



Banc Ceannais na hÉireann
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Financial Stability Notes

Lending above macroprudential mortgage limits: The Irish experience since 2015

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No. 8, 2019

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Macro-Financial Division

July 26th, 2019

Abstract

Borrower-based measures introduced in 2015 by the Central Bank of Ireland placed a limit on the loan to income (LTI) and loan to value (LTV) ratio of newly originated mortgages in Ireland. These limits come with an important exception: a system of “allowances” for a percentage of each lender’s total annual loan volume to be issued above the stated LTI and LTV limits. In this *Note* we study the way in which these allowances are allocated, focusing on two dimensions. First, from a borrower composition viewpoint, we show that allowances for First Time Buyers (FTBs) typically go to borrowers who are at low to middle incomes, predominantly in Dublin and more likely to be single. Second, from a risk management perspective, we study banks’ choice of LTI and LTV levels *within the allowance group*. We show that borrowers with an LTI allowance are highly likely to have the maximum allowable LTV level, and vice versa, suggesting that a large proportion of borrowers are accessing the maximum available leverage under the regime. Finally, we show that, in line with rapid house price growth since 2015, the LTI and LTV levels of loans with allowances have grown in each year to 2018.

1 Introduction

Macroprudential policy (MaP) has become an increasingly important part of Central Banks’ financial stability toolkit since the global financial crisis. MaP can take a number of forms, but two of the most prevalent within the euro area are capital-based instruments (which require banks to hold more equity capital depending on either their own circumstances or

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the stage of the financial cycle) and borrower-based measures (BBMs), which place limits on the size of loan that can be issued relative to borrowers' down-payments or income.

The mortgage measures (hereon, "Measures") introduced in 2015 by the Central Bank of Ireland are a prominent example of a BBM intervention by a Central Bank. The Measures had stated aims of improving the resilience of the banking and household sectors, and limiting pro-cyclical dynamics between the housing and mortgage markets. The policy placed a limit on the loan to income (LTI) and loan to value (LTV) ratio of newly originated mortgages in Ireland.

One important feature of the policy framework as implemented was the allowance for a percentage of each lender's total loan volume to be issued above the stated LTI and LTV limits. These allowances provide lenders with a degree of discretion when determining the overall risk-profile distribution of new lending. Since loans with allowances present an important potential channel for households to overcome credit constraints introduced by binding borrower-based measures and achieve their desired housing amenity, an understanding of the way in which these loans are allocated provides important insights on the overall transmission of the policy to the household sector. Further, given that no restrictions are placed on the LTI and LTV *levels* of loans with an allowance, a study of these distributions has an important financial stability dimension.

Much research attention globally is now being placed on the ways in which macroprudential policy (a) achieves its stated aims, (b) has effects on credit allocation or the wider economy outside of its stated aims. Recent research from both Ireland and the UK (Acharya et al., 2019; Peydro et al., 2019), for example, has shown that BBMs in the mortgage market tilt the distribution of aggregate mortgage lending towards those borrowing larger loan amounts or on higher incomes. Cerutti et al. (2017) find that macroprudential policies and specifically those targeting LTV and DTI/LTI are associated with reductions in the growth rate of real credit and house prices.

In this paper, we build on the analysis in Kinghan (2018) by studying loans with an allowance in the years 2016 to 2018. We focus on the aforementioned two dimensions: the allocation of allowance loans across household types, and the risk profile of new lending with allowances. In doing so, we contribute to the growing international literature on the way in which banks and the wider household sector respond to macroprudential policy instruments such as Ireland's mortgage Measures. In addition, we provide insights for policymakers regarding the calibration of allowances as part of a macroprudential framework. Finally, we present our analysis by geographic location, highlighting how allowances may function differently depending on the region where the loan is originated. Our empirical results provide strong evidence that an allowance regime can allow households overcome credit constraints, and access credit and housing amenity that may have been restricted with a hard LTI or LTV limit without allowances.

2 Policy overview and data

Since their introduction in 2015, the Measures have defined separate maximum allowable LTV and LTI limits across three borrower groups: First Time Buyers (FTB), Second and Subsequent Buyers (SSB), and Buy to Let (BTL). There have also been separate allowance levels for total lending volume, weighted by loan size, issued per lender per year. The precise level of the maximum LTV has changed for LTVs since 2015, as has the amount of lending allowable over various limits. Table 1 summarizes all instruments and allowances as of 1 January 2018, the last point at which changes were made to these rules. LTV limits vary across FTB, SSB and BTL (90, 80 and 70, respectively), while LTI limits are 3.5 for both FTB and SSB (BTL loans are not subject to an LTI limit). The allowances are allocated per instrument and per borrower type: FTB loans are permitted 20 per cent of total volume above the LTI limit and 5 per cent above the LTV limit, while SSBs are permitted 10 per cent above the LTI limit and 20 per cent above the LTV limit.

In order to ensure compliance with the Measures, each lender issuing more than €50 million of mortgages in a calendar year is required to submit a detailed loan-level return to the Central Bank. This database, referred to as the Monitoring Template (MT, hereon) is the source for all empirical analysis in this paper and has been used previously in numerous studies assessing new lending developments since the introduction of the Measures (Kinghan, 2018; Kinghan et al., 2017). We focus here on new lending originated between 2016 and 2018 for the purchase of a primary dwelling (PDH) and include only loans that were subject to, or in-scope of, the mortgage measures. We therefore use a sample of 92,635 loans that covers lending at the 5 main Irish banks.¹

The first question to ask when presented with this set of limits and allowances is: *do banks make use of them?* Figure 1 shows the share of overall lending that is issued with one of the allowances in each year from 2016 to 2018.² This figure shows that, in each year, between 20 and 25 per cent of total lending value has been issued above one of the limits. These numbers are close to the maximum that would have been allowable in each year given the composition of borrowers across FTB and SSB groups, and the allowance regime in place in each year.

