigate moral hazard concerns arising from modification design. This is due to the existence of regular repayment requirements, the absence of widespread debt write-offs, the requirement to fill out complete SFS forms and undergo rigorous assessment before mortgage renegotiation, and the private nature of the negotiation without any public or third-party subsidy. The major moral hazard concern that remains in Ireland pre-dates the pandemic: the existence of an outside option to disengage with renegotiation process completely, and accumulate arrears without foreclosure through the courts system. While not widespread, this feature of Irish mortgage lending has led to levels of long-term mortgage arrears that are not seen in other markets (McCann, 2017 and Duignan *et al.*, 2020).

6.4 Cost of default to mortgage loan owners

Since EBA-compliant moratoria did not require risk re-classification, they imposed no impairment costs on banks. This capital preservation greatly lowered the cost of offering moratoria to borrowers, relative to a counterfactual where all borrowers availing of various forms of forbearance would have been re-classified as higher risk with resultant provisioning increases. Along with a strong starting position due to a decade of increasing capital requirements under Basel III, macroprudential buffers, and strengthened liquidity positions, the EBA-compliant moratoria acted to bolster the preservation of capital in the banking system during a time of financial stress. In so doing, the moratoria performed an important macroprudential function that contributed to avoiding credit supply crunches that were a common feature of the 2008 GFC.¹⁴

Over time, of course, it has become appropriate that borrowers requiring further post-moratorium support from lenders should be re-classified as having experienced increases in credit risk. These changes will result in capital charges for banks, and affect their profits. For Irish banks, even in 2020 in the presence of moratoria, increased loan loss impairments were incurred in Ireland, mostly related to borrower risk re-classifications. These were the highest in Europe, and amounted to 2.4 per cent of the retail banking system's overall risk-weighted assets. This increased provision charge, where it related to elements of the IFRS 9 accounting reforms, did not lead to reductions in bank capital ratios due to the "CRR Quick Fix" set of packages that elongated the transition period over which banks must take capital charges as a result of these reforms. This policy tweak at European level was another important lever with macroprudential features, which again contributed counter-

¹⁴ Reductions in regulatory minimum capital ratios by the Single Supervisory Mechanism and releases of the Counter-Cyclical Capital Buffer played a complementary role in reducing the risk of credit supply amplifications of the downturn.

cyclically in avoiding the risk of a bank capital shock leading to an amplifying credit supply shock during the crisis.

6.5 Interest rates and frictions to refinancing

While not a direct policy lever, it is useful to note the interest rate fixation situation in Ireland, and its relevance to post-moratorium outcomes. The growth of mortgage interest rate fixation in Ireland during the 2010s has lowered the immediate effectiveness of mortgage refinancing as a crisis response tool, because lenders tend to charge fixed-rate borrowers for early redemptions.¹⁵ However, most fixed-rate mortgage offers revert to variable rates after an introductory period of five years or less. After this period, which is relatively early in the lifetime of the mortgage, most borrowers will enjoy improved refinancing options upon moving to variable rates, suggesting that refinancing frictions will be a relatively minor impediment to the overall capacity of borrowers to benefit from mortgage market competition.

Related to the literature on borrowers becoming endogenously less able to refinance due to the nature of the crisis (e.g. through entering negative equity or unemployment), the Irish experience in 2020 is instructive. Numerous reports have highlighted cases of borrowers continuing in employment, working for companies availing of state wage subsidies, whose access to mortgages was restricted during the pandemic. For these borrowers, this type of credit supply tightening is precisely the type of barrier to refinancing that has been identified in the US literature in recent years, and, all else equal, reduces the capacity of the household sector to respond to the shock by availing of competitive mortgage pricing.

6.6 Mortgage ownership structure

In the Irish case, the ownership of pre-pandemic mortgages, in particular among performing loans, was heavily concentrated in five retail banks, which meant that the coordination of dispersed owners was not an important impediment to the initial response to COVID-19.¹⁶

Looking forward, dispersed ownership could create more substantial challenges in cases where pre-pandemic distressed debt remains outstanding in 2021. In Ireland, loans with arrears pre-pandemic were much more likely to have transferred to the non-bank sector through loan portfolio sales and securitizations. For example, among loans with arrears balances above two years, 57 per cent of loans are held outside the retail banking system.¹⁷ In these cases, there are in many cases separate owning and servicing entities, which may lead to coordination frictions similar to those identified in the US post-2008 literature (Adelino *et al.*, 2013), which may lower the likelihood of successful debt relief programs being issued.

