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Banking Regulation, Innovation and Real Estate Credit: The Impact of Brazilian Banking Correspondents.

Brasília

2018

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Tese apresentada ao Programa de Doutorado em Economia da Universidade de Brasília como requisito à obtenção do título de Doutor em Ciências Econômicas.

Universidade de Brasília

Faculdade de Economia, Administração, Contabilidade e Gestão de Políticas Públicas

Departamento de Economia

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Brasília

2018

Se eu decidisse dedicar este trabalho a alguém específico, eu incorreria no risco de ser injusto com quem não viesse a ser citado. Assim, dedico esta tese...
Primeiramente a todos que sofreram comigo durante todos esses anos de doutorado e que também, de alguma maneira me ajudaram (nas mais diversas formas) a chegar até aqui.
Dedico também a todos que me ajudaram, mesmo que não tenham sofrido comigo ao longo do caminho.
Por fim, dedico a todos que comigo sofreram, mesmo que possam não ter, a princípio, prestado ajuda diretamente.

If I decided to dedicate this work to someone specific, I would incur the risk of being unfair to those who would not be eventually cited. That said, I dedicate this thesis...
Firstly, to those who "suffered together" with me during these PhD years and helped me somehow to get this far.
I also dedicate this work, to those who have helped me, even though not "suffering with" me.
And finally, I dedicate this thesis to those who have "suffered together" with me, even though not directly helping me.

Acknowledgements

Agradeço a todos a quem dediquei este trabalho
a todos que se solidarizaram comigo,
que torceram por mim,
aos que fizeram esse caminho mais leve (mesmo que inconscientemente)
seja de forma constante ou mesmo passageira.

I thank to those to whom I have dedicated this work,
to those who have showed me solidarity,
to all who have supported me,
and to those who have made this path less difficult (event unconsciously)
in a brief or constant way.

"A person who never made a mistake never tried anything new".
Uma pessoa que nunca cometeu um erro, nunca tentou nada novo. (tradução livre)
(Albert Einstein)

Resumo

Correspondentes bancários que ofertam operações de crédito impactam positivamente o volume de crédito imobiliário residencial mesmo diante de potencial influência política que favoreça estados aliados do governo federal e do uso de diversos testes de robustez. Em relação à influência política sobre crédito imobiliário residencial, os resultados variam de acordo com a técnica de estimação utilizada. Por fim, os impactos de correspondentes bancários sobre crédito imobiliário estão presentes em diversos quantis e crescem na medida em que os quantis se elevam, o que indica que os mesmos não estão restritos apenas a localidades com baixo ou restrito acesso ao mercado de crédito, bem como evidencia a presença de efeitos heterogêneos associados ao volume de crédito imobiliário residencial. Enquanto diversos estudos exploram a relação entre correspondentes e agências bancárias (complementariedade ou substitutabilidade) ou o impacto de agências e correspondentes no crédito geral, este trabalho (i) separa correspondentes bancários que ofertam crédito e os que não ofertam; (ii) utiliza crédito imobiliário e não o crédito geral; e (iii) adota efeitos mistos, regressões quantílicas e interquantílicas como principais técnicas de estimação.

Palavras-chave: microeconomia, regulação bancária, crédito, correspondentes bancários, crédito imobiliário, influência política.

Abstract

Banking correspondents with loan services positively impact the volume of residential real estate loans. The positive impact is persistent even under potential political influence between federal government and allied state governments and a series of robustness checks. With respect to political influence on residential real estate loans, results vary according to the estimation technique used. Finally, banking correspondents impact on residential real estate loans are noticed at various quantiles and grows at higher quantiles, which indicates that they are not concentrated only in areas with low or restricted access to credit services and also that there is evidence of heterogeneity of effects related to the volume of residential real estate loans. While many studies in this field explore the relation between banking correspondents and bank branches (complementary or substitutes) or the impact of branches and correspondents over general credit, this work (i) separates banking correspondents with and without loan services; (ii) uses real estate loans e not general loans; (iii) and adopts mixed effects, quantile and interquantile regressions as main estimation techniques.

Keywords: microeconomics, banking regulation, credit, banking correspondents, real estate credit, political influence.