Figure 2 illustrates the allocation of allowances by borrower type. We observe that only a small number of borrowers receive both an LTV and an LTI allowance. Banks thus optimise the allocation of allowances, by permitting borrowers to exceed the macroprudential limits on one channel only, maximizing the volume of lending that is issued above each limit.

¹These are Allied Irish Bank (AIB, including the Educational Building Society (EBS)), Bank of Ireland (BoI), Permanent TSB (PTSB), Ulster Bank Ireland DAC (UBI) and KBC Bank Ireland (KBC).

²We exclude 2015 from most analysis in this Note due to the transitional nature of credit allocation in that year, with a large amount of pre-existing credit agreements being drawn down throughout the year.

3 Which type of borrowers have been getting allowances?

International literature suggests that higher-risk loans are often accessed by borrowers at the margins of access to homeownership, such as those who are younger, have accumulated less wealth, are on lower incomes, or have lower credit scores.³ By imposing binding limits on the maximum LTV and LTI for new mortgages, while at the same time allowing for lender discretion on lending above the limits, the calibration of the Measures in Ireland means that banks' decisions on the allocation of allowances have the potential to influence the evolution of the distribution of mortgage credit across socioeconomic groups. For this reason, we focus in this section on understanding in depth the way in which allowances have been allocated from 2016 to 2018.

Given that changes in borrower composition are arguably most pertinent when they alter patterns in the transition to homeownership, we focus our analysis in this section on differences between the allowance and non-allowance groups within the First Time Buyer market. Previous research by Kinghan (2018) has shown that FTBs receiving an LTI allowance are more likely to be in Dublin, to be younger, to be single, and to take out longer-term loans. Given the differential in property values between Dublin and the rest of the country, in this *Note* we will present analysis separately within and outside the capital.⁴ To deepen our understanding of patterns in the data we focus on the distribution rather than only the mean of certain key variables, and present results from conditional regressions to complement previous reporting of unconditional mean differences.

Figure 3 presents differences between allowance and non-allowance loans within the Dublin FTB market along three dimensions: income, loan size, and property value. The bottom left panel shows that the distribution of incomes for those getting allowances lies to the left of non-allowance borrowers. 83 per cent of Dublin FTBs with an LTI allowance have annual gross household incomes below €100,000, with the equivalent being 68 percent for non-allowance borrowers. Moving to the top left panel, borrowers with an LTI allowance are shown to be drawing down larger loans (with a difference in averages of approximately €50,000). Finally on the top right panel, the purchase price distribution of allowance loans is slightly to the right of that for non-allowance loans, but the differences are not as pronounced as for incomes and loan sizes. Taken together, Figure 3 can be summarized as showing that the higher LTI loans accessed under these allowances have allowed borrowers located in the capital on relatively lower incomes to draw down relatively larger loans, to purchase similar if slightly more expensive homes. This suggests that the allowances system assists borrowers in more expensive areas to overcome credit constraints imposed by the overall macroprudential framework.

The picture outside of Dublin is shown in Figure 4. The income distribution of allowance

³Lydon and McCann (2017) show that, lower-income borrowers in Ireland have substantially higher originating LTI ratios, and that this pattern has held through expansion and contraction phases in the mortgage market. Foote et al. (2010) show that LTV and DTI ratios are higher for subprime than prime borrowers in the USA.

⁴The average property value for borrowers in our sample was €283,734 outside of Dublin and €462,883 in Dublin.

loans is to the left of non-allowance loans, but the differential is less pronounced than in Dublin.⁵ For loan sizes and collateral values, the allowance distribution is noticeably to the right of the non-allowance distribution. This indicates that, outside the capital, borrowers with similar income profiles to those without allowances are using an allowance to expand the property valuation they can access through taking on a larger loan size.

Next we summarise the results of an empirical analysis of the determinants of the allocation of FTB LTI allowances. Table 2 provides a summary of the key results from this exercise, where all models predict the probability of a household receiving an FTB LTI allowance, $\Pr(A)$, *conditional on the full range of factors included in the model*.⁶ Several characteristics emerge as important determinants of whether an FTB has an LTI allowance. Specifically, borrowers in Dublin have a 20% higher probability of an allowance than those outside of Dublin and single borrowers have a 7.9% higher probability of an allowance than couples both inside and outside of Dublin.

Considering borrower income outside Dublin, we find that borrowers in the 2nd and 3rd income quintiles have the highest $\Pr(A)$, followed by those in the 4th quintile.⁷ In Dublin, borrowers in the 1st, 2nd and 3rd income quintile have the highest $\Pr(A)$. These patterns are consistent across lending institutions.

Looking at indicators of credit constraints, we find that FTBs with higher LTVs and longer terms have higher probabilities of getting an LTI allowance - *prima facie* evidence that these borrowers are close to their limit along multiple credit conditions. In additional regressions in which mortgage terms are not controlled for, we also show that younger borrowers are more likely to receive LTI allowances.

