How Do Banks Respond to Misconduct Costs?

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Abstract

Over the past 15 years, banks around the world have been confronted with substantial misconduct-related costs. In this paper, we hand-collect new data on provisions for misconduct costs and study their impact on bank behavior. We first show that misconduct provisions have adversely affected capital ratios across UK banks. Next, we document an important difference in timing between *current* bank lending behavior and *past* misconduct that *current* misconduct provisions refer to. This feature of the data implies that misconduct provisions do not affect banks' lending behavior directly; instead they affect lending via their significant impact on bank capital. We find that, on average, banks whose capital is lowered by misconduct provisions decrease non-lending activities but increase lending. This lending growth is driven by higher loan-to-value mortgages with weaker *ex post* performance. These results suggest that when faced with a negative shock, banks restore their capital ratios by issuing more (initially) profitable and riskier mortgages that incur a lower average risk-weight than other non-lending activities.

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1 Introduction

Recent investigations into bank misconduct have plagued many of the largest banks in the world. Banks have put aside substantial provisions to address misconduct costs such as fines, litigation and customer redress payments. UK banks alone have set apart more than £100 billion in misconduct provisions over the period 2010 to 2019; a sum equivalent to around a third of aggregate 2019 Common Equity Tier 1 (CET1) capital. UK banks frequently cite provisions for misconduct costs as having adversely affected their profits and CET1 capital ratios (e.g., Nicholas, 2019; Morrison, 2018). Despite their magnitude, we know very little about how these provisions affect bank behavior.

This paper is the first to hand-collect and study detailed bank-level information on provisions for misconduct costs. We use these data to address the following questions: (1) What is the impact of misconduct provisions on bank capital ratios? (2) What is the impact of misconduct provisions on bank balance sheets and lending behavior? and (3) Do misconduct provisions affect the lending behavior of banks via their impact on capital ratios? Our main finding is that growth and risk-taking in lending are well explained, in an instrumental variable sense, by exogenous changes to bank capital that are induced by misconduct provisions. Specifically, we show that banks whose capital is lowered by misconduct provisions decrease non-lending activities but increase lending, where lending growth is driven by higher loan-to-value mortgages with weaker *ex post* performance.

In the first part of our analysis, we examine the evolution of misconduct provisions in the UK and their impact on bank capital ratios. Provisions for misconduct costs increased significantly in the years following the Global Financial Crisis (Figure 1). Banks were affected by a wide range of unexpected costs for misconduct issues including mis-sold Payment Protection Insurance (PPI) claims, Libor manipulation, and money laundering, to name just a few. These misconduct provisions reduce retained earnings, which directly affect CET1 capital and thereby the numerator of bank capital ratios. We find that there is indeed a negative and significant association between misconduct provisions and banks' CET1 ratios that is driven by a decrease in the numerator (CET1 capital). This effect is economically significant; a two-standard deviation increase in misconduct provisions is on average associated with close to half a percentage point decrease in the CET1 ratio.

In the second part of our analysis, we examine the impact of misconduct provisions on bank balance sheets and lending behavior. We find that UK banks appear to reduce their overall balance sheet risk in response to misconduct provisions, as suggested by a reduction in their average risk-weighted assets. They achieve this by shifting from non-lending activities to increased lending, where lending growth is driven by higher loan-to-value (LTV) mortgage lending. Within banks' mortgage lending portfolios, there is an increase in average mortgage leverage and *ex post* non-performance risk.

In the final part of our analysis, we utilize an important feature of the misconduct provisions data. Namely, we exploit a critical difference in timing between *current* lending behavior and the *past* misconduct that *current* provisions for misconduct costs refer to. So, a shock to some misconduct determinant in period t may affect lending behavior in t and misconduct in t, but would only lead to misconduct provisions in some subsequent period $t + n$, where we document that n tends to be a considerable length of time. This implies that there is no direct correlation between misconduct *provisions* in t and lending behavior in t. Instead, misconduct provisions affect lending behavior in the same period due to their substantial impact on bank capital.[1] We can therefore identify exogenous changes to bank capital using provisions for misconduct costs as in instrument.

The main finding from our instrumental variable analysis is that UK banks whose capital is lowered by misconduct provisions seek to restore their capital ratios by issuing more (initially) profitable and riskier mortgages that incur a lower average risk-weight than other non-lending activities. This evidence supports the capital buffer evidence presented by Berger et al. (2008) and others, whereby banks respond to negative capital shocks by making riskier loans in order to restore the numerator of their bank capital ratios via retained earnings. But they do this in a manner that minimizes any changes to their risk-weighted assets, the denominator of bank capital ratios.

We also investigate whether banks with lower capital cushions respond differently to a negative (misconduct provisions) shock than other banks. Unlike our results for the "average bank", we find some evidence of a decrease in lending for banks that have lower capital cushions and whose capital is lowered by misconduct provisions.[2] The decline in lending is driven by non-mortgage lending such as unsecured business lending. Our loan-level analysis demonstrates that banks with lower capital cushions are still more likely to issue higher-LTV mortgages with weaker *ex post* performance following a negative

[1] For example, provisions for mis-sold Payment Protection Insurance (PPI) claims account for around half of all misconduct provisions but often relate to policies that were sold more than a decade prior, making it especially unlikely that there is a direct correlation between misconduct provisions and lending behavior in the same period. Yet, provisions for PPI claims have significantly affected bank profits and capitalization.

[2] We define a "lower capital cushion" as the bottom quartile for capital cushion ratios. We do not find these differential results if we consider below-median capital cushion ratios, as done by Basten (2020).

capital shock. But consistent with our bank-level analysis, they also decrease the average mortgage loan value. These results suggest that when faced with a negative shock, banks with a lower capital cushion seek to restore their capital ratios in many of the same ways as banks with a higher capital cushion. That is, they appear to bolster their retained earnings via a shift to more profitable but risky mortgage lending. But they also respond more aggressively by decreasing their overall lending.

We contribute to the existing literature in several ways. We are the first to collect and summarize information about *provisions* relating to bank misconduct. We are also the first to consider the impact of these misconduct provisions on bank capital and lending behavior. These topics are currently less understood yet have significance given the magnitude of misconduct penalties and related provisions affecting the banking sector over the last 15 years. In this respect, our study compliments the growing literature that deals with regulatory enforcement actions and financial penalties, and their implications for banks (e.g., Berger et al., 2016; Bertsch et al., 2020; Delis et al., 2017; Deli et al., 2019; Delis et al., 2020; Köster and Pelster, 2017; Nguyen et al., 2016).

Similar to Köster and Pelster (2017), we concentrate entirely on (provisions for) financial penalties rather than supervisory actions associated with misconduct (e.g., Berger et al., 2016; Delis et al., 2017; Deli et al., 2019; Delis et al., 2020) or any subsequent reputation loss to the bank (Bertsch et al., 2020). For our setting, we cannot observe specific supervisory actions related to the observed misconduct provisions because the main source of the provisions (single-premium PPI products) were banned in 2009. Additionally, these provisions affected the entire UK banking system, rather than the reputation of specific banks. Instead, our focus is on the substantial provisions for misconduct costs, and their effect on bank capital and bank lending behavior.

Second, we document new findings about the impact of misconduct provisions on lending behavior in the mortgage market. This focus is salient given that mortgage lending comprises around 75 percent of total lending for our sample of larger UK banks. Thus, how banks alter their mortgage lending behavior in response to any shock matters a lot from an overall balance sheet perspective as well as for real economy spillovers. We therefore add to an emerging literature in this field (e.g., Basten, 2020, Benetton et al., 2021).[3] We present evidence about how banks respond to negative shocks rather than a

[3]Benetton et al. (2021) find that a decrease in mortgage market capital requirements, brought about due to specific Basel II features, caused a reduction in mortgage prices. Similarly, Basten (2020) shows that higher capital requirements introduced by macroprudential policy caused an increased in mortgage prices and decrease in mortgage lending by more exposed banks. Contrary to our findings, Basten (2020)

one-off change to capital requirements, with new findings about both *ex ante* and *ex post* risk-taking in the mortgage market.

Third, we introduce misconduct provisions as a novel way to isolate the impact of a shock to bank capital on lending behavior, with a focus on risk-taking in lending. This is important because the existing literature has not reached a consistent conclusion about the relationship between bank capital and risk-taking. One strand of the theoretical literature predicts that lower capital *increases* a bank's risk-taking incentives due to lower "skin-in-the-game" (e.g., Merton, 1977; Kareken and Wallace, 1978; Pyle, 1984; Furlong and Keeley, 1989; Acharya et al., 2016; Barth and Seckinger, 2018) or a lower charter value (e.g., Keeley, 1990). Yet a second strand of the literature predicts that less capital *decreases* a bank's risk-taking incentives.[4] And there is similar disagreement about the relationship between bank capital and risk-taking in the empirical literature.[5] We therefore add new evidence to previous empirical research that has examined the relationship between bank capital and risk-taking often by using a simultaneous equations approach (see, e.g., Shrieves and Dahl, 1992; Jacques and Nigro, 1997; Aggarwal and Jacques, 1998; Aggarwal and Jacques, 2001; Rime, 2001; Altunbas et al., 2007).

Finally, we build on the literature that examines the impact of bank capital on bank lending (e.g., Bernanke and Lown, 1991; Peek and Rosengren, 1995a; Peek and Rosengren, 1995b; Peek and Rosengren, 1997; Gambacorta and Mistrulli, 2004; DeYoung et al., 2018), as well as the literature on the impact of bank capital requirements on bank lending (e.g., Francis and Osborne, 2012; Aiyar et al., 2014; Bahaj and Malherbe, 2020; Bridges et al., 2014; Mésonnier and Monks, 2015; De Jonghe et al., 2020; Gropp et al., 2018; Uluc and Wieladek, 2018; Auer and Ongena, 2016; Jiménez et al., 2017; Fraisse et al., 2020; de Ramon et al., 2021). While these studies provide useful insights into the impact of bank capital on the *quantity* of lending, we provide new insights about the impact of

does not find a differential impact for higher-LTV mortgages. But the mortgages considered by Basten (2020) were subject to risk weights set by the Swiss standardized approach. Conversely, more than 85 percent of mortgages considered in our study were subject to (relatively) lower risk weights set by internal risk models, as documented by Benetton et al. (2021).

[4]Several papers find this result based on the idea that the bank will treat leverage and risk as substitutes, and so the bank will seek to adjust risk when faced with a restriction to leverage to achieve its desired total level of risk (e.g., Kahane (1977); Koehn and Santomero (1980); Kim and Santomero (1988)). Buser et al. (1981) finds that implicit regulatory costs create incentives for banks to decrease risk as capital decreases. While Dewatripont and Tirole (1994) find the same relationship between bank capital and risk arising due to a classic moral hazard problem.

[5]Of the 20 empirical studies surveyed by Tanda (2015) that estimate a relationship between bank capital and risk-taking, four report a positive association, five others a negative association, two find no relationship at all, and the remaining nine present mixed evidence.

changes in bank capital on the *quality* of lending.[6]

The remainder of paper is organized as follows. In Section 2, we describe the data and the institutional setting. Section 3 assesses the the impact of misconduct provisions on bank capital, as well as the suitability of misconduct provisions as a potential instrument for bank capital. Section 4 presents our bank-level results on the impact of capital on banks' balance sheets and aggregate lending, as well as our loan-level results on the impact of capital on mortgage lending quality. Section 5 concludes.

2 Bank Misconduct and Data

To conduct our analysis, we construct a panel dataset that merges bank-level data with administrative loan-level data on all regulated UK mortgages over the period 2010 to 2017. The start date of our sample, 2010, coincides with a substantial increase in provisions for misconduct costs. Figure 1 plots a yearly time series of the aggregate misconduct provisions for the UK banks in our study, as well as the ratio of the aggregate misconduct provisions to the aggregate Common Equity Tier 1 capital. There have been several factors that are associated with the increase in bank misconduct costs, some of which reflect changes to the institutional setting. We describe these factors in turn below, before providing an overview of the main data sources.