List of figures

List of tables

Tables at Appendices - Other Results

List of abbreviations

BCB	Central Bank of Brazil
BFA	Bankable Frontier Associates
BNDES	Brazilian Development Bank
CBIC	Construction Industry Brazilian Chamber
CEF	Caixa Econômica Federal
CMN	National Monetary Council
FEBRABAN	Brazilian Federation of Banks
FGTS	Employee Severance Indemnity Fund
FIPE	Institute of Economic Research Foundation
IBGE	Brazilian Institute of Geography and Statistics
IVG-R	Residential Real Estate Collateral Valuation Index
PMDB	Brazilian Democratic Movement Party
PRB	Brazilian Republican Party
PT	Workers' Party
RRE	Residential Real Estate
TSE	Superior Electoral Court

Contents

1 Introduction

In Brazil, during the last years there was a large increase in real estate credit, not only in nominal terms, but also in terms of percentage of GDP, more precisely the proportion real estate credit over GDP grew from 1.85% in January 2008 to 8.61% in December 2014. In relation to residential real estate (RRE) loans, numbers are also quite high during the same period, while prices of RRE units used as collateral in residential loans grew more than 175%, the volume of RRE associated with new acquisitions (used or new units) went up more than 800%. During the same period the number of bank branches raised around 21%, a small increase in comparison to the evolution of banking correspondents which raised around 240% whether in total terms or restricting to banking correspondents with loan services. Are both large growths of real estate loans, specifically RRE, and banking correspondents with loan services connected somehow? Would the banking and financial inclusion promoted by banking correspondents be a potential explanation to an assumed connection between both variables.?

The objective of this work is to analyze if Brazilian banking correspondents affect RRE loans volume. In addition to this main objective, I also evaluate whether there is political influence on the referred volume of RRE loans and whether the effects are heterogeneous among different quantiles and, thus, by RRE loans volume. In order to achieve the mentioned objectives, I use a wide set of estimations techniques and robustness checks.

Banking correspondents are non-banking facilities (pharmacies, lottery houses, post offices, developers and construction companies, among others) that offer banking services due to contractual agreements with banks. Banking's services offered by banking correspondents vary from simple payments to real estate loans, including credit card issuance, saving accounts and others (depending on the type of the contractual agreement). It is important to address that banking correspondents act on behalf of banks when they perform banking services, so every single banking service performed by a banking correspondent fully affects bank‘s balance sheet and results. On the other way, the non-banking activities of banking correspondents are completely separated from banks' accounting.

My results indicate that banking correspondents with loan services positively impact the volume of RRE loans. This result is robust to a series of robustness checks such as: use of different regulatory dummies, different correlation structure of certain variables and even the use of quantile and interquantile regressions. The positive impact of banking correspondents with loan services over RRE credit is also persistent under a potential

political influence control framework.

In relation to potential political influence, I find mixed results, which show that, in a mixed effects framework, there is no political influence on RRE loans. Results change with the use of quantile and interquantile regressions, which indicate a positive effect of political influence on residential loans when state governors and president belong to the same party (mostly present at the median and higher quantiles).

Finally, there is also evidence in favor of the presence of heterogeneous effects related to RRE loans volume. In a quantile/interquantile regression framework, results show positive effects of banking correspondents with loans services on residential loans throughout various quantiles. When using interquantile regression, I also detect growing coefficients at higher quantiles, mostly when taking differences between non-adjacent quantiles, which may indicate the importance of some forms of banking correspondents which are significantly active in locations with higher volume of residential loans, most precisely: developers and construction companies. In summary, together with evidence towards the existence of heterogeneity of effects associated with RRE loans volume, I also find evidence that banking correspondents with loans services affect the volume of RRE loans in areas with both high or low volumes of RRE credit.

In order to achieve those results, I have built a new state monthly database with information related to twenty Brazilian states from January 2008 until September 2015 from diverse sources, including: the volume of RRE loans for new acquisitions (loans exclusively directed to renovations or constructions are not included), number of bank branches and banking correspondents, proportion of banking correspondents with loans services, GDP, residential collateral value, among others.

Although the main objective of banking correspondents was not related to offering loans (including RRE loans) when they were created in 1999, their reduced fixed costs led to a rapid growth not only on the number of banking correspondents but also on the types of non-banking facilities that became banking correspondents and the type of banking services that started to be offer, including RRE loans through developers and constructions companies and low income RRE credit through lottery houses. While it is possible to find banking correspondents in other countries, such as India, their vast growth and their use as the main instrument to promote banking inclusion is typically Brazilian. Since the massive use of banking correspondent is relatively recent in Brazil, research on this field is fairly new and sparse and even sparser when relating banking correspondents with RRE loans.