Given that there has been substantial house price growth during the period under study, we investigate whether any of the sensitivities outlined above have changed over time. Broadly, the patterns outlined above are remarkably stable through the three years, suggesting a structural pattern in the type of borrower requesting these high-debt loans and the willingness of banks to allocate them.

4 The risk profile of borrowers getting allowances

The allowances framework within the Measures defines clearly the maximum allowable proportion of issuance that can be above the various LTI and LTV limits. Recent Central Bank of Ireland research has highlighted the “bunching” of larger and larger proportions of borrowers at exactly the maximum allowable amount (Kingham, 2018). Here we present evidence on another pertinent financial stability question: what is banks’ credit risk appetite *within the group of allowance loans*? Given that the Measures place no restriction on the *level*

⁵95 per cent of non-Dublin FTBs with an LTI allowance have incomes below €100,000, with the equivalent being 90 percent for non-allowance borrowers.

⁶The econometric model used in this analysis and an in-depth review of the results will be discussed in (Kingham and McCarthy, 2019).

⁷We divide the income distribution into 5 even quintiles. The first income quintile contains the lowest income borrowers and the fifth income quintile contains the highest earning borrowers.

of LTV and LTI within the allowance group, an understanding of the *within-allowance LTV and LTI distribution* is crucial for an overall understanding of the functioning of the Measures. Previous economic research provides much motivation for our focus on this higher-risk portion of the market. In Ireland, Hallissey et al. (2014) have shown that defaults during the Irish mortgage crisis were more likely for loans issued at higher originating LTVs and LTIs. In the United States, the origins of the mortgage default crisis are the subject of a large and expanding literature. Gupta and Hansman (2019) show that about 40 per cent of the causal effect of higher LTVs on loan default is due to the adverse selection of riskier borrowers into higher originating LTVs, with the remaining 60 per cent caused directly by changes in leverage during the loan's lifetime. Johnson et al. (2017) show that ex-post default rates increase by about 5 percentage points for an increase in debt service to income ratios of 5 per cent of monthly income. Fuster et al. (2018) present strong evidence of a correlation between LTI ratios and default. Foote et al. (2010) ascribe a role to DTI in explaining default, but point out that quantitatively it is many times smaller than the role of credit scores or loan to value ratios. Gaudencio et al. (2019) find that for an average borrower, a 10% increase in LTV at origination raises the probability of default by 0.2% and a increase in the LTI ratio of 1 increases the risk of default by 0.1%.

Figure 5 reports the LTI distribution among FTBs getting an LTI allowance in 2016, 2017 and 2018. As one might expect given the house price growth in Ireland during the period, LTIs have been drifting to the right for this group of loans. Whereas in 2016, 33 per cent of allowance loans had an LTI above 4, this has now increased to 47 per cent of allowance loans issued in 2018.⁸ Similarly, the share of loans issued just above the threshold, between 3.5 and 3.75, has fallen from 35 per cent in 2016 to 20 per cent in 2018. This tendency towards higher LTI levels in the allowance group during a period of high house price growth will continue to be monitored in order to understand the full financial stability implications of the mortgage measures policy regime. These graphs cannot provide a commentary on the overall level of risk across all originated mortgages in each year, because the percentage of total loan origination with allowances within the FTB and SSB segments has changed on two occasions since the introduction of the policy in 2015.

Figure 6 repeats the analysis for the SSB allowances. Here, we again see some drift towards higher-risk lending, with the share of SSB allowance loans with LTVs between 88 and 90 rising from 48 per cent in 2016 to 60 per cent in 2018. Similarly, in the right panel, the share of LTI allowance loans to SSBs with LTIs over 4 has also risen. However, these increases are less pronounced than in the case of FTBs. We offer one intuitive explanation for this: for FTBs, a rapid housing market means simply that prices are moving faster than the borrower's ability to accumulate savings for a down-payment, and faster than income is growing, driving up both LTV and LTI. However, given that SSBs are transferring from ownership of one home to another, they are somewhat "hedged" against house price growth: as the purchase price of their desired house rises, so the sale price of the house they are leav-

⁸These figures refer to the issued shares of loans within the allowance group rather than the share allowable under the BBM framework. Overall in 2018 a lower share of borrowers received an LTI allowance due to a change in the calibration of allowances across borrower groups in the 2017 review.

ing will rise (to the extent that price movements are correlated across sale and purchase region). This feature of SSB transactions acts to mitigate the effect of a growing housing market on their ability to transact. Kinghan (2018) has shown that these dynamics were at play during the pre-2008 phase of the cycle in Ireland: despite a loosening of credit standards and rapid house price growth, LTVs did not in fact increase much on average during the boom.

Looking at overall LTI allowances across both borrower types, the share of lending originated between 3.5 and 3.75 LTI decreased from 37 to 22 between 2016 and 2018. For borrowers with an LTI greater than 4, the share increased from 31 per cent in 2016 to 44 per cent in 2018. Overall, average LTI across all borrowers with an LTI allowance has gone from 3.91 to 3.97 to 4 over the three years under study, representing only a small increase in average LTI for this group. In addition, the drift to the right in LTI appears to be capped at 5 times gross income, indicating that banks' credit appetite for maximum allowable LTI appear not to be drifting outward to levels seen during the previous housing market upswing.