7 Mortgage contract features in light of the experience of the pandemic: a role for increasing borrowers' optionality

While we assess through our six-point framework that the initial policy response appears to be well-designed, one may wonder whether some of the responses implemented in a rapid and unprecedented fashion as a response to the pandemic could be effectively incorporated in mortgage markets into the future. In particular, the ability to transition rapidly, and with low cost, to a low-repayment or no-repayment period was crucial to the success of the policy response. These features of the COVID-19 response, if embedded more predictably into the mortgage market, could

¹⁵ In December 2020, fixed-rate mortgages accounted for over 40 per cent of outstanding mortgage credit, and 80 per cent of new mortgage agreements (Retail Interest Rates statistics, Central Bank of Ireland).

¹⁶ Performing loans constituted the majority of COVID-19 payment breaks, whereas non-performing loans were treated on a case-by-case basis by many lenders, with more rigorous eligibility criteria applied than in the case of performing loans.

¹⁷ See Central Bank of Ireland Residential Mortgage Arrears and Repossession Statistics, December 2020.

ensure that future temporary liquidity shocks do not cause permanent defaults and capital crunches even in environments where implementation frictions may slow down a formal system-wide response.

We approach this topic from the perspective that it may be beneficial to avoid any perception of risks from future governments, lenders, or regulatory agencies being less able or willing to respond as rapidly to future unexpected temporary shocks. In particular, we are investigating whether the mortgage market can be adjusted so that, in the event of a widespread, rapid, unexpected event that hampers repayment capacity immediately but temporarily, some of the beneficial features of the pandemic response can be replicated:

1. The response occurs automatically upon the decision of a borrower, with the option being specified *ex ante* in the contract.
2. Implementation frictions such as lenders' requirement to carry out eligibility assessments are minimised or removed.
3. Lenders' costs such as the requirement for risk re-classification are minimised or removed.
4. Borrowers' costs related to the existence of "flags" of the event on credit records are minimised or removed.

Many of the features above could be achieved by adding optionality components into standard mortgage contracts. Under such a contract, borrowers could, for a limited period of time, choose among several payment options each month. The options could include:

- (i) several choices of traditional payments of principal and interest, corresponding to full amortisation over various horizons;
- (ii) an interest-only payment, which keeps the outstanding mortgage balance fixed; or
- (iii) a minimum (or zero) payment, which is often less than the interest, and which will lead to negative amortisation (an increase in the outstanding loan balance).

Such an approach would be associated with costs which are difficult to assess, because market-wide incentives and outcomes may change in the widespread presence of payment optionality. However, we can look at historical parallels. For example, embedded-option mortgage contracts issued in the United States, such as the "Option ARM", featured prominently in many narratives of the run-up to the GFC. Amromin *et al.* (2018) show that interest-only and reverse-amortization mortgages in the USA were twice as likely to become delinquent as traditional contracts. The permanent availability of low-payment or no-payment options raises concerns that some borrowers may target the lowest payment option and thus maximise long-term indebtedness, contrary to the intention that it should be a temporary response to liquidity shocks. As such, it is imperative that payment variation is time-limited, to be followed by normal functioning of banking systems and risk management practices, as in Europe in 2020-21. In particular, this includes the need for lenders and borrowers to find sustainable solutions to prolonged challenges to repayment capacity.

To address such concerns, we propose three potential avenues to explore when considering increased borrower optionality in mortgage contracts.

1. Optionality based on the triggering of an "emergency" type event.
2. Optionality for temporary repayment changes at borrowers' discretion, as standard within many contracts, but accompanied by mitigating clauses to lower incentive risks.
3. Express assurance that regulators have the capacity and willingness to issue guidance similar to March-April 2020 in future events.

On (1), optionality to move to a moratorium or low-payment option could be made dependent upon the declaration of a national or regional emergency by a government, or some other signal of a large,

system-wide shock. The key economic characteristics of these events are that they are unexpected, aggregate, exogenous to borrowers, and result in widespread shocks to repayment capacity. These events should likely not include shocks that are idiosyncratic to borrowers or that occur regularly at turning points in the business cycle.

One concern related to this contingency is that agencies may declare emergencies in order to activate the trigger, perhaps for political reasons, which could create financial stability risks, depending on the environment in individual jurisdictions. Thus, any such moratorium should only ever be time-bound in nature, followed by normal credit risk assessment and impairment provisioning, as has occurred in Europe in recent months. Another concern with this contract design is that, in order to reduce implementation frictions, the range of event types under which the optionality would be triggered, and the way in which these events would be legally designated, would need to be agreed *ex ante* and be clear to borrowers. Furthermore, regulatory considerations may determine whether an *ex ante* contingency could be designed to avoid Unlikely to Pay (UTP) assessments and, consequently, increases in impairment charges for lenders.