There are three basic aspects related to banking correspondents: cost reduction, distance reduction, principal-agent risk.

When a banking correspondent is established, fixed costs are incurred by the

non-banking facility, since it exists before becoming a banking correspondent. In addition to that, all employees are connected to the correspondent and not to the bank, leading to reduced personnel costs also. Fixed and personnel costs reduction turn the opening of banking correspondents less costly in comparison to the costs of opening and operating bank branches. This theoretical cost reduction effect is confirmed by Assuncao (2013) through the use of a simplified version of an Bresnahan and Reiss (1991) entrance model applied to municipal annual data from 2000 until 2007 in which the author relates: i) the potential banking market of each city to its population; ii) higher fixed costs to higher entrance (minimum) population thresholds. Results reinforce cost reduction theoretical assumption and show that while banking correspondents' population minimum threshold has reached zero during the period of 2000-2007, (which means that banking correspondents' entrance fixed costs have been eliminated), the same threshold for bank branches' opening has reached 9,000 inhabitants during the same period.

With regards to distance reduction and credit there are two important distinct scenarios: when distance makes credit market inaccessible or when it merely makes information less available, but credit markets are still accessible.

Considering the closure (or non-existence) of credit markets due to distance, distances between potential borrowers and banks imply high transportation costs which may also impact financial intermediation costs (GREENWOOD; JOVANOVIC, 1990). When a distance threshold is reached, access to credit markets may be disrupted, due to high transportation costs and consequently intermediation costs. In this field that analyses the potential impact the opening of bank facilities on loans, Burgess and Pande (2005) studied the effects of an Indian banking regulation that has been adopted from 1977 until 1990 which obliged banks that would like to open a new branch somewhere with other open branches to also open four other branches in places not served by banking facilities (maintaining these branches open at least until 1990). In accordance with the potential positive effects on credit, authors conclude that the result of this regulation was a raise in the volume of loans conceded and poverty reduction. Banking correspondents (as an important instrument for banking and financial inclusion) may constitute an important tool to reduce potential borrowers-banks distance, since they reach areas where the opening of bank branches is not economically feasible. With the opening of banking in such areas and the reduction of distance between potential clients and banks, access to banking, financial and potentially loan services become available to population, which may positively affect the volume of credit.

Considering the situation when credit market is still accessible, an important subject resides on the capacity of banking facilities to establish a relationship with clients (and potential clients) and, thus, produce information about them, potentially improving credit conditions (reducing interest rates, as an example) (BHARATH et al., 2009; HAUSWALD;

MARQUEZ, 2006). With the rapid growth on the number of banking correspondents, distance between potential borrowers and banking facilities reduces, possibly leading to an increase in borrowers' information and the improvement of credit conditions, which could finally lead to an increase in the volume of loans. In this specific scenario, Degryse and Ongena (2005) adopt an imperfect competition banking model and show that the opening of a bank branch geographically near small and medium unlisted firms (distance reduction) allows the creation of a new information set about these firms. The new information set leads to smaller interest rates and consequently to higher amounts of loans (BHARATH et al., 2007; PETERSEN; RAJAN, 2002). The same may happen with banking correspondents and individual borrowers, small firms, through interest rates reduction, through granting access to credit markets or even to banking services (wherever there was no bank facility before the arrival of banking correspondents).

The Principal-Agent problem (STIGLITZ; WEISS, 1981; STIGLITZ, 1989) in banking correspondents is characterized by the fact that they act on behalf of banks and frequently receive their compensation proportionally to the volume of banking transactions they perform. Conceding loans is one of the main important banking activities correspondents may offer. In one side, banking correspondents' incentives are to grant the maximum amount of loans they can, since they are compensated according to the number of bank services they perform, including the volume of loans conceded. On the other side, banks want to loan the maximum they can, but controlling adequately for risks, because non-performing loans affect banks' results negatively. Since loans contracted through banking correspondents are only registered at banks' accounting and bad non-performing loans do not affect banking correspondents' results, this could cause wrong incentives stimulating banking correspondents to grant loans which are not compliant with banks' risk appetite and loan policy (even trying to forge better scores in credit valuations about potential borrowers). In this case, the problem of Principal-Agent must also be considered[1].