From a risk-management perspective, we can also consider the importance of LTV levels for loans with an LTI allowance, and vice-versa. If banks are managing risk in such a way that there is some offsetting between the two, this would reduce a loan's future default probability. As shown in Figure 2, it is rare that banks give loans above both limits. However, Figure 7 reports that a large share of loans with an LTI allowance are clustered at the maximum allowable LTV, with almost 40 per cent of FTB loans with an LTI allowance also having an LTV of 89-90 per cent. In the SSB market, approximately 28 per cent of loans with an LTI allowance have a LTV of 79-80, clustered at the maximum available without an allowance. As shown in Figure 7, these shares represent an increase on those observed in 2017.

Another dimension of risk that we can consider is the loan term for borrowers with an allowance. Kelly et al. (2015) show that, even when controlling for originating LTI and LTV ratios, borrowers choosing a longer term have higher ex-post default probabilities in Ireland: an indication that riskier borrowers with less financial resilience choose to originate mortgages with longer terms. Figure 7 displays the term distribution for borrowers with and without an LTI allowance, by borrower type. Almost 50 per cent of FTBs with an LTI allowance have a loan term of 34-35 years, with the corresponding share for non-allowance borrowers at less than 25 per cent. Similarly, over 30 per cent of SSBs with an LTI allowance have a term of 30-31 years, with the share of non-allowance borrowers approximately 14 per cent. If these borrowers were subject to an income or interest rate shock, their ability to manage repayments by extending their mortgage term would be limited.

Looking at the LTV limit facing SSBs only, we see a similar pattern with less pronounced magnitudes: one quarter of borrowers with an LTV allowance exceeding 80 are clustered around the LTI maximum of 3.5, with another 20 per cent of borrowers having an LTI above 3, as shown in Figure 8. Looking at the loan term distribution for SSBs with an LTV allowance, over 25 per cent of borrowers have a loan term of 30-31 years, compared to circa 13 per cent for SSBs without an LTV allowance.

Taken together, the analysis in Figures 7 and 8 suggest that the Measures in Ireland, combined with developments in the housing market, have meant that many borrowers are draw-

ing down the maximum allowable credit available under the regime. Further, the share of all borrowers doing so has been growing in each year since 2016. None of these developments are inconsistent with the stated aims of the Measures, namely to improve lender and borrower resilience, and to limit pro-cyclicality between the mortgage and housing markets.

5 Conclusion

This *Note* examines lending that exceeded the LTV and LTI limits established by the mortgage Measures in Ireland, from 2016 to 2018. We focus on two important aspects of this lending. Firstly, we focus on the borrower groups within the First Time Buyer market that are more likely to receive an LTI allowance. As these borrowers are transitioning into home ownership, the impact of the allowances system on FTBs is of particular interest. We find that allowances typically go to FTBs who are single applicants, predominately located in Dublin and from the lower to mid range of the income distribution. This suggests that the allowances system assists borrowers in overcoming credit constraints imposed by the overall macroprudential regime, i.e. those who are purchasing in more expensive areas, on lower incomes and with only one income source. This finding is in keeping with the inclusion of allowances in the mortgage measures framework, which was in recognition of the fact that loans at higher LTV and LTI ratios can be appropriate in certain circumstances.

Second, we examine the observable risk profile of loans with an allowance. This work shows that the distribution of LTI for borrowers with an LTI allowance has shifted to the right between 2016 and 2018. The share of FTB LTI allowance loans with an LTI above 4 increased from 33 per cent in 2016 to 47 per cent in 2018. The figure for SSBs with either an LTI or an LTV allowance followed a similar pattern, however with a smaller magnitude. Although banks rarely issue a loan above both the LTV and LTI limits simultaneously, for borrowers with an LTI allowance there is a strong likelihood of having the maximum available non-allowance LTV. This is also the case for LTI levels of SSBs with an LTV allowance. We also observe that borrowers with an allowance are more likely to be clustered around the maximum allowable loan term.

Overall, we conclude that the macroprudential regime has been largely successful in tempering risk-taking in the mortgage market, while allowing for discretion to lead to higher-LTI and higher-LTV lending to be issued to otherwise constrained borrowers. However, close attention must continue to be paid to developments within this selected group of borrowers from a financial stability perspective.

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Tables

Table 1 | Macroprudential Regulations for Mortgage Lending

LTV limits	For primary dwelling homes:	FTBs: 90%	5% of new lending to FTBs allowed above 90% limit
		SSBs: 80%	20% of SSB new lending allowed above 80% limit
	For buy-to-let borrowers (BTLs):	70% LTV limit	10% of new lending allowed above 70% limit
LTI limits	For primary dwelling homes:	3.5 times income	For FTBs: 20% of new lending to FTBs allowed above 3.5 limit
			For SSBs: 10% of new lending to SSBs allowed above 3.5 limit
Exemptions	From LTV Limit: Borrowers in negative equity	From LTI Limit: BTL borrowers	From both limits: Switcher mortgages Restructuring of mortgages in arrears

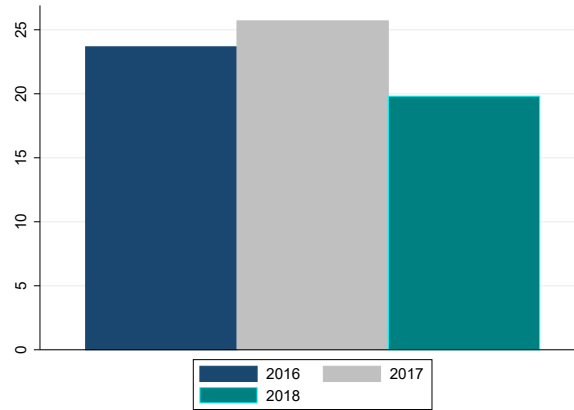
2017 Review: [Report on 2017 Review, November 2017](#).