2.1 Bank Misconduct in the UK

The most significant factor that brought about a substantial increase in misconduct provisions relates to the mis-selling of Payment Protection Insurance (PPI). The PPI saga is the largest financial services redress exercise ever undertaken in the UK (Financial Conduct Authority, 2014), which affected both small and large lenders alike. PPI covers loan repayments if, for example, the borrower becomes ill or unemployed. Adding PPI to a credit product was a widespread practice and highly profitable (Upton, 2006). But PPI were mis-sold across a number of dimensions, with some borrowers being completely

[6] Uluc and Wieladek (2018) find that banks are more likely to lend to borrowers with an impaired credit history in response to an increase in their bank-specific capital requirements. Gropp et al. (2018) report no change to risk-taking, as measured by average risk-weighted assets, in response to a one-off increase in capital requirements. While De Jonghe et al., 2020 find that riskier banks reduce lending more to riskier firms in response to a change in bank-specific capital requirements.

unaware they had even purchased PPI.[7]

The issues with PPI were well known for more than a decade before they resulted in any related provisions. In 1998, a consumer magazine *Which?* first raised issues with PPI. In 2005, the Financial Services Authority (FSA) took charge of general insurance regulation including PPI, and set out to address the problems with PPI sales. Of particular significance, selling single premium PPI - the product most associated with mis-selling - was banned in 2009. Additionally, new measures for handling mis-sold PPI were introduced in August 2010. The banks and the British Bankers' Association complained that the new rules were unfair because they would be applied retrospectively to previously the past selling of products (Parliamentary Commission on Banking Standards, 2013a). They launched a high court challenge but unexpectedly lost in April 2011. Following this ruling, the new measures led to substantial provisions for customer redress payments for mis-sold PPI starting in 2011, often to address products mis-sold a decade or more prior.

A second factor that contributed to the increase in misconduct provisions relates to the new regime for determining financial penalties in enforcement cases, which was introduced by the FSA in March 2010. The Financial Conduct Authority (FCA) succeeded the FSA and is now responsible for applying the new regime. The regime aims to create a consistent and transparent framework for determining financial penalties in enforcement cases, and the approach is based on the principles of "disgorgement, discipline and deterrence" (Financial Services Authority, 2009). Under the new regime, the FSA and FCA have applied financial penalties in relation to a number of high-profile investigations. The best known case is probably the "Libor" scandal, which was described by some commentators as the biggest financial scandal in history (e.g., Enrich, 2017).

Beyond Libor manipulation and PPI claims, banks have been affected by further unexpected costs relating to a broad range of misconduct issues over the same period, including: Euribor manipulation, foreign exchange market manipulation, money laundering, violations of the UK Consumer Credit Act, and US residential mortgage-backed security mis-selling. Moreover, UK banks have been sued and fined during this period in relation to their misconduct by other international regulators such as the Federal Deposit Insurance Corporation, the Department of Justice and the Swiss competition regulator. As with the PPI saga, there is a time lag of at least several years between the events "misconduct taking place" and "provisions for that misconduct being made". Figure 2 plots the

[7] According to survey evidence by ComRes (2015), only one third of adults with PPI have known all along that they had bought PPI.

provisions categorized by different misconduct issues for our sample of UK banks. The next section describes how we collect and merge these bank-level data on misconduct provisions, as well as other bank-level information, with administrative loan-level data for the UK mortgage market.

2.2 Misconduct Provisions and Bank-level Data

We hand-collect our bank-level information from published accounts because data on provisions for misconduct issues are not available in any major database. These data are semi-annual and include information about capital ratios and other bank-level variables including: total assets, total loans, capital, liquid assets, return-on-assets, non-performing loans, and information about governance.[8] Our sample comprises the 23 largest lenders by mortgage market share in the UK, representing around 96 percent of all UK mortgage lending over the sample period. Lenders include both banks and building societies, referred to hereafter simply as 'banks'.

We collect our bank-level data at the consolidated group level because decisions relating to capital management, lending and misconduct provisions are typically made at the group level (Bridges et al., 2014).

We merge our bank-level information from published accounts with regulatory data from the Bank of England and as described by de Ramon et al. (2021). Specifically, these data provide bank-level information about bank-specific capital requirements and resources, as well as information about mortgage lending and non-mortgage lending volumes.

We collect our misconduct provisions data from the notes to the financial statements contained in banks' published accounts. We take care to ensure that our collection only includes provisions that relate to misconduct costs. To do this, we strip out provisions that relate to restructuring costs, contractual commitments, sundry provisions, and the UK bank levy, among others.

We collect data on provisions for misconduct costs, rather than actual fines data, because provisions data are a more comprehensive and timely measure of all misconduct-related payments. Misconduct provisions capture not only fine-related costs but also customer redress costs such as the aforementioned mis-sold PPI, which have been a significant

[8] We supplement some missing data with regulatory data from the Bank of England. Also, some banks only report non-performing loans data annually and not semi-annually. For these banks, we obtain semi-annual observations via linear interpolation.

component of all misconduct-related costs in the UK (e.g., Figure 2). In relation to the timeliness of misconduct provisions, these provisions affect the income statement in the same period and therefore a bank's ability to build capital. Moreover, banks are required in accordance with the International Financial Reporting Standards to make provisions in the period they become aware of any likely misconduct-related costs. By contrast, misconduct fines will not always affect bank capital in the same period because they can often take a year or more to be finalized, following a court case or initial conversations between a bank and the relevant authority, meaning that banks have sometimes provisioned for these in previous periods. Thus misconduct provisions are the most suitable measure for our analysis because we expect banks to adjust their lending behavior in the period that their capital is lowered by misconduct provisions.

Overall, banks have limited discretion in how to account for misconduct provisions. While banks have scope to manipulate loan loss provisions using measures such as forbearance, misconduct provisions are different. Misconduct provisions are required for misconduct fines, where the value and timing of these penalties cannot be chosen by banks.[9] However, we investigate this aspect further given the accounting literature on reporting discretion, earnings management and loan loss provisions (see, e.g., Acharya and Ryan, 2016; Beatty and Liao, 2014; Dechow et al., 1995), which implies that banks may face incentives to report higher or lower loan loss provisions depending on their capital ratio of profits. Crucially, for the cases that we are able to match provisions for fines with the subsequent fine, we find that these have been almost exactly equal.[10] And further analysis strongly supports the claim that banks are unable to apply discretion when setting aside misconduct provisions because the nature of these provisions is fundamentally different from loan loss provisions; in instances where there would be strong incentives to apply discretion, we find no evidence of this. Full details of the analysis are contained in Appendix B.[11]

[9] By contrast, banks can delay loan losses and therefore loan loss provisions using measures such as forbearance.

[10] In relation to PPI claims, the FSA provided a formula for processing these: claimants were entitled to the return of the premiums, as well as any charge incurred as a result of the premiums (e.g. paying interest on a higher balance as premiums were typically added to the debt), and 8 per cent per year in compensatory interest from the time the credit agreement was made until the time of the redress being paid.

[11] Specifically, we perform a bank-level regression of misconduct provisions (through the period) on the beginning of period CET1 capital ratio, along with all other relevant bank-control variables and fixed effects. This analysis is similar to that done for loan loss provisions. The results contained in Appendix B find no significant effect, suggesting that a bank's capital ratio does not appear to be associated with misconduct provisions. Similarly, there is no significant effect for net profits before misconduct provisions.

2.3 The UK Mortgage Market and Mortgage Data

Prior to a description of our loan-level mortgage data, it is useful to highlight some key features of the UK mortgage market that set it apart from some other countries such as the US and Canada. These differences are important for our analysis of loan quality. In particular, an advertised interest rate for a mortgage product in the UK reflects the actual rate that a borrowers will pay for that product; that is, there is no negotiation between the borrower and the lender in the UK (Benetton, 2018). Instead, a borrower selects an option from an advertised menu of products. Lenders' outline a product menu in the form of quoted rates that correspond primarily to various loan leverage ratio buckets. So the interest rate of a loan, which incorporates a lender's pricing of default risk, is largely determined by the loan's leverage ratio (e.g. Best et al. 2020; Robles-Garcia, 2019).[12] As such, banks are able to influence their risk profile and mortgage lending flows by actively targeting specific loan leverage ratio buckets.

We obtain our loan-level mortgage data from the FCA's Product Sales Database (PSD), which is a database of all regulated mortgages in the UK. These data have two components. The first component comprises "Sales data", which is collected on a quarterly basis starting from April 2005. These data represent a *flow* measure of current credit conditions, and so can measure current changes to risk-taking in the mortgage market. We have detailed information about all *new* mortgage contracts at the point of sale, including the loan leverage ratio, the loan value, the property value, the loan-to-income (LTI) ratio, the date the mortgage was made, the mortgage term, the mortgage type (e.g. first-time buyer, home mover, re-mortgagor), and the repayment type (e.g. fixed interest rate, variable interest rate). We also have information about the borrower associated with each loan, including: age, employment status, income, and the postcode of the home address of the mortgagor. Finally, we have information about the lender for each loan, which enables us to merge the PSD with our bank-level data.

The second component of the PSD comprises "Performance data", which is collected on a half-yearly basis from July 2015 onwards. These data provide detailed loan-level information for the *stock* of all regulated mortgage contracts, including information about any type of payment difficulties, forbearance, non-performance and repossessions.

The loan-level variables contained in the "Sales data" allow us to control for, among

[12] Specifically, UK banks offer quoted interest rates for mortgages that are based on LTV ratio buckets. See Best et al. (2020) for more information on this.

others, changes in demand for mortgages from risky borrowers.[13] This is an advantage of our loan-level analysis, as an analysis of lending standards at the portfolio level may fail to detect offsetting shifts in loan-level and borrower characteristics.

We also use the PSD to obtain bank-specific information on the quantity of higher-LTV and low-LTV mortgage lending for each period. We define higher-LTV (low-LTV) mortgages as mortgages with an LTV ratio of 85 or more (an LTV ratio less than 85).

The PSD is collected from banks at the individual entity level rather than the bank group level. We therefore consolidate these data so that they correspond to our misconduct provisions and bank-level data, which are at the bank group level. We do so by classifying the mortgages of each constituent entity to its relevant parent banking group.

2.4 Summary Statistics

Table 1 presents summary statistics for the variables used in our analysis; these variables are further defined in Table A.1 of Appendix A. Most summary statistics are computed at the loan-level, but we compute the summary statistics for the bank-level variables on the bank panel only and un-weighted by the amount of loans in each period. Although the total possible number of bank-half year observations is 368, we report summary statistics for the 310 bank-half year units that are ultimately employed for our empirical specification. Of the 58 bank-half year clusters that are missing from our analysis, 36 clusters are excluded due to missing bank-level information. In these cases, the bank-level information is missing due to either no publicly available half-yearly reports, or key variables in our empirical specification that are not reported within a given half-yearly report. A further 12 clusters are excluded due to missing loan-level information. And the final 10 clusters are excluded due to missing both bank-level and loan-level information.

3 Misconduct Provisions and Bank Capital

This section examines the relationship between misconduct provisions and bank capital ratios. We argue that misconduct provisions can be considered an exogenous shock to bank capital, and therefore propose these provisions as an instrument for bank capital shocks.

[13] Ioannidou et al. (2015) follow the same approach and use borrower characteristics to control for changes in loan demand of risky borrowers in their study of monetary policy and risk-taking.

3.1 Do Misconduct Provisions affect Bank Capital?

We start by examining the impact of misconduct provisions on bank capital ratios. We also examine the impact on the level of bank capital (the numerator of bank capital ratios) as well as risk-weighted assets (the denominator of bank capital ratios). There are good reasons to expect misconduct provisions to affect bank capital ratios: these provisions reduce potential profits, which may in turn affect CET1 capital due to a reduction in retained earnings. But the relationship between profits and returned earnings can also be affected by offsetting bank choices, such as paying lower dividends.

Specification

To consider the relationship between misconduct provisions and bank capital ratios more formally, we estimate:

$$Y_{j,t} = \alpha_0 + \alpha_1 \text{Misconduct Provisions}_{j,t} + \boldsymbol{\alpha_2} \mathbf{Bank}_{j,t-1} + \gamma_j + \theta_t + u_{j,t}, \tag{1}$$

where j indexes a bank and t is the period. The dependent variable Y is either the CET1 ratio, CET1 capital growth or risk-weighted asset (RWA) growth. We consider Y in levels when the variable is a ratio and we use growth rates to adjust for bank size when the variable is in pound sterling amounts, following others such as Basten (2020) and Mariathasan and Merrouche (2014). Misconduct Provisions_t is the ratio of a bank's misconduct provisions to their total assets. The timing of these variables implies that misconduct provisions affect the ability of a bank to build CET1 capital over the period from $t-1$ to t. That is, the CET1 Ratio_t is a balance sheet variable and so will reflect any changes to the ratio over the period from $t-1$ to t, while Misconduct Provisions_t is an income statement variable and so corresponds to provisions made *through* the same period.