Another important subject resides on the relation between banking correspondents and bank branches. In this specific field, results differ substantially among researchers. There are evidences in the direction of branches and correspondents working as complements, since correspondents frequently occupy localities (smaller cities, distant neighborhoods or rural areas) that are not served by bank branches (SANFORD; COJOCARU, 2013). This result differs from those obtained by Loureiro, Madeira and Bader (2016) which explores annual municipal data from 2000 until 2008 and concludes that branches and correspondents are substitutes. In 2015, a partnership between Brazilian Federation of Banks (FEBRABAN[2]) and the Institute of Economic Research Foundation (FIPE[3]) produced a survey and a paper

[1] An evaluation of the Principal-Agent problem associated with banking correspondents adopting substandard credit concession policies is a potential extension of this work as will be mentioned at the Conclusion.

[2] Federação Brasileira de Bancos, in Portuguese

[3] Fundação Instituto de Pesquisas Econômicas, in Portuguese

by Madeira and Nakane (2015) in which authors find that branches and correspondents are substitutes only in the case of belonging to state owned banks. In order to avoid focusing on the relationship of banking correspondent and bank branches I concentrate efforts on finding evidence of the influence of banking correspondents over the volume of RRE loans (and also bank branches' influence).

The relation between banking correspondents, bank branches and credit is also explored at Madeira and Nakane (2015). Authors use municipal annual data and find that banking correspondents associated with private banks affect credit in a positive and significant way irrespective of the size of the cities, although the same does not apply to correspondents of state owned banks (results are not statistically significant). Finally, authors do not find evidence of a positive impact of branches in credit which is partially contrary to contrary to the other studies already mentioned in this work which indicate a positive effect over RRE loans associated with the opening of bank facilities (DEGRYSE; ONGENA, 2005; BURGESS; PANDE, 2005). Differently from Madeira and Nakane (2015), I explore potential effects of banking correspondents and branches over RRE credit and not overall credit. I also use the proportion of banking correspondents with loans services, since it is probable that banking correspondents that do not offer loans do not affect residential loans the same way their peers with loan services do. The decision of using RRE loans relies on the fact that overall credit growth is more prone to be influenced by internet banking expansion, while residential credit demands more formalities and bureaucracy (at least in Brazil), which leads to a demand for "physical" banking facilities such as bank branches or banking correspondents. In addition to the potential impact on credit growth, internet banking may also create "fake" local loans, which might bias final results (since all data is local and submitted do local effects). To illustrate this situation, consider a client connected to a bank branch located in Porto Alegre, a city at the South region of Brazil. Assume that despite branch's location, this specific client lives in Belém (a city at the North region) and contracts a loan through internet banking. Formally, this loan is registered as a loan conceded at the city of Porto Alegre which creates a bias problem, since in reality the client is submitted to local factors associated with Belém and not Porto Alegre. This potential "location internet banking bias" also reinforces the option to use RRE credit, since real estate properties are necessarily submitted to local factors influence. It is also important to emphasize that I include quantile regressions in my analysis and use state data instead of municipal data due to potential spillover effects that could occur between cities.

With respect to political influence I seek evidence in the direction of a potential political impact on the volume of RRE loans. In this field, I adopt a political influence methodology partially inspired in Carvalho (2014), whose paper analyzed the political

influence on loans conceded by the Brazilian Development Bank (BNDES[4]) to firms that belong to BNDES' preferred sectors. The author shows that firms based on states whose governor is a federal government ally tend to receive more BNDES' loans during election years and its previous year in comparison to firms located in states governed by other parties. The higher volume of loans tends to raise job demand, reducing unemployment in allied states, improving the chances of allied politicians being successful during elections.

Also in relation to potential political influence, Loureiro, Madeira and Bader (2016), Madeira and Nakane (2015) use a variable that could indirectly capture political influence on general credit concession: the volume of social program Bolsa Família[5] resources directed to each city. Even though an indirect political influence control approach could also be adopted, I prefer to use a direct approach to focus on more direct relations between political activities and residential loans.

In order to estimate the impacts of banking correspondents over RRE loans avoiding spillover effects from one city to another city, I use state data instead of municipal data. The decision to use state information reduces available data and with the objective of mitigating the loss of data, I adopt a monthly frequent data instead of an annual one. By adopting a monthly data, a problem related to the absence of monthly state GDP and collateral value data arises. To address this missing state variable problem, I use mixed effects estimation technique which allows for state varying slopes associated with selected variables (specifically in this work, GDP and collateral value) through a maximum likelihood framework. The use of varying slopes mitigates missing state variable problem and potential biases. In