Table 2 | Summary of findings on the allocation across borrower groups of FTB LTI allowances

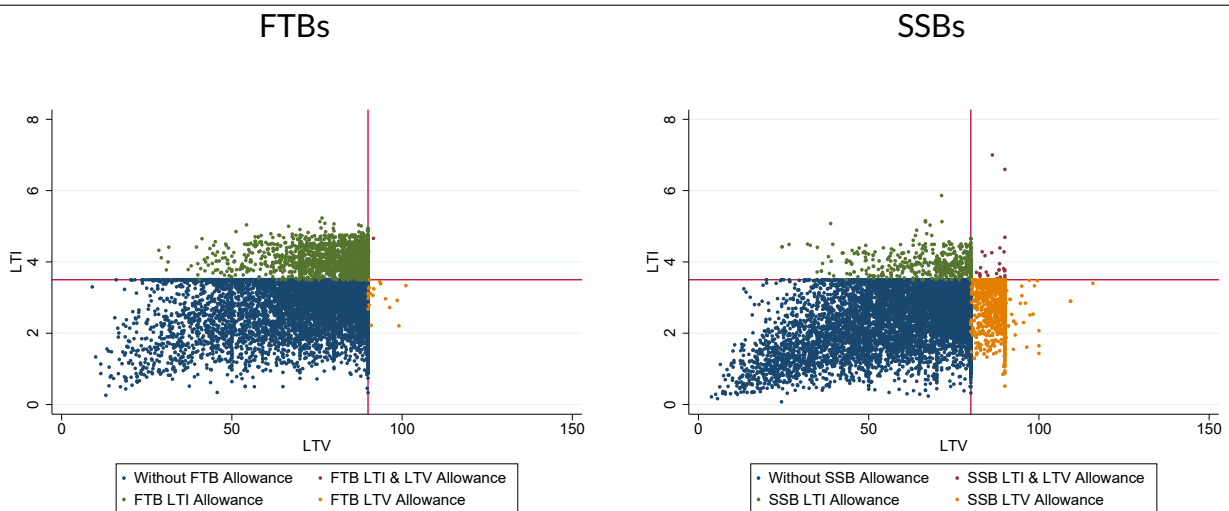
Dublin	Dublin borrowers have a 20% higher Pr(A) than those outside of Dublin.
Single Borrowers	Both inside and outside of Dublin, single borrowers have a 7.9% higher Pr(A) than couples.
Income Profile outside Dublin	2nd and 3rd income quintile have a 6% higher Pr(A) than the first income quintile. The 4th income quintile has a 2% higher Pr(A).
Income profile in Dublin	1st, 2nd and 3rd income quintile have similar Pr(A), which is 4% higher than the 4th quintile and 9% higher than the 5th quintile.
Credit Conditions	Borrowers with longer terms and higher LTVs have a higher Pr(A). This holds both inside and outside Dublin.
Age	Borrowers under 30 have 13.2% higher Pr(A) than borrowers over the age of 41.
Time Variation	These results are largely consistent across years.
Lender Variation	Lenders appear to have a similar borrower composition.

Results from regression model - Linear Probability Model: Dependent variable takes a value of one when an FTB has an LTI above 3.5; Pr(A) denotes the probability of receiving an allowance.
 Formal regression results available in Kinghan and McCarthy (2019)