Bank is a vector of time-varying bank-level controls and includes: the CET1 capital ratio, capital cushion ratio, liquidity ratio, non-performing loans (NPL) ratio, return on assets (ROA), log of assets, customer loans to assets ratio, a governance measure, and a dummy variable equals to 1 when the capital cushion ratio is in the bottom quartile.[14]

[14] The capital cushion ratio represents the surplus (or deficit) of capital versus Pillar 1 and Pillar 2A requirements as a percentage of risk-weighted assets. The governance measure relates to board independence and is defined by Nguyen et al. (2016) as the proportion of board members appointed before the CEO takes office.

Our bank control variables are predetermined and considered at period $t-1$. We also include in our specification bank fixed effects, γ_j, and half-yearly time fixed effects, θ_t. We cluster the standard errors at the bank level.

Results

Table 2 reports the estimation results for Equation 1, which considers the impact of misconduct provisions on the CET1 ratio and its components. Column 1 of Table 2 shows that Misconduct Provisions have a statistically significant and negative impact on the CET1 ratio. In particular, a 1 percentage point increase in Misconduct Provisions is on average associated with a 1.2 percentage point decrease in the CET1 ratio.

The observed negative impact of misconduct provisions on the CET1 ratio appears to be driven by changes to the numerator of the ratio rather than the denominator. That is, we find that Misconduct Provisions have a statistically significant and negative impact on the level of CET1 capital (the numerator of the CET1 ratio) in column 2 of Table 2, but we find no significant effect on RWAs (the denominator of the CET1 ratio) in column 3 of Table 2.

Our findings for the level of CET1 capital are in line with our expectations, given the effect of misconduct provisions on profits. Our findings for RWAs suggest that banks have not reduced these as a means to rebuild their capital cushion in response to a negative misconduct provisions shock. Gropp et al. (2018) find that banks reduce their RWAs as a way to increase their core tier 1 ratios in response to a one-off increase in capital requirements. There are a number of differences between the study by Gropp et al. (2018) and our setting that imply we should not expect to reach the same findings however. One key difference is that we expect that the UK banks in our sample have much higher capital buffers than those considered by Gropp et al. (2018). Additionally, we are not considering changes to regulatory requirements but rather misconduct provisions, which we argue represents a shock to banks capital.

These results have economic significance, and demonstrate that misconduct costs can adversely affect banks' capital. Moreover, these results also establish a very statistically significant relationship between the CET1 ratio and Misconduct Provisions. As such, they suggest that Misconduct Provisions are a suitable instrument for the CET1 ratio purely from a "strong first-stage" perspective.

3.2 Do Misconduct Provisions meet the Exclusion Restriction?

For misconduct provisions to be a valid instrument for bank capital ratios, we also require these provisions to be uncorrelated with the error term of our second-stage model (the main lending outcome equation), conditional on the other covariates. That is, our instrument must satisfy the exclusion restriction. There are several issues to consider in order to determine whether misconduct provisions satisfy this condition, and we consider these below.

The Drivers of Misconduct Provisions

The first issue we examine relates to omitted variables. Our instrument will be invalid if one of the determinants of misconduct provisions is also an omitted variable in our main lending outcome equation, thereby implying that misconduct provisions are correlated with the error term of the lending equation. We therefore review the banking literature to determine the potential drivers of misconduct provisions, and how these relate to the credit supply and risk-taking aspects of lending.

The two main drivers of misconduct provisions are *past* misconduct and getting caught for that past misconduct. What, then, are the drivers of (past) misconduct? One important factor is bank governance: better governance prevents bank misconduct (Nguyen et al., 2016). There is also evidence that a relationship between governance and bank risk-taking exists, although the findings are mixed and nuanced (e.g., Diamond and Rajan, 2009; Aebi et al., 2012; Beltratti and Stulz, 2012; Ellul and Yerramilli, 2013; Minton et al., 2014).[15] Bank performance and balance-sheet strength are also likely to influence bank misconduct. A weak bank may be more likely to commit wrongdoing, or increase asset risk, in order to inflate earnings (Nguyen et al., 2016). Additionally, a bank's business model and risk culture are factors we expect to drive both a bank's willingness to engage in misconduct, as well as its lending and risk-taking appetite.

In estimating a relationship between capital shocks and lending outcomes, therefore we include controls for factors that influence lending behavior, but that also capture the aforementioned drivers of misconduct. Specifically, the vector **Bank** includes variables

[15] There is limited empirical evidence about a relationship between governance and credit supply, although the theoretical literature suggests several arguments for why governance should matter (Guler et al., 2021). Nguyen et al. (2015) find that better governance helped mitigate a disruption to credit supply during the Great Financial Crisis.

that capture governance, bank performance and balance sheet strength. We also include bank fixed effects to capture unobserved bank-specific characteristics such as a bank's business model and risk culture; these two factors are very likely to influence both lending behavior and misconduct, but they are also very stable over time (see, for example, Fahlenbrach et al., 2012; Ellul and Yerramilli, 2013) and so can be captured by bank fixed effects.

We have so far focused on the drivers of misconduct, but we also need to understand the drivers of getting caught and thus having to make provisions for misconduct fines and customer redress payments. Here the institutional setting is important. The provisions in our sample have been the result of system-wide investigations, as outlined in Section 2. It is possible that the regulator is yet to detect some forgone misconduct in the banking sector. But for the specific cases of past misconduct considered so far, misconduct provisions have followed from investigations or new policies applied to the entire sector. The time fixed effects in our specification should absorb the banking sector-wide regulatory factors that lead to new waves of misconduct provisions.

Overall, we uncover many common factors that explain both misconduct provisions and lending behavior, and our main lending analysis controls for these factors.

The Timing of Misconduct Provisions

Having controlled for the observed and time-invariant unobserved factors that influence lending behavior and also misconduct provisions in our main lending outcomes analysis, we have diminished the risk that misconduct provisions are correlated with the error term of our lending outcomes equation. Misconduct provisions therefore appears to be a plausible instrument.

But they key strength of our identification strategy is that we use misconduct *provisions* as an instrument, rather than misconduct itself. We therefore make use of the time difference between the two events: "bank misconduct taking place" and subsequent "misconduct provisions being made". The time difference implies that a shock to some misconduct determinant in period t would affect risk-taking in t and misconduct in t, but would only lead to misconduct provisions in some subsequent period $t + n$, where n is often at least several periods and varies randomly from case-to-case. This means that there is no direct correlation between misconduct *provisions* in t and risk-taking in t, given that our bank fixed effects will absorb any time-invariant common factors.

The often long lag between the two events "misconduct taking place" and "misconduct provisions being made" is well illustrated by the type of misconduct provisions made by UK banks since 2010. To best see this, we focus our attention on Payment Protection Insurance (PPI) claims, which account for around half of all misconduct provisions included in our sample.[16] Provisions for PPI claims do not relate to a bank's current or recent activities but rather to claims for policies mis-sold often ten years or more prior; the peak of PPI sales occurred in the early 2000s with two thirds of these sales being made before 2005 (Parliamentary Commission on Banking Standards, 2013b). And the most frequently mis-sold PPI product was banned in 2009, which is prior to the start of our sample when related provisions were made. Moreover, people claimed mis-sold PPI randomly, meaning that provisions made in 2013 could reflect mis-selling in, for example, 1999 or 2004. It is therefore unlikely that an omitted variable could affect both a bank's misconduct in the late 1990s and their asset risk-taking in the 2010s, especially given that our specification includes bank fixed effects and the aforementioned time-varying bank controls.

We provide some corroborating evidence for the timing arguments above. The risk to our identification strategy is that a shock to some omitted misconduct determinant in period t, which affects misconduct in t and bank lending in t, could be serially correlated and persistent in a way that our bank fixed effects do not control for. We therefore consider whether misconduct provisions relate to past measures of lending outcomes, conditional on the relevant covariates. We regress lagged values of lending growth on misconduct provisions as well as lagged values for the bank-level controls as follows:

$$Y_{j,t-n} = \alpha_0 + \alpha_1 \text{Misconduct Provisions}_{j,t} + \boldsymbol{\alpha_2} \mathbf{Bank}_{j,t-n-1} + \gamma_j + \theta_t + u_{j,t-n}, \tag{2}$$

where j indexes a bank and t is the period. Here Y is lending growth. The variables included in Equation 2 are outlined in Section 2. We consider lags up to 5 years. Table 3 presents the corresponding results. In general, we do not find that Misconduct Provisions are significantly associated with previous lending growth, although we do find weak significance for the 2-year lag of lending growth. These results are highly suggestive that there is no omitted variable in our main lending outcomes analysis that somehow relates to misconduct provisions.

[16]PPI claims are customer redress payments, not financial penalties. But customer redress payments are similar to financial penalties; they occur because a bank has previously mis-sold a specific product and must therefore provide customer compensation such that the customer is in the same financial position as if they had not bought the product.

Standard Test of Overidentifying Restrictions

Finally, we apply a standard test of overidentifying restrictions to our instrument. We apply the Sargan-Hansen test to a variation of the specification presented in column 1 of Table 2, in which we include the square of Misconduct Provisions as a second instrument.[17] Here the number of instruments exceeds the number of endogenous variables. The null hypothesis of the Sargan-Hansen test is that the over-identifying restrictions are valid, which implies that the instruments satisfy the exclusion restriction and are uncorrelated with the error process of the second-stage model. We find that we cannot reject the null hypothesis (p-value = 0.63), which provides additional support for the exclusion restriction assumption.

4 Misconduct Provisions and Lending Behavior

The previous section argued that misconduct provisions are an exogenous shock to bank capital. This, combined with their very statistically significant effect on bank capital, makes misconduct provisions a suitable instrument for bank capital. In this section, we examine whether misconduct provisions affect lending behavior in a reduced-form sense. We also examine whether misconduct provisions affect lending behavior, via their impact on bank capital.

4.1 The Reduced-form Impact of Misconduct Provisions on Bank and Lending Behavior

To begin our main analysis, we first consider the reduced-form impact of misconduct provisions on bank behavior. Our first-stage estimates show that misconduct provisions adversely affect the CET1 ratio. If, in addition, a reduced-form relationship between misconduct provisions and lending behavior exists, then we can expect shocks to the CET1 ratio to affect lending behavior too.

[17] Including the square of Misconduct Provisions as a second instrument could reflect any potential nonlinearity in the relationship between Misconduct Provisions and the CET1 Ratio. The coefficient estimate of this additional instrument is not significant however. As such, we use this specification to test the overidentifying restrictions but not for our main analysis.

Bank-level Analysis

We estimate the same empirical model set out in Equation 1 but now Y is either the average risk-weighted asset (RWA) ratio, asset growth, non-lending activities growth, or lending growth. The average RWA ratio is otherwise known as "risk-weight density" and is equal to the ratio of RWA to total assets. The "reduced-form effect" of our instrument represented by α_1 in Equation 1 can be interpreted as the impact of a shock to bank capital ratios, brought about by misconduct provisions, on bank behavior. Thus, the reduced-form estimates are interesting in their own right and can provide us with a "natural experiment" set-up to consider the impact of a shock to bank capital ratios on bank and lending behavior.

Table 4 presents the results for the response of bank balance sheets. We find that a 1 percentage point increase in Misconduct Provisions causes a 2.0 percentage point decrease in the average RWA ratio (column 1). Asset growth does not appear to be significantly affected by Misconduct Provisions (column 2) but this is not the case for its components. Specifically, we find a 2.8 percentage point increase in lending growth (column 4) but a 4.8 percentage point decrease in non-lending activities growth (column 3), where "non-lending activities" includes items such as trading and financial assets.[18]

These results suggest that the risk-weight density has been declining even though there has been no significant change in assets and there has even been an increase in lending. This appears to be because banks have shifted from non-lending activities to lending, where lending growth is driven by mortgage lending. This is illustrated by the results in Table 5, which presents the response of lending components to a shock to bank capital. We find that higher-LTV mortgage lending growth increases significantly in response to Misconduct Provisions (column 3), while non-mortgage lending (column 2) and low-LTV lending are unaffected (column 4). In general, mortgage lending, including higher-LTV mortgage lending, does not require banks to hold much capital relative to most other balance sheet activities including non-lending activities.[19]

[18]"Non-lending activities" is defined as total assets less lending. Thus lending and non-lending activities are the two components that sum to total assets.