The option (2) above represents perhaps a simpler approach, whereby the right to move to a payment moratorium is embedded in standard mortgage contracts, with clauses to mitigate incentive-related risks. Currently, some Irish mortgage lenders offer “payment holidays” on a case-by-case basis for non-distress reasons, such as the arrival of a child and associated temporary reductions in earnings, or other increases in living costs. Importantly, borrowers must declare that their repayment capacity has not changed permanently.

To avoid the market-wide costs and risks associated with Option ARM contracts in the USA, an automatic right to a payment moratorium option would need to be accompanied by mitigating clauses. Firstly, a maximum amount of months over the lifetime of the loan could be specified, as is the case in some payment holiday options currently. Secondly, the contract could specify minimum amortisation requirements, perhaps over an annual or multi-annual assessment period. In addition, the initial underwriting should be based on households’ ability to repay on the regular repayment option (i.e. full amortisation over the planned term).

Crucially, in order for a payment moratorium option to be beneficial in responding to unexpected aggregate shocks, it would need to be the case that a borrower can opt into the moratorium in the first months of an unexpected shock without triggering Stage 2 or UTP assessments at that time. Immediate risk classifications would not meet key criteria in our framework, namely the lowering of participation costs for borrowers and lenders, and the minimising of eligibility criteria.

Option (3) would involve express assurance that regulators have the capacity and willingness to issue guidance similar to March-April 2020 in the event of a future short-term liquidity shock affecting many borrowers. This would rely on the existence of assurances from financial regulators such as the EBA that similar guidance would be issued after similar events in future. This would open the prospect that such guidance would become a feature of the mortgage market. Option (3) would also rely on being able to repeat the policy achievements in future market structures. One example is that, if the distribution of mortgage legal title ownership were to change, a wider range of agencies and/or representative groups may be required to ensure consistent treatment of borrowers.

This option would leave the system open to implementation risk if a wide-ranging offer to borrowers and lenders could not be credibly repeated. To replicate the successes of the program enumerated in section 6, policymakers would have to follow a number of approaches. For example, market participants would need to be certain that the future leadership of any agency would be amenable to issuing guidance that can meet the criteria for rapid crisis response laid out in this paper. This would be comparable to the challenge that embedding moratorium capacity in mortgage contracts would face: to achieve the flexibility and/or commitment that would allow these different options to be rapidly and effectively deployed in future emergency events.

In sum, the potential for implementation of this type of contingent, time-limited optionality could merit further investigation, in particular of the relative costs and benefits. We believe that these options may offer benefits including a pre-agreed and correctly priced process for providing fast payment breaks in response to aggregate shocks. The benefits are potentially large, making the proposed changes worthy of further investigation by the research community. Such research could also involve a full consideration of the costs of moving to a market with more-contingent mortgage payments.

8 Conclusion

The COVID-19 pandemic and restrictions caused a short-term liquidity shock among many households. We assess the main policy response in the residential mortgage market in Ireland, namely the offer of a payment moratorium to affected households for up to six months as an immediate form of relief. In our assessment, the response in the household mortgage market in Ireland worked well based on several important economic factors, in particular given the expected short-term nature of shocks to household liquidity and the relatively resilient asset position of homeowners. Further, the policy efforts to reduce the participation costs and frictions for both borrowers and lenders increases the speed of response and provided macroprudential type benefits in lowering the risk of an amplifying credit supply shock during a downturn.

However, looking forward, a significant extension of liquidity shocks, or the development of solvency problems among households, would require considering a broader range of policy options, including longer-term mortgage modifications. We offer suggestions that would allow the high speed of the policy response to COVID-19 to be repeated in future, by incorporating these options into mortgage contracts.

Beyond the impact of COVID-19 on households through increased unemployment, the pandemic has also negatively affected many small businesses trying to make loan payments and support economic growth, such as hospitality and tourism enterprises. When considering commercial credit policy, it is important to note the differences from household mortgages, including the high prevalence of unsecured credit and personal guarantees; the range of corporate and non-corporate structures (including limited liability); and shorter maturities, leading to more frequent renegotiations between borrowers and lenders. These may lead to different recommendations from the more homogenous, collateralised and longer-term credit market for household mortgages.

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