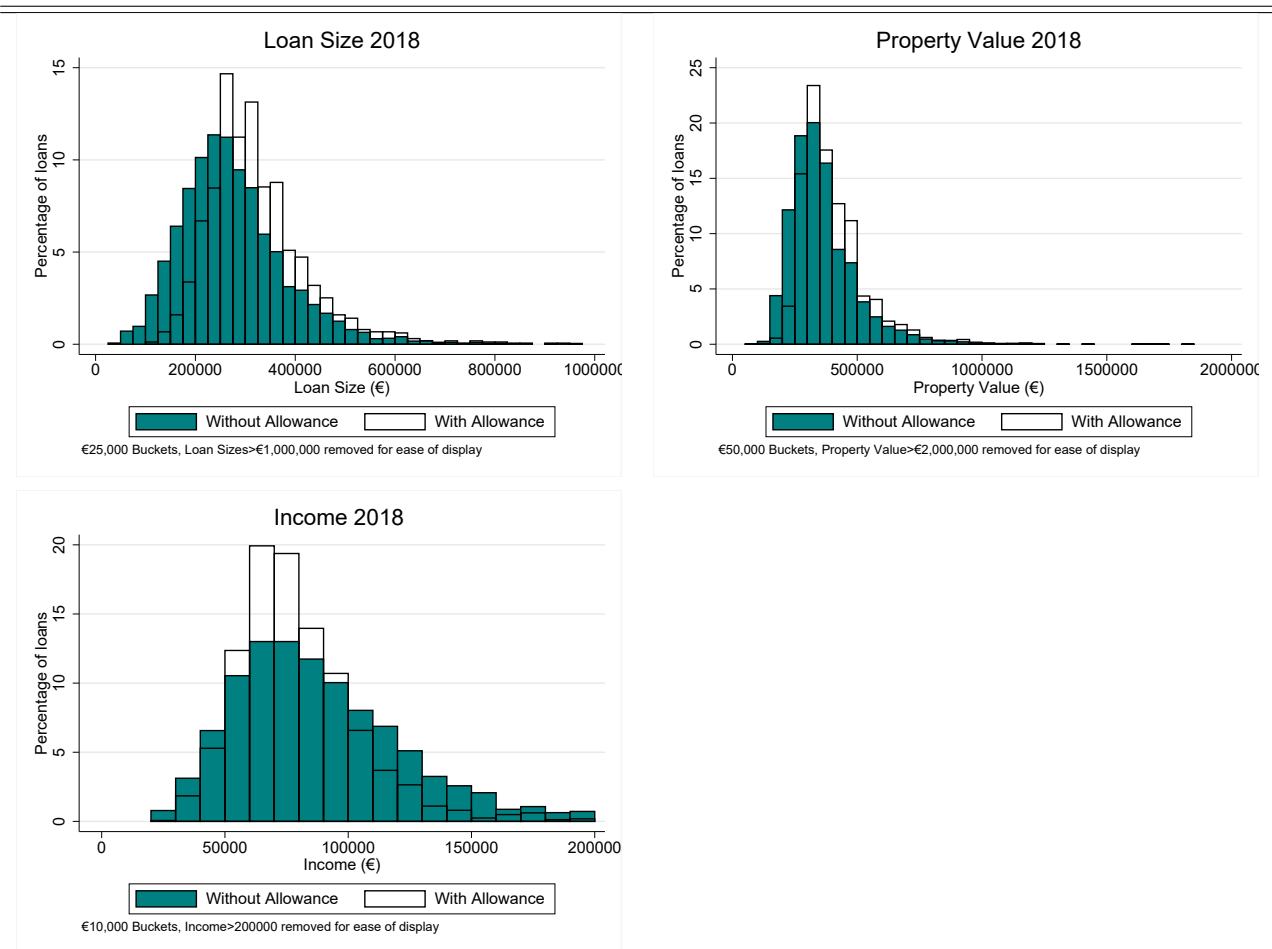
Figures

Figure 1 | Share of overall lending being issued with an allowance, 2016 to 2018, by value

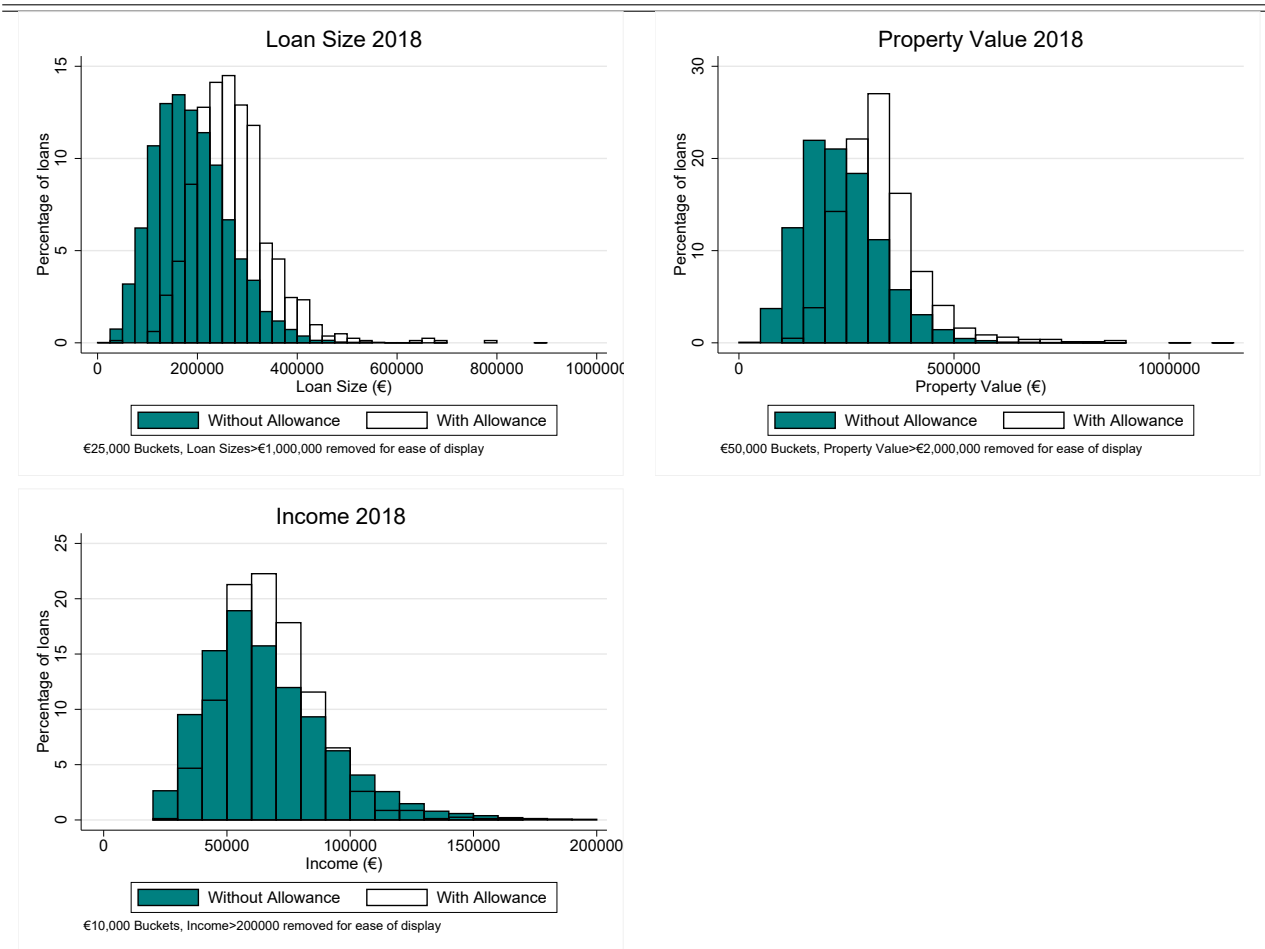
Source: Authors' calculations using Central Bank of Ireland data.