[19]While non-lending activities tend to have lower credit risk capital charges relative to business lending, this is not always the case for mortgage lending. Moreover, non-lending activities also attract capital charges associated with market risk and counterparty risk, which do not affect mortgage lending.

Loan-level Analysis

We extend our reduced-form analysis to examine the impact of misconduct provisions on mortgage lending at the loan-level. Our loan-level analysis allows us to examine the impact on loan quality and risk-taking in lending, while controlling for any offsetting shifts in loan and borrower characteristics. We estimate the following augmented version of the model set out in Equation 1:

$$\begin{aligned} Y_{i,j,t} = \quad & \alpha_0 + \alpha_1 \text{Misconduct Provisions}_{j,t} + \boldsymbol{\alpha_2} \mathbf{Bank}_{j,t-1}, \\ & + \boldsymbol{\delta_3} \mathbf{Loan}_{i,j,t} + \gamma_j + \theta_{t,r} + u_{i,j,t} \end{aligned} \quad (3)$$

where i indexes a mortgage, j indexes a bank and t is the period.[20] Y is either the loan-to-value (LTV) ratio, mortgage loan value, mortgage downpayment, a higher-LTV mortgage dummy, or a non-performance dummy. Misconduct Provisions$_t$ and the vector of bank characteristics, **Bank**, included in Equation 3 are outlined in Section 3.1.

Loan is a vector of loan-level and borrower characteristics that includes: the length of the mortgage term, the mortgage loan-to-income (LTI) ratio, a set of fixed effects for the repayment type (for example, if the loan is "capital and interest" or "interest only"), a set of fixed effects for the rate type (for example if the loan has a fixed rate or a floating rate), the borrower's age, a set of fixed effects for the borrower type (for example, if the borrower is a first-time borrower), a dummy variable that takes on the value one if the borrower does not have a standard credit history and zero otherwise, a dummy variable that takes on the value one if the borrower's income has been verified and zero otherwise, a set of fixed effects for employment status, and the (log of) the borrower's income.[21] These variables allow us to control for, among others, observed changes in demand for mortgages from risky borrowers. That is, any observed change in the leverage of a loan will represent a change in the riskiness of the loan because borrower and loan characteristics are controlled for.

We also include in our specification: bank fixed effects, γ_j, and region-by-time fixed effects, $\theta_{t,r}$. We consider regions based on the first three digits of the postcode, of which there are around 2,000 of these geographic areas in the UK. We cluster the standard errors at the bank-by-time level to control for the correlation that exists between mortgages

[20] We observe banks over time and so the bank-level variables have a panel structure indexed by j and t. In each period, there are multiple mortgages made by each bank to new borrowers i, and so their mortgage-level information has a pooled cross-sectional data structure and is indexed by i, j and t.

[21] We winsorize all continuous variables at the 1st and 99th percentile to remove any outliers.

made by the same bank within each time period. Our robustness checks in Section 4.4 show that our results are robust to when we multi-cluster at both the bank- and time-level. Additionally, our results are robust to when we consider different less granular regions, as well as when we consider region-by-bank fixed effects in the specification.

Table 6 reports the results for the response of mortgage lending characteristics. We find that a 1 percentage point increase in Misconduct Provisions causes a 1.4 percentage point average increase in the LTV ratio (column 1). This increase in the LTV ratio appears to be driven by a decrease in the downpayment rather than an increase in the loan value. Specifically, we find no significant impact on the average loan value (column 2) but a 7.1 percent decrease in the downpayment value. We also find that there is a 3.0 percentage point increase in the probability of issuing a higher-LTV mortgage (column 4), as well as a 1.2 percentage point increase in the probability of issuing a new loan that non-performs or defaults after one or more years (column 5).

Our bank-level results suggest that banks appear to reduce their overall balance sheet risk in response to misconduct provisions. This is suggested by the reduction in their RWA density, driven by a shift from non-lending activities to increased mortgage lending. But further examination suggests that there is an increase in risk-taking within banks' mortgage lending portfolios. This is indicated by an overall increase in average mortgage leverage and *ex post* non-performance risk.

In sum, our results demonstrate a strong and negative relationship between misconduct provisions and shocks to bank capital ratios, as well as a positive relationship between misconduct provisions and mortgage lending growth, and mortgage-level risk-taking. The combination of these results suggest that misconduct provisions bring about a negative shock to bank capital ratios, which in turn causes a shift towards mortgage lending to riskier borrowers. We examine this instrumental variable channel below.

4.2 The Impact of Bank Capital on Lending Behavior

We next investigate whether shocks to the CET1 ratio, triggered by misconduct provisions, cause a change in bank behavior. Our instrumental variable approach combines the insights from our first-stage analysis in Section 3.1 and our reduced-form analysis above in Section 4.1. We estimate the following two-stage panel data model:

$$\begin{aligned} \text{CET1 Ratio}_{j,t} = \;& \alpha_0 + \alpha_1 \text{Misconduct Provisions}_{j,t} + \boldsymbol{\alpha_2}\mathbf{Bank}_{j,t-1} \\ & + \boldsymbol{\alpha_3}\mathbf{Loan}_{i,j,t} + \gamma_j + \theta_{t,r} + u_{i,j,t}, \end{aligned} \tag{4}$$

$$
\begin{aligned}
Y_{i,j,t} = \quad & \beta_0 + \beta_1 \widehat{\text{CET1 Ratio}}_{j,t} + \boldsymbol{\beta_2}\mathbf{Bank}_{j,t-1} \\
& + \boldsymbol{\beta_3}\mathbf{Loan}_{i,j,t} + \gamma_j + \theta_{t,r} + e_{i,j,t}
\end{aligned} \tag{5}
$$

where i indexes a bank, j indexes a bank and t is the period. The CET1 ratio is our key explanatory variable of interest in Equation 5; the corresponding coefficient estimate (β_1) will indicate the impact of a change in the bank capital ratio on bank behavior. Misconduct Provisions$_t$ and the control variable vectors **Bank** and **Loan** are similarly defined as for Equation 3 in Section 3.1. We include all control variables in the first-stage model (Equation 4) that subsequently enter the second-stage model (Equation 5) because failure to do so would lead to inconsistent two-stage estimates.

Bank-level Analysis

We estimate the empirical model set out in Equation 4 and Equation 5, where Y is either the bank-level non-lending asset growth, lending growth, non-mortgage lending growth, higher-LTV mortgage lending growth, or low-LTV mortgage lending growth. We exclude the loan-level control vector Loan given the dependent variables are at the bank-level. We include bank fixed effects, γ_j, time fixed effects, θ_t, and standard errors are clustered at the bank-level.

Table 7 presents the results for our two-stage estimation of Equation 5, where the CET1 ratio is instrumented by scaled misconduct provisions. We find that a one percentage point negative shock to the instrumented CET1 ratio will cause the non-lending asset growth to decrease by around 4.5 percentage points (column 1) and lending growth to increase by around 2.7 percentage points (column 2). Lending growth is driven by an increase in higher-LTV mortgage lending (column 4) in response to a negative capital shock. We do not observe any significant response in non-mortgage lending (column 3) or low-LTV mortgage lending (column 5). These results suggest that a negative capital shock, triggered by misconduct provisions, brought about an increase in higher-LTV mortgage lending.

Loan-level Analysis

We also estimate the empirical model set out in Equation 4 and Equation 5, where Y is either the loan-level LTV ratio, mortgage loan value, mortgage downpayment, a higher-LTV mortgage dummy, or a non-performance dummy. We include bank fixed effects, γ_j, region-by-time fixed effects, $\theta_{t,r}$, and standard errors are clustered at the bank-by-time level.

Table 8 presents the results for our two-stage estimation of Equation 5. The coefficient estimate of the CET1 ratio β_1 is significant for the average LTV ratio (column 1). Consistent with the reduced-form results, we find that the increase in the LTV ratio is driven by a decrease in the downpayment value (column 3) rather than an increase in the loan value (column 2). These results suggest that a negative shock to capital ratios, triggered by misconduct provisions, causes an increase in risk-taking within mortgage lending.

In terms of the economic significance, the results in column 1 of Table 8 suggest that a one standard deviation negative shock to the instrumented CET1 ratio, which is equivalent to 4.3 percentage points, will cause the average LTV ratio of an otherwise identical new loan to increase by around 3.7 percentage points (column 1). Given that this effect is conditional on the borrower and loan characteristics remaining fixed, this result seems significant. But the magnitude of the effect is difficult to interpret. A portfolio of loans with a higher average leverage ratio will be more risky, and experience higher rates of loan non-performance. But default rates are relatively low for a given loan with a LTV ratio below 75 percent, where our sample average LTV ratio is around 64 percent. As such, our bank-level results and other loan-level characteristics help provide context to this result by considering whether this increase in the average LTV ratio is driven by a shift to the more risky types of borrowers. Here we find evidence of such a shift. We find a 7.7 percentage point increase in the probability of issuing a higher-LTV mortgage (column 4) as well as a 3.4 percentage point increase in the probability of issuing a new loan that non-performs after one of more years (column 5) in response to a one standard deviation negative shock to the instrumented CET1 ratio. These latter two effects are significant at the 10 percent and 5 percent level respectively.

Further Discussions

Panel B of both Table 7 and Table 8 presents the results from a "naïve specification" that does not account for the endogenous relationship between lending behavior and bank capital ratios, where we employ the actual CET1 ratio rather than the instrumented CET1 ratio. The two-stage coefficient estimates presented in Panel A strongly differ in their significance and magnitude to the corresponding biased "naïve" counterparts presented in Panel B. Why? Our instrumental variable estimates demonstrate that a negative capital shock causes, among other things, an increase in risk-taking within mortgage lending (column 4 of Table 7 and column 1 of Table 8). But if an increase in risk-taking simultaneously causes an increase in bank capital, as may be the case because increased risk may bring about increased profits that will feed into capital via retained earnings, then the "naïve estimates" will face a positive bias. This bias will misleadingly offset the true impact of shocks to bank capital on lending behavior. The instrumental variable results are free of this type of bias, and thus reveal the causal impact of bank capital on risk-taking.

We report a number of model statistics in both Table 7 and Table 8, which provide support for our results regarding the impact of the CET1 ratio on lending behavior. We first consider the F-statistic for misconduct provisions as an instrument. This is 12.49 in Table 7 and 13.23 in Table 8, which is greater than 10 and suggests a strong instrument according to the "rule of thumb" described by Staiger and Stock (1997). We also consider the Anderson-Rubin test statistic, which is cluster-robust as well as robust in the presence of weak instruments. The results from the Anderson-Rubin test therefore dominate the first-stage inferences about instrument strength based on the F-statistic. The Anderson-Rubin test examines the joint null hypothesis that both the coefficient estimate of our endogenous variable (the CET1 ratio) in Equation 5 is equal to zero and that our over-identifying restrictions are valid (if there is more than one instrument). In Table 8, we reject the null hypothesis of the Anderson-Rubin test at the 1 percent or 5 percent level for our results relating to the average leverage ratio (column 1), downpayment value (column 3), the probability of issuing a higher-LTV mortgage (column 4) and the probability of issuing a new loan that non-performs (column 5). Similarly, in Table 7 we reject the null for non-lending asset growth (column 1), lending growth (column 2) and higher-LTV mortgage lending (column 4).

Taken together, the results from Table 7 and Table 8 suggest that UK banks whose capital is lowered by misconduct provisions seek to restore their capital ratios by increasing lending. They do so by issuing more (initially) profitable and riskier mortgages, where higher-LTV mortgages incur a lower average risk-weight than other non-lending activities or business lending. Banks appear to be boosting the numerator of their capital ratio (via increased income and retained earnings) in a way that minimizes any changes to their risk-weighted assets, the denominator of bank capital ratios.