Figure 2 | Allocation of Allowances by Borrower Type, 2018

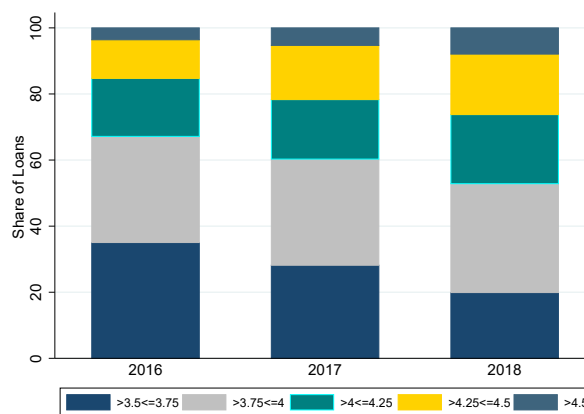
Source: Authors' calculations using Central Bank of Ireland data.

Figure 3 | FTBs with an LTI allowance in Dublin

Source: Authors' calculations using Central Bank of Ireland data.

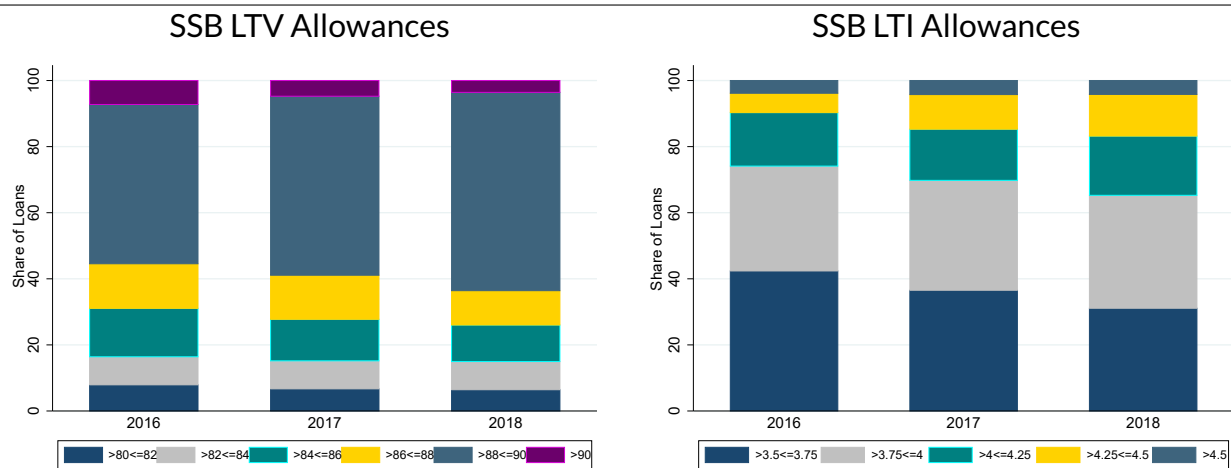
Figure 4 | FTBs with an LTI allowance outside Dublin

Source: Authors' calculations using Central Bank of Ireland data.

Figure 5 | Changing LTI levels among FTBs with an LTI allowance.

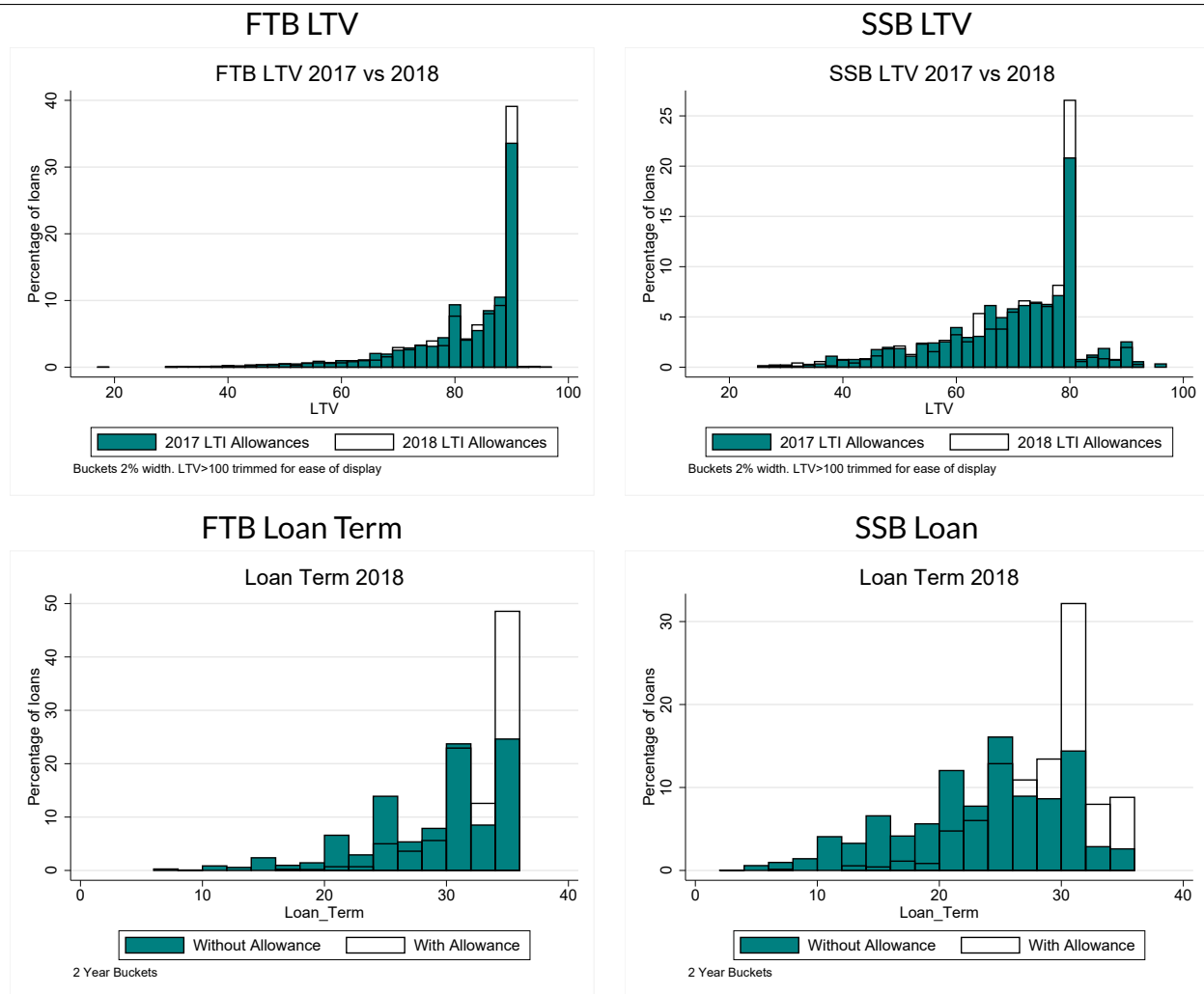
Source: Authors' calculations using Central Bank of Ireland data.

Note: Figures are based on number of loans.

Figure 6 | Changing LTV and LTI levels among SSBs with allowances.

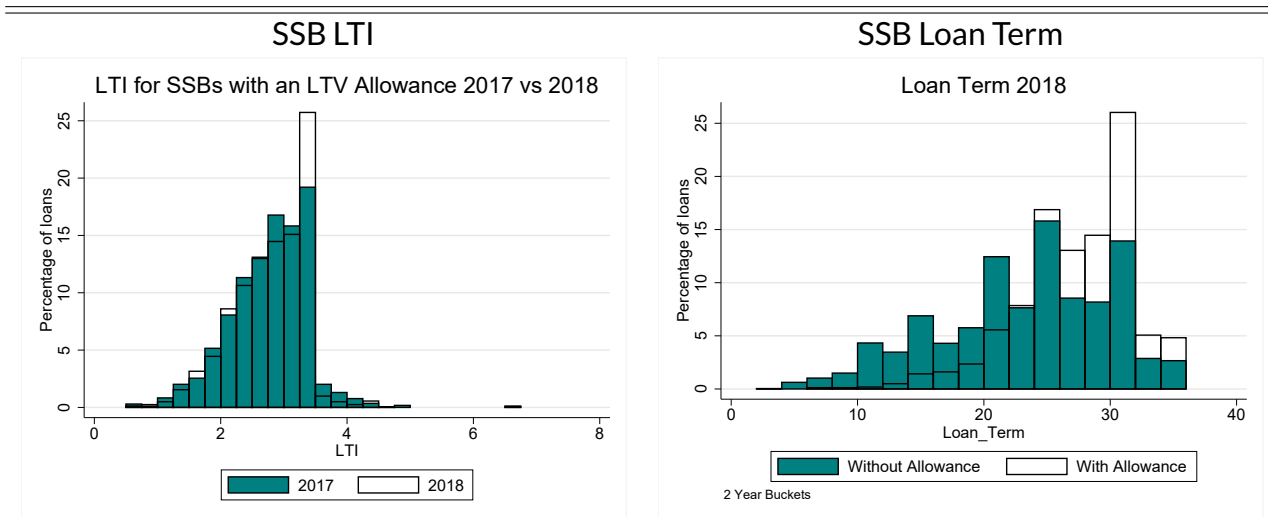
Source: Authors' calculations using Central Bank of Ireland data.

Note: Figures are based on number of loans.

Figure 7 | Credit conditions for borrowers with an LTI allowance by borrower type

Source: Authors' calculations using Central Bank of Ireland data.

Figure 8 | Credit conditions for SSBs with an LTV allowance



Source: Authors' calculations using Central Bank of Ireland data.