4.3 The Nonlinear Impact of Bank Capital on Lending Behavior

Finally, we investigate whether banks with lower capital cushions respond differently to misconduct conduct provisions as compared with other banks. This would be expected if there is a non-linear effect of being close to a bank's capital requirement. We estimate an augmented version of the reduced-form model set out in Equation 3, and include an interaction term for Misconduct Provisions$_t$ and a dummy variable that equals one if the bank has a capital cushion ratio in the bottom quartile. We focus on results from the reduced-form model rather than the two-stage panel model because we faced a weak instrument problem for the latter approach.[22]

Table 9 presents the results of the bank-level specification where several lending aggregates are considered for Y. We find that an increase in Misconduct Provisions causes lending growth to increase for banks with a higher capital cushion, but there is a significant decrease in lending growth for banks that have lower capital cushions (column 2). The decline in lending for banks that have lower capital cushions appears to be driven by non-mortgage lending such as unsecured business lending (column 3). Additionally, there is a decrease in higher-LTV mortgage lending for banks that have lower capital cushions and whose capital is lowered by misconduct provisions (column 4).

Table 9 presents the results of the loan-level specification where several mortgage lending variables are considered for Y. Our loan-level analysis demonstrates that banks with lower capital cushions are still more likely to issue higher-LTV mortgages (column 4) with weaker *ex post* performance (column 5) following an increase in their misconduct provisions. But consistent with our bank-level results, there is evidence that they also significantly decrease the average mortgage loan value (column 2).[23]

Taken together, our bank-level and loan-level results suggest that when faced with an increase in misconduct provisions, banks with a lower capital cushion seek to restore

[22] In the two-stage panel model setting, we require two instrumental variables for the CET1 ratio and its interaction term with the capital cushion dummy variable. The multivariate F test of excluded instruments is insignificant when we use the instruments: Misconduct Provisions$_t$ and Misconduct Provisions$_t$ interacted with the capital cushion dummy variable. It is similarly insignificant when we apply the approach outlined by Wooldridge (2010) and use the instruments $\widehat{\text{CET1 Ratio}}_t$ and its interaction with the capital cushion dummy variable.

[23] There is seemingly a tension between the observed decrease in aggregate higher-LTV mortgage lending for banks that have lower capital cushions in Table 9, with the observed decrease in the probability of issuing higher-LTV mortgages in Table 10. But the results in Table 10 are loan-level results. The Table 10 results imply these banks are be more likely to issue higher-LTV mortgages *relative* to the other types of mortgages, rather than relative to an aggregate. Moreover, they make smaller mortgages (column 2) even if those mortgages are more likely to be higher-LTV within their portfolio.

their capital ratios in some of the same ways as for banks with a higher capital cushion. Namely, there is an observed increase in their risk-taking in mortgage lending as indicated by the increase in the average LTV ratio and *ex post* mortgage non-performance outcomes. But one key difference is that banks with a lower capital cushion do not increase their higher-LTV mortgage lending like banks with a higher capital cushion. Rather, they decrease both non-mortgage lending and higher-LTV mortgage lending. Banks with a lower capital cushion appear to take more aggressive action to restore their capital via reducing their assets, which is again consistent with the capital buffer evidence presented by Berger et al. (2008) and others. We note that the banks in our sample with a higher capital cushion (that is, those not in the lowest quartile) have a very comfortable capital cushion, which seems consistent with the fact these banks take a slower approach to restoring their capital via retained earnings.

4.4 Further Robustness

In this section, we show that our empirical analysis is robust to a number of alternative modeling strategies. Table 11 and Table 12 present the results of several robustness checks for the second-stage of our 2SLS estimation of Equation 5.

In Section 3.2, we included the square of Misconduct Provisions as a second instrument to apply a standard test of overidentifying restrictions. Such an instrument could cater for any nonlinearities in the relationship between misconduct provisions and the CET1 ratio. Panel A of Tables 11 and 12 presents the second-stage results for this specification. The coefficient estimates for β_1 and their significance levels are similar to our main results in Tables 7 and 8 across most of the dependent variables. The estimate is now insignificant for the higher LTV dummy specification (column 4) in Table 12. This may be driven by a weak instrument problem, where the F-statistic for this specification is smaller than that of our baseline and the “rule of thumb” (F-statistic is 7.79). Reassuringly, the the Anderson-Rubin test, which is robust in the present of weak instruments, suggests a strong rejection (at the 1 percent level) of the null hypothesis that β_1 is equal to zero for the higher LTV dummy dependent variable.

We find that our results are robust to alternative clustering of the standard errors. Panel B presents results for a specification where we multi-cluster the standard errors by bank and time, instead of bank only as in Table 7 or bank-by-time as in Table 8. The significance levels remain similar to our main results for most dependent variables. The β_1 estimates for the non-lending asset growth (column 1) in Table 7 and the higher LTV dummy (column 4) in Table 8 specifications are now just insignificant. Once more, the F-statistics are below 10 for these specifications and indicate a potential weak instrument problem. However, we reject the null hypothesis of the Anderson-Rubin test for both specifications, suggesting a significant relationship between a negative shock to the CET1 ratio and both non-lending asset growth and the higher LTV dummy.

Another potential concern is that changes in lending behavior are driven by loan demand rather than loan supply. This can often be a cause for a concern in other studies because changes in capital or capital requirements can often be correlated with changes in economic conditions, including loan demand. We think this should be less of a problem for our analysis because the capital shocks we observe are driven by misconduct provisions, which we do not expect to be correlated with loan demand. In any case, our main loan-level specifications include details loan and borrower characteristics that should control for shifts in loan demand, as well as region-by-time fixed effects as done by others (e.g., Uluc and Wieladek, 2018). Nonetheless, Panel C of Table 12 presents the results from a specification that also includes bank-by-region fixed effects, as done by Peydro et al. (2020), to further reduce the risk that changes in lending behavior are driven by the demand shocks of borrowers in specific regions. We find that the coefficient estimates for β_1 and their significance levels are once more similar to our main results in Table 12.

Although not reported here, our loan-level results for the discrete dependent variables (higher-LTV mortgage dummy and non-performance dummy) are robust to estimation via an instrumental variable probit (IVP) model. We are unable to include region-by-time fixed effects for the IVP models, and instead include separate region and time-level fixed effects. However, the average marginal effects for the IVP estimations are similar to the coefficient estimates for the 2SLS estimations. Moreover, estimates for the IVP models tend to be more statistically significant.

5 Conclusion

In this paper, we construct a new UK panel dataset that combines hand-collected bank-level information on misconduct provisions with additional information on bank-specific capital requirements as well as detailed mortgage-level information on lending standards. We use these data to examine the impact of misconduct provisions on bank capital ratios and lending behavior. The UK offers a useful setting to examine this topic: over the last decade, UK banks have been significantly affected by provisions for misconduct that originally took place as far back as the 1990s.

Studying the effect of misconduct provisions on bank capital and lending is highly relevant given the magnitude of these provisions affecting the UK banking system. Additionally, we argue that misconduct provisions are an exogenous shock to bank capital. A key contribution of this study is therefore our approach to use misconduct provisions as an instrument to identify the effect of bank capital on lending behavior.

We find that, on average, UK banks whose capital is lowered by misconduct provisions decrease their non-lending activities but increase lending, where lending growth is driven by higher-LTV mortgage lending. Within banks' mortgage lending portfolios, there is an increase in average mortgage leverage and *ex post* non-performance risk.

With a few notable exceptions, previous studies generally document that a negative shock to capital, or an increase in regulatory requirements, causes a decrease in credit supply. We find this to be the case for banks with a lower capital cushion with which to absorb the misconduct shock. However, we find that the average bank *increases* higher-LTV mortgage lending. This appears to be because riskier mortgage lending is highly profitable but requires relatively less capital than other activities, making it an efficient way to restore capital in response to a negative capital shock - in this case a large misconduct providsion. We argue this evidence supports the capital buffer evidence presented by Berger et al. (2008) and others, where banks appear to make riskier loans in order to restore their capital via retained earnings in response to a negative capital shock.

More generally, our findings demonstrate that bank capital is not purely a buffer to absorb shocks and protect creditors from losses: it also influences banks' lending behavior. As such, these findings have important implications for financial stability. Following a decrease in bank capital, banks are likely to loosen their mortgage lending standards. This increases the vulnerability of both the household sector and the banking sector to future shocks. Additionally, these results have implications for optimal capital requirements; any determination of bank capital requirements that does not take these risk-taking consequences into account may set sub-optimal capital requirements.

References

Acharya, Viral V., Hamid Mehran, and Anjan V. Thakor, 2016, Caught between Scylla and Charybdis? Regulating Bank Leverage When There Is Rent Seeking and Risk Shifting, *Review of Corporate Finance Studies* 5, 36–75.

Acharya, Viral V., and Stephen G. Ryan, 2016, Banks' Financial Reporting and Financial System Stability, *Journal of Accounting Research* 54, 277–340.

Aebi, Vincent, Gabriele Sabato, and Markus Schmid, 2012, Risk management, corporate governance, and bank performance in the financial crisis, *Journal of Banking & Finance* 36, 3213–3226.

Aggarwal, Raj, and Kevin T. Jacques, 1998, Assessing the impact of prompt corrective action on bank capital and risk, *Economic Policy Review* 23–32.

Aggarwal, Raj, and Kevin T. Jacques, 2001, The impact of FDICIA and prompt corrective action on bank capital and risk: estimates using a simultaneous equations model, *Journal of Banking & Finance* 25, 1139–1160.

Aiyar, Shekhar, Charles W. Calomiris, and Tomasz Wieladek, 2014, Does macro-prudential regulation leak? Evidence from a UK policy experiment, *Journal of Money, Credit and Banking* 46, 181–214.

Altunbas, Yener, Santiago Carbo Valverde, Edward P.M. Gardener, and Philip Molyneux, 2007, Examining the relationships between capital, risk and efficiency in European banking, *European Financial Management* 13, 49–70.

Auer, Raphael, and Steven Ongena, 2016, The countercyclical capital buffer and the composition of bank lending, Unpublished working paper 593, Bank for International Settlements, Basel, Switzerland.

Bahaj, Saleem, and Frederic Malherbe, 2020, The Forced Safety Effect: How Higher Capital Requirements Can Increase Bank Lending, *Journal of Finance* 75, 3013–3053.

Barth, Andreas, and Christian Seckinger, 2018, Capital regulation with heterogeneous banks: Unintended consequences of a too strict leverage ratio, *Journal of Banking & Finance* 88, 455–465.

Basten, Christoph, 2020, Higher Bank Capital Requirements and Mortgage Pricing: Evidence from the Counter-Cyclical Capital Buffer, *Review of Finance* 24, 453–495.

Beatty, Anne, and Scott Liao, 2014, Financial accounting in the banking industry: A review of the empirical literature, *Journal of Accounting and Economics* 58, 339–383.

Beltratti, Andrea, and Rene M. Stulz, 2012, The credit crisis around the globe: why did some banks perform better?, *Journal of Financial Economics* 105, 1–17.

Benetton, Matteo, 2018, Leverage Regulation and Market Structure: An empirical model of the U.K. mortgage market, Unpublished working paper.

Benetton, Matteo, Peter Eckley, Nicola Garbarino, Liam Kirwin, and Georgia Latsi, 2021, Capital requirements and mortgage pricing: Evidence from Basel II, *Journal of Financial Intermediation* 48.

Berger, Allen, Robert DeYoung, Mark Flannery, David Lee, and Ozde Oztekin, 2008, How Do Large Banking Organizations Manage Their Capital Ratios?, *Journal of Financial Services Research* 34, 123–149.

Berger, Allen N., Christa H.S. Bouwman, Thomas Kick, and Klaus Schaeck, 2016, Bank liquidity creation following regulatory interventions and capital support, *Journal of Financial Intermediation* 26, 115–141.

Bernanke, Ben, and Cara S. Lown, 1991, The credit crunch, *Brookings Papers on Economic Activity* 22, 205–248.

Bertsch, Christoph, Isaiah Hull, Yingjie Qi, and Xin Zhang, 2020, Bank misconduct and online lending, *Journal of Banking and Finance* 116.

Best, Michael Carlos, James S Cloyne, Ethan Ilzetzki, and Henrik J Kleven, 2020, Estimating the Elasticity of Intertemporal Substitution Using Mortgage Notches, *Review of Economic Studies* 87, 656–690.

Bridges, Jonathan, David Gregory, Mette Nielsen, Silvia Pezzini, Amar Radia, and Marco Spaltro, 2014, The impact of capital requirements on bank lending, Unpublished working paper 486, Bank of England, London, United Kingdom.

Buser, Stephen A., Andrew H. Chen, and Edward J. Kane, 1981, Federal deposit insurance, regulatory policy, and optimal bank capital, *Journal of Finance* 36, 51–60.

ComRes, 2015, Payment Protection Insurance research analytical report, Quantitative survey commissioned by the Financial Conduct Authority, London, United Kindom.

De Jonghe, Olivier, Hans Dewachter, and Steven Ongena, 2020, Bank capital (requirements) and credit supply: Evidence from pillar 2 decisions, *Journal of Corporate Finance* 60, 101518.

de Ramon, Sebastian J.A., William B. Francis, and Qun Harris, 2021, Bank-specific capital requirements and capital management from 1989-2013: Further evidence from the uk, *Journal of Banking & Finance* 106189.

Dechow, Patricia M., Richard G. Sloan, and Amy P. Sweeney, 1995, Detecting earnings management, *The Accounting Review* 70, 193–225.

Deli, Yota D., Manthos D. Delis, Iftekhar Hasan, and Liuling Liu, 2019, Enforcement of banking regulation and the cost of borrowing, *Journal of Banking & Finance* 101, 147–160.

Delis, Manthos D., Maria Iosifidi, Sotirios Kokas, Dimitrios Xefteris, and Steven Ongena, 2020, Enforcement actions on banks and the structure of loan syndicates, *Journal of Corporate Finance* 60, 101527.

Delis, Manthos D., Panagiotis K. Staikouras, and Chris Tsoumas, 2017, Formal enforcement actions and bank behavior, *Management Science* 63, 959–987.

Dewatripont, Mathias, and Jean Tirole, 1994, A Theory of Debt and Equity: Diversity of Securities and Manager-Shareholder Congruence, *The Quarterly Journal of Economics* 109, 1027–1054.

DeYoung, Robert, Isabelle Distinguin, and Amine Tarazi, 2018, The joint regulation of bank liquidity and bank capital, *Journal of Financial Intermediation* 34, 32–46.

Diamond, Douglas W., and Raghuram G. Rajan, 2009, The credit crisis: conjectures about causes and remedies, *American Economic Review* 99, 606–610.

Ellul, Andrew, and Vijay Yerramilli, 2013, Stronger risk controls, lower risk: Evidence from U.S. bank holding companies, *Journal of Finance* 68, 1757–1803.

Enrich, David, 2017, *The Spider Network: The Wild Story of a Maths Genius, a Gang of Backstabbing Bankers, and One of the Greatest Scams in Financial History* (Ebury Publishing, London, United Kingdom).

Fahlenbrach, Rüdiger, Robert Prilmeier, and René M. Stulz, 2012, This time is the same: using bank performance in 1998 to explain bank performance during the recent financial crisis, *Journal of Finance* 67, 2139–2185.

Financial Conduct Authority, 2014, Redress for Payment Protection Insurance (PPI) mis-sales: update on progress and looking ahead, *Thematic Review TRI14/14. London, United Kingdom* .

Financial Services Authority, 2009, Enforcement financial penalties, *Consultation Statement 09/19. London, United Kingdom* .

Fraisse, Henri, Mathias Le, and David Thesmar, 2020, The Real Effects of Bank Capital Requirements, *Management Science* 66, 5–23.

Francis, William B., and Matthew Osborne, 2012, Capital requirements and bank behavior in the UK: Are there lessons for international capital standards?, *Journal of Banking & Finance* 36, 803–816.

Furlong, Frederick T., and Michael C. Keeley, 1989, Capital regulation and bank risk-taking: A note, *Journal of Banking & Finance* 13, 883–891.

Gambacorta, Leonardo, and Paolo Emilio Mistrulli, 2004, Does bank capital affect lending behavior?, *Journal of Financial Intermediation* 13, 436–457.

Gropp, Reint, Thomas Mosk, Steven Ongena, and Carlo Wix, 2018, Banks Response to Higher Capital Requirements: Evidence from a Quasi-Natural Experiment, *The Review of Financial Studies* 32, 266–299.

Guler, Ozan, Mike Mariathasan, Klaas Mulier, and Nejat G. Okatan, 2021, The real effects of banks' corporate credit supply: A literature review, *Economic Inquiry* 59, 1252–1285.

Ioannidou, Vasso, Steven Ongena, and Jose-Luis Peydro, 2015, Monetary policy, risk-taking, and pricing: evidence from a quasi-natural experiment, *Review of Finance* 19, 95–144.

Jacques, Kevin, and Peter Nigro, 1997, Risk-based capital, portfolio risk, and bank capital: a simultaneous equations approach, *Journal of Economics and Business* 49, 533–547.

Jiménez, Gabriel, Steven Ongena, José-Luis Peydró, and Jesús Saurina, 2017, Macroprudential policy, countercyclical bank capital buffers, and credit supply: evidence from the Spanish dynamic provisioning experiments, *Journal of Political Economy* 125, 2126 – 2177.

Kahane, Yehuda, 1977, Capital adequacy and the regulation of financial intermediaries, *Journal of Banking & Finance* 1, 207–218.

Kareken, John H., and Neil Wallace, 1978, Deposit insurance and bank regulation: A partial-equilibrium exposition, *Journal of Business* 51, 413–38.

Keeley, Michael C., 1990, Deposit insurance, risk, and market power in banking, *American Economic Review* 80, 1183–1200.

Kim, Daesik, and Anthony M. Santomero, 1988, Risk in banking and capital regulation, *Journal of Finance* 43, 1219–1233.

Koehn, Michael, and Anthony M. Santomero, 1980, Regulation of bank capital and portfolio risk, *Journal of Finance* 35, 1235–1244.

Köster, Hannes, and Matthias Pelster, 2017, Financial penalties and bank performance, *Journal of Banking & Finance* 79, 57 – 73.

Mariathasan, Mike, and Ouarda Merrouche, 2014, The manipulation of basel risk-weights, *Journal of Financial Intermediation* 23, 300–321.

Merton, Robert, 1977, An analytic derivation of the cost of deposit insurance and loan guarantees: an application of modern option pricing theory, *Journal of Banking & Finance* 1, 3–11.

Mésonnier, Jean-Stéphane, and Allen Monks, 2015, Did the EBA capital exercise cause a credit crunch in the Euro area?, *International Journal of Central Banking* 11, 75–117.

Minton, Bernadette A., Jérôme P. Taillard, and Rohan Williamson, 2014, Financial expertise of the board, risk-taking, and performance: evidence from bank holding companies, *Journal of Financial and Quantitative Analysis* 49, 351–380.

Morrison, Caitlin, 2018, Barclays profits tumble 29% due to legal costs and ppi claims, *Independent* 2 August. Accessed 27 July 2023. Available from: https://www.independent.co.uk/news/business/news/barclays-profits-share-price-ppi-legal-settlement-jes-staley-a8473956.html.

Nguyen, Duc Duy, Jens Hagendorff, and Arman Eshraghi, 2016, Can bank boards prevent misconduct?, *Review of Finance* 20, 1–36.

Nguyen, Tu, H.G. (Lily) Nguyen, and Xiangkang Yin, 2015, Corporate Governance and Corporate Financing and Investment during the 2007-2008 Financial Crisis, *Financial Management* 44, 115–146.

Nicholas, Megaw, 2019, Rbs slumps to loss on weak investment banking and Â£900m ppi hit, *Financial Times* 24 October. Accessed 27 July 2023. Available from: https://www.ft.com/content/691e0b7c-f628-11e9-9ef3-eca8fc8f2d65.

Parliamentary Commission on Banking Standards, 2013a, Written evidence from the British Bankers' Association, *Houses of Parliament. London, United Kindom* .

Parliamentary Commission on Banking Standards, 2013b, Written evidence from the Financial Services Authority, *Houses of Parliament. London, United Kindom* .

Peek, Joe, and Eric Rosengren, 1995a, Bank regulation and the credit crunch, *Journal of Banking & Finance* 19, 679–692.

Peek, Joe, and Eric Rosengren, 1995b, The capital crunch: neither a borrower nor a lender be, *Journal of Money, Credit and Banking* 27, 625–38.

Peek, Joe, and Eric S Rosengren, 1997, The International Transmission of Financial Shocks: The Case of Japan, *American Economic Review* 87, 495–505.

Peydro, Jose-Luis, Francesc Rodriguez-Tous, Jagdish Tripathy, and Arzu Uluc, 2020, Macroprudential Policy, Mortgage Cycles and Distributional Effects: Evidence from the UK, Staff working paper 866, Bank of England.

Pyle, David, 1984, Deregulation and deposit insurance reform, *Economic Review* 5–15.

Rime, Bertrand, 2001, Capital requirements and bank behaviour: empirical evidence for Switzerland, *Journal of Banking & Finance* 25, 789–805.

Robles-Garcia, Claudia, 2019, Competition and Incentives in Mortgage Markets: The Role of Brokers, Unpublished working paper.

Shrieves, Ronald, and Drew Dahl, 1992, The relationship between risk and capital in commercial banks, *Journal of Banking & Finance* 16, 439–457.

Staiger, Doug, and James Stock, 1997, Instrumental variables regression with weak instruments, *Econometrica* 65, 557–586.

Tanda, Alessandra, 2015, The effects of bank regulation on the relationship between capital and risk, *Comparative Economic Studies* 57, 31–54.

Uluc, Arzu, and Tomasz Wieladek, 2018, Capital requirements, monetary policy and risk shifting in the mortgage market, *Journal of Financial Intermediation* 35, 3–16.

Upton, Martin, 2006, Over-sold, over-priced?, Money & Business article, The Open University.

Wooldridge, Jeffrey M, 2010, *Econometric Analysis of Cross Section and Panel Data*, volume 1 of *MIT Press Books* (The MIT Press).

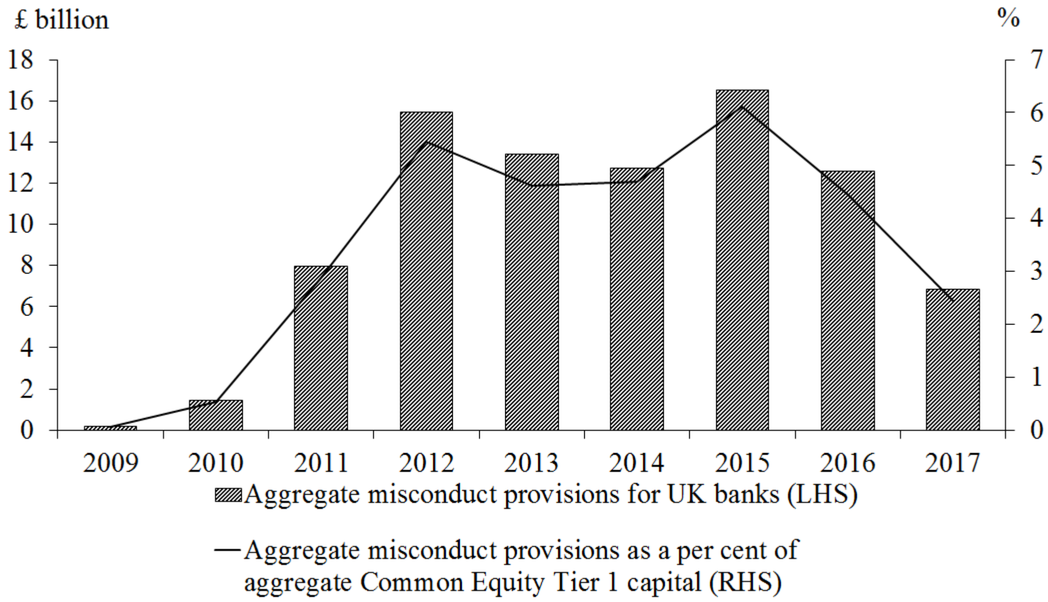

Figure 1: **Aggregate Misconduct Provisions from 2009 to 2017**
The figure plots the aggregate misconduct provisions for the 23 UK banks in our sample, as well as the ratio of the aggregate misconduct provisions to the aggregate Common Equity Tier 1 capital.

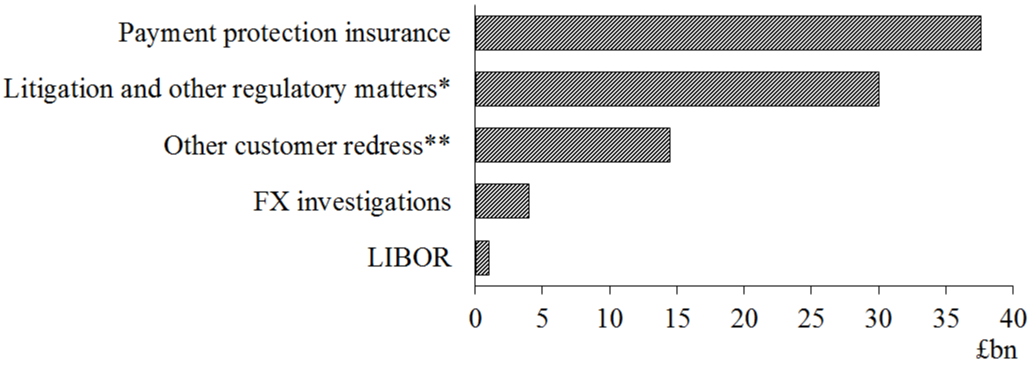

Figure 2: **Aggregate Provisions by Misconduct Issues from 2009 to 2017**
The figure shows the aggregate provisions for different misconduct issues for the 23 UK banks in our sample. * The category "Litigation and other regulatory matters" includes: securities litigation, US residential mortgage-backed securities investigations, money laundering, tax-related investigations, CDS, LIBOR, EURIBOR, foreign exchange investigations, other benchmark investigations, and other unspecified provisions for regulatory matters. ** The category "Other customer redress" includes: mis-sold interest rate hedging products, mis-sold packaged accounts, investment advice, UK Consumer Credit Act violations. Additionally some banks report provisions for mis-sold PPI within another customer redress category.

Table 1: **Summary Statistics**

Variable Name	Unit	*N*	Mean	Std. dev.	5th %tile	50th %tile	95th %tile
Bank-level Variables							
Misconduct Provisions	%	310	0.073	0.185	0.000	0.011	0.344
CET1 Ratio	%	310	13.948	4.286	9.100	13.202	23.470
Capital Cushion Ratio	%	310	7.560	6.402	1.134	5.818	22.045
Liquidity Ratio	%	310	6.619	3.661	1.220	6.076	13.021
NPL Ratio	%	310	2.870	3.009	0.264	1.882	9.700
ROA	%	310	0.144	0.346	-0.573	0.185	0.532
Ln(Total Assets)	£bn	310	11.289	2.040	8.265	10.745	14.378
Loan Ratio	%	310	64.916	19.139	29.719	69.672	86.193
Governance	%	310	23.269	24.042	0.000	16.667	70.000
CET1 Capital Growth	%	310	1.381	10.747	-12.586	0.955	14.149
Risk-weighted Asset Growth	%	310	-1.402	8.647	-14.303	-1.185	9.744
Average Risk-weighted Asset Ratio	%	292	34.756	12.089	13.655	35.340	59.648
Asset Growth	%	292	0.303	6.687	-9.711	-0.092	11.260
Non-lending Asset Growth	%	292	-0.422	4.605	-7.465	-0.542	7.069
Lending Growth	%	292	0.725	6.708	-8.812	1.132	9.510
Non-Mortgage Lending Growth	%	292	-4.158	11.230	-17.625	-4.027	12.214
Higher-LTV Mortgage Growth	%	292	19.258	76.452	-58.000	8.691	128.496
Low-LTV Mortgage Growth	%	292	4.824	38.556	-50.003	2.503	62.525
Loan-level Variables							
Loan-to-Value (LTV) Ratio	%	7,545,374	63.730	22.332	19.998	69.829	90.000
Ln(Mortgage Loan Value)	£	7,545,374	11.806	0.675	10.629	11.822	12.912
Ln(Mortgage Downpayment Value)	£	7,545,374	11.124	1.062	9.349	11.136	12.873
Higher-LTV Mortgages	0/1	7,545,374	0.171	0.376	0	0	1
Non-performance	0/1	5,840,456	0.041	0.198	0	0	0
Rate-type: Fixed	0/1	7,545,374	0.819	0.385	0	1	1
Rate-type: Variable	0/1	7,545,374	0.174	0.379	0	0	1
Rate-type: Other	0/1	7,545,374	0.008	0.087	0	0	0
Repayment-type: Capital	0/1	7,545,374	0.909	0.288	0	1	1
Repayment-type: Interest	0/1	7,545,374	0.012	0.110	0	0	0
Repayment-type: Other	0/1	7,545,374	0.079	0.270	0	0	1
Borrower-type: First-time	0/1	7,545,374	0.266	0.442	0	0	1
Borrower-type: Home Mover	0/1	7,545,374	0.356	0.479	0	0	1
Borrower-type: Re-mortgagor	0/1	7,545,374	0.356	0.479	0	0	1
Borrower-type: Other	0/1	7,545,374	0.022	0.148	0	0	0
Maturity	Years	7,545,374	22.390	8.010	8.417	24	35
Loan-to-income Ratio	Value	7,545,374	2.928	1.118	1.001	2.960	4.715
Income	£	7,545,374	10.826	0.595	9.912	10.782	11.896
Impaired	0/1	7,545,374	0.003	0.0550	0	0	0
Income Verified	0/1	7,545,374	0.865	0.341	0	1	1
Employment Status: Employed	0/1	7,545,374	0.865	0.341	0	1	1
Employment Status: Self-employed	0/1	7,545,374	0.0270	0.161	0	0	0
Employment Status: Other	0/1	7,545,374	0.102	0.302	0	0	1
Age	Years	7,545,374	38.927	9.941	25	38	57

Table 2: **The Impact of Misconduct Provisions on Bank Capital**

The table presents coefficient estimates for Equation 1, the regression of Y on misconduct provisions scaled by total assets (Misconduct Provisions) and the relevant control variables. The dependent variables Y are: the Common Equity Tier 1 (CET1) ratio, CET1 capital growth, and RWA growth. Standard errors are heteroskedasticity-robust and clustered by bank year groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)
	CET1 Ratio	CET1 Capital Growth	RWA Growth
Misconduct Provisions	-1.184***	-0.073**	-0.005
	(0.324)	(0.029)	(0.013)
Bank-level Controls	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes
Clusters	Bank	Bank	Bank
Observations	310	310	310
Adjusted R-squared	0.883	0.162	0.404

Table 3: **Do Misconduct Provisions meet the Exclusion Restriction?**

The table presents coefficient estimates for Equation 2, the regression of the lagged values of lending growth on misconduct provisions scaled by total assets (Misconduct Provisions) and the relevant control variables. Columns (1), (2), (3), (4) and (5) consider a one year, two year, three year, four year and five year lag, respectively, for the lending growth and respective control variables. The standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	Lending Growth: t-1	t-2	t-3	t-4	t-5
Misconduct Provisions$_t$	0.010	-0.031*	-0.004	0.029	-0.015
	(0.013)	(0.017)	(0.010)	(0.018)	(0.021)
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	247	199	161	122	92
Adjusted R-square	0.615	0.570	0.622	0.654	0.768

Table 4: **The Impact of Misconduct Provisions on Bank Balance Sheets**

The table presents coefficient estimates for Equation 1, the regression of Y on misconduct provisions scaled by total assets (Misconduct Provisions) and the relevant control variables. The dependent variables Y are: the average risk-weighted asset (RWA) ratio, asset growth, non-lending activities growth, and lending growth. Standard errors are heteroskedasticity-robust and clustered by bank year groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)
	Average RWA Ratio	Asset Growth	Non-lending Asset Growth	Lending Growth
Misconduct Provisions	-1.993**	-0.020	-0.048**	0.028**
	(0.818)	(0.013)	(0.018)	(0.011)
Bank-level Controls	Yes	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Clusters	Bank	Bank	Bank	Bank
Observations	291	291	291	291
Adjusted R-squared	0.930	0.581	0.305	0.561

Table 5: **The Impact of Misconduct Provisions on Aggregate Lending**

The table presents coefficient estimates for Equation 1, the regression of Y on misconduct provisions scaled by total assets (Misconduct Provisions) and the relevant control variables. The dependent variables Y are: the lending growth, non-mortgage lending growth, higher-LTV mortgage lending growth and low-LTV mortgage lending growth. Standard errors are heteroskedasticity-robust and clustered by bank groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)
	Lending Growth	Non-mortgage Lending Growth	Higher-LTV Mortgage Growth	Low-LTV Mortgage Growth
Misconduct Provisions	0.028**	0.007	0.441**	-0.072
	(0.011)	(0.026)	(0.199)	(0.154)
Bank-level Controls	Yes	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Clusters	Bank	Bank	Bank	Bank
Observations	291	291	291	291
Adjusted R-squared	0.561	0.265	0.125	0.177

Table 6: **The Impact of Misconduct Provisions on Mortgage Lending Quality**
The table presents coefficient estimates for Equation 3, the regression of Y on misconduct provisions scaled by total assets (Misconduct Provisions) and the relevant control variables. The dependent variables Y are: the loan-to-value (LTV) ratio, mortgage loan value, mortgage downpayment value, a higher-LTV dummy variable, and a non-performance dummy variable. Standard errors are heteroskedasticity-robust and clustered by bank-half year groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	LTV Ratio	Loan Value	Downpayment Value	Higher LTV Dummy	Non-performance Dummy
Misconduct Provisions	1.432***	-0.003	-0.071***	0.030**	0.012**
	(0.545)	(0.005)	(0.025)	(0.013)	(0.005)
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Loan-level Controls	Yes	Yes	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clusters	Bank×time	Bank×time	Bank×time	Bank×time	Bank×time
Observations	7,545,374	7,545,374	7,545,374	7,545,374	5,842,021
Adjusted R-squared / Pseudo R-squared	0.604	0.946	0.590	0.241	0.040

Table 7: **The Impact of Instrumented Bank Capital on Aggregate Lending**

The table presents coefficient estimates for Equation 5, the regression of Y on the CET1 ratio and the relevant control variables. The dependent variables Y are: the non-lending asset growth, lending growth, non-mortgage lending growth, higher-LTV mortgage lending growth and low-LTV mortgage lending growth. Panel A presents the results estimated by two stage least squares, where the CET1 ratio has been instrumented by misconduct provisions scaled by total assets (Misconduct Provisions). Panel B presents the results estimated by ordinary least squares. Standard errors are heteroskedasticity-robust and clustered by bank groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	Non-lending Asset Growth	Lending Growth	Non-mortgage Lending Growth	Higher-LTV Mortgage Growth	Low-LTV Mortgage Growth
Panel A: 2SLS					
CET1 Ratio	0.045**	-0.027**	-0.015	-0.409**	0.029
	(0.021)	(0.013)	(0.022)	(0.198)	(0.117)
First-stage F-statistic	12.49***	12.49***	12.49***	12.49***	12.49***
Anderson-Rubin Test	11.65***	10.92***	0.72	5.99**	0.06
Panel B: OLS					
CET1 Ratio	0.000	-0.004	-0.005	-0.012	-0.012
	(0.002)	(0.002)	(0.004)	(0.012)	(0.012)
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Loan-level Controls	n.a	n.a	n.a	n.a	n.a
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clusters	Bank	Bank	Bank	Bank	Bank
Observations	290	290	290	290	290

Table 8: **The Impact of Instrumented Bank Capital on Mortgage Lending Quality**

The table presents coefficient estimates for Equation 5, the regression of Y on the CET1 ratio and the relevant control variables. The dependent variables Y are: the loan-to-value (LTV) ratio, mortgage loan value, mortgage downpayment value, a higher-LTV dummy variable, and a non-performance dummy variable. Panel A presents the results estimated by two stage least squares, where the CET1 ratio has been instrumented by misconduct provisions scaled by total assets (Misconduct Provisions). Panel B presents the results estimated by ordinary least squares. Standard errors are heteroskedasticity-robust and clustered by bank-half year groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	LTV Ratio	Loan Value	Downpayment Value	Higher LTV Dummy	Non-performance Dummy
Panel A: 2SLS					
CET1 Ratio	-0.871**	0.002	0.043**	-0.018*	-0.008**
	(0.361)	(0.003)	(0.018)	(0.010)	(0.003)
First-stage F-statistic	13.23***	13.23***	13.23***	13.23***	13.52***
Anderson-Rubin Test	6.98***	0.41	8.39***	5.36**	5.20**
Panel B: OLS					
CET1 Ratio	-0.073	-0.000	0.003	0.002*	-0.000
	(0.055)	(0.000)	(0.002)	(0.001)	(0.001)
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Loan-level Controls	Yes	Yes	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clusters	Bank×time	Bank×time	Bank×time	Bank×time	Bank×time
Observations	7,545,374	7,545,374	7,545,374	7,545,374	5,840,456

Table 9: **The Role of Low Capital Cushions in How Misconduct Provisions Affect Aggregate Lending**

The table presents coefficient estimates for Equation 1, the regression of Y on misconduct provisions scaled by total assets (Misconduct Provisions), an interaction term for Misconduct Provisions and a dummy variable that equals 1 when the capital cushion ratio is in the bottom quartile (Low Cushion), and the relevant control variables (including the dummy variable Low Cushion). The dependent variables Y are: the non-lending asset growth, lending growth, non-mortgage lending growth, higher-LTV mortgage lending growth and low-LTV mortgage lending growth. Standard errors are heteroskedasticity-robust and clustered by bank groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	Non-lending Asset Growth	Lending Growth	Non-mortgage Lending Growth	Higher-LTV Mortgage Growth	Low-LTV Mortgage Growth
Misconduct Provisions	-0.049***	0.030**	0.013	0.490**	-0.056
	(0.018)	(0.011)	(0.020)	(0.228)	(0.125)
Misconduct Provisions	0.049	-0.097**	-0.319**	-2.402**	-0.797
× Low Cushion	(0.075)	(0.043)	(0.133)	(1.023)	(0.512)
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clusters	Bank	Bank	Bank	Bank	Bank
Observations	291	291	291	291	291
Adjusted R-squared	0.304	0.563	0.274	0.136	0.180

Table 10: **The Role of Low Capital Cushions in How Misconduct Provisions Affect Mortgage Lending Quality**

The table presents coefficient estimates for Equation 1, the regression of Y on misconduct provisions scaled by total assets (Misconduct Provisions), an interaction term for Misconduct Provisions and a dummy variable that equals 1 when the capital cushion ratio is in the bottom quartile (Low Cushion), and the relevant control variables (including the dummy variable Low Cushion). The dependent variables Y are: the loan-to-value (LTV) ratio, mortgage loan value, mortgage downpayment value, a higher-LTV dummy variable, and a non-performance dummy variable. Standard errors are heteroskedasticity-robust and clustered by bank-half year groups, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	LTV Ratio	Loan Value	Downpayment Value	Higher LTV Dummy	Non-performance Dummy
Misconduct Provisions	1.476***	-0.002	-0.072***	0.030**	0.013**
	(0.523)	(0.005)	(0.024)	(0.013)	(0.005)
Misconduct Provisions	-0.672	-0.028**	0.012	0.001	-0.013
× Low Cushion	(2.336)	(0.013)	(0.110)	(0.038)	(0.016)
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Loan-level Controls	Yes	Yes	Yes	Yes	Yes
Bank fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clusters	Bank×time	Bank×time	Bank×time	Bank×time	Bank×time
Observations	7,545,374	7,545,374	7,545,374	7,545,374	5,842,021
Adjusted R-squared / Pseudo R-squared	0.604	0.946	0.590	0.241	0.040

Table 11: **Robustness Checks for the Impact of Instrumented Bank Capital on Aggregate Lending**

The table presents coefficient estimates for Equation 5, the regression of Y on the CET1 ratio and the relevant control variables. The dependent variables Y are: the non-lending asset growth, lending growth, non-mortgage lending growth, higher-LTV mortgage lending growth and low-LTV mortgage lending growth. Panel A presents the results estimated by two stage least squares, where the CET1 ratio has been instrumented by misconduct provisions scaled by total assets (Misconduct Provisions) as well as its square. Panel B presents the results for heteroskedasticity-robust standard errors that are multi-clustered at the bank- and time-level. Standard errors are heteroskedasticity-robust and clustered by bank-half year groups (for Panel A), and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	Non-lending Asset Growth	Lending Growth	Non-mortgage Lending Growth	Higher-LTV Mortgage Growth	Low-LTV Mortgage Growth
Panel A: Additional Instrumental Variable					
CET1 Ratio	0.045**	-0.027**	-0.015	-0.409*	0.030
	(0.021)	(0.013)	(0.022)	(0.201)	(0.120)
First-stage F-statistic	10.34***	10.34***	10.34***	10.34***	10.34***
Anderson-Rubin Test	20.98***	11.95***	4.92*	7.08**	0.44
Panel B: Multi-clustered Standard Errors					
CET1 Ratio	0.045	-0.027**	-0.015	-0.409**	0.029
	(0.026)	(0.012)	(0.021)	(0.167)	(0.131)
First-stage F-statistic	12.15***	12.15***	12.15***	12.15***	12.15***
Anderson-Rubin Test	9.64***	9.21***	0.61	5.48**	0.05
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Loan-level Controls	n.a	n.a	n.a	n.a	n.a
Bank fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clusters	Bank	Bank	Bank	Bank	Bank
Observations	290	290	290	290	290

Table 12: **Robustness Checks for the Impact of Instrumented Bank Capital on Mortgage Lending Quality**

The table presents coefficient estimates for Equation 5, the regression of Y on the CET1 ratio and the relevant control variables. The dependent variables Y are: the loan-to-value (LTV) ratio, mortgage loan value, mortgage downpayment value, a higher-LTV dummy variable, and a non-performance dummy variable. Panel A presents the results estimated by two stage least squares, where the CET1 ratio has been instrumented by misconduct provisions scaled by total assets (Misconduct Provisions) as well as its square. Panel B presents the results for heteroskedasticity-robust standard errors that are multi-clustered at the bank- and time-level. Panel C presents the results for a specification that includes bank-by-region fixed effects. Standard errors are heteroskedasticity-robust and clustered by bank groups (for Panels A and C), and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 per cent, 5 per cent and 10 per cent confidence level, respectively.

	(1)	(2)	(3)	(4)	(5)
	LTV Ratio	Loan Value	Downpayment Value	Higher LTV Dummy	Non-performance Dummy
Panel A: Additional Instrumental Variable					
CET1 Ratio	-0.736**	0.003	0.037**	-0.015	-0.008***
	(0.375)	(0.004)	(0.018)	(0.010)	(0.004)
First-stage F-statistic	7.79***	7.79***	7.79***	7.79***	13.52***
Anderson-Rubin Test	26.49***	3.67	23.16***	17.94***	7.29**
Panel B: Multi-clustered Standard Errors					
CET1 Ratio	-0.871*	-0.002	0.043*	-0.018	-0.008***
	(0.499)	(0.009)	(0.024)	(0.013)	(0.002)
First-stage F-statistic	7.22**	7.22**	7.22**	7.22**	8.58***
Anderson-Rubin Test	5.77**	0.43	9.20***	5.28**	360*
Panel C: Additional Loan Demand Controls					
CET1 Ratio	-0.829**	0.002	0.042**	-0.018*	-0.008**
	(0.347)	(0.003)	(0.017)	(0.010)	(0.003)
First-stage F-statistic	13.55***	13.55***	13.55***	13.55***	13.94***
Anderson-Rubin Test	6.70***	0.73	8.39***	5.14**	5.20**
Bank-level Controls	Yes	Yes	Yes	Yes	Yes
Loan-level Controls	Yes	Yes	Yes	Yes	Yes
Bank fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clusters	Bank×time	Bank×time	Bank×time	Bank×time	Bank×time
Observations	7,545,374	7,545,374	7,545,374	7,545,374	5,840,456

A Appendix

Table A.1: **Definitions of Variables used in Empirical Analysis**

Variable Name	Variable Description
Bank-level Variables	
Misconduct Provisions	The ratio of misconduct provisions over total assets
CET1 Ratio	The ratio of Common Equity Tier 1 capital over risk-weighted assets
Capital Cushion Ratio	The ratio of the surplus (or deficit) of total capital versus Pillar 1 and Pillar 2A requirements as a percentage over risk-weighted assets
Liquidity Ratio	The ratio of cash and balances at central banks over total assets
NPL Ratio	The non-performing loans ratio
ROA	The ratio of net profits (before tax and misconduct provisions) over total assets
Ln(Total Assets)	The log of total assets
Loan Ratio	The ratio of gross customer loans over total assets
Governance	Index of board quality defined as the proportion of independent board members appointed before the CEO takes office
CET1 Capital Growth	The one period growth in CET1 capital
Risk-weighted Asset Growth	The one period growth in risk-weighted assets
Average Risk-weighted Asset Ratio	The ratio of risk-weighted assets to total assets
Asset Growth	The one period growth in total assets
Non-lending Asset Growth	The one period growth in non-lending assets
Lending Growth	The one period growth in gross customer loans
Non-Mortgage Lending Growth	The one period growth in non-mortgage customer loans
Higher-LTV Mortgage Growth	The one period growth in new mortgages with an LTV of 90 or higher
Low-LTV Mortgage Growth	The one period growth in new mortgages with an LTV less than 90
Loan-level Variables	
Loan-to-Value (LTV) Ratio	The ratio of the loan value to home value of a mortgage
Ln(Mortgage Loan Value)	Log of the mortgage loan value (£)
Ln(Mortgage Downpayment Value)	Log of the mortgage downpayment (£)
Higher-LTV Mortgages	Takes the value 1 if the LTV is 90 or higher and 0 otherwise
Non-performance	Takes the value 1 if the mortgage non-performs or defaults after one or more years, and 0 otherwise
Mortgage Rate Type	Categories: fixed; discount; capped; standard variable rate; other
Repayment Type	Categories: capital and interest; interest only (endowment); interest only (pension); interest only (other); mix of capital and interest only; unknown; other
Borrower Type	Categories: business; first-time buyer; home mover; re-mortgagor; social tenant
Maturity	Remaining years until mortgage maturity
Loan-to-income Ratio	The ratio of the loan value to total income of a mortgage
Ln(Income)	Log of the gross household income
Impaired	Takes the value 1 if the borrower has any credit history and 0 otherwise
Income Verified	Takes the value 1 if the borrower had their income verified and 0 otherwise
Employment Status	Categories: employed; self-employed; retired; other
Age	Age of the borrower

B Appendix

We regress misconduct provisions (through the period) on the beginning of period CET1 capital ratio, along with all other relevant bank-level controls as follows:

$$\begin{aligned}\text{Misconduct Provisions}_{j,t} = \quad & \rho_0 + \rho_1 \text{Capital Ratio}_{j,t-1} + \boldsymbol{\rho_2}\textbf{Bank}_{j,t-1} \\ & + \gamma_j + \theta_t + u_{j,t},\end{aligned} \tag{6}$$

where j indexes a bank and t is the period. We cluster the standard errors at the bank level. The variables included in Equation 6 are defined in Section 3. Table A.2 reports the results from Equation 6.

Table A.2: **The Drivers of Misconduct Provisions**

The table presents coefficient estimates for the regression of misconduct provisions scaled by total assets (Misconduct Provisions) and the relevant control variables. Standard errors are heteroskedasticity-robust and clustered by bank, and the standard errors of the coefficient estimates are in parentheses. ***, **, and * indicate statistical significance at the 1 per cent, 5 per cent and 10 per cent confidence level, respectively.

	Misconduct Provisions$_t$
Bank Characteristics	
Capital Ratio$_{t-1}$	0.003
	(0.004)
Buffer Ratio$_{t-1}$	0.002
	(0.001)
Liquidity Ratio$_{t-1}$	0.012
	(0.010)
NPL Ratio$_{t-1}$	0.000
	(0.005)
ROA$_{t-1}$	0.093
	(0.063)
Loan Ratio$_{t-1}$	-0.001
	(0.005)
Ln(Total Assets)$_{t-1}$	-0.168**
	(0.079)
Governance$_{t-1}$	0.000
	(0.000)
Other Control Variables	
Bank fixed effects	Yes
Time fixed effects	Yes
Model Statistics	
Number of clusters	310
Number of observations	310
R-squared	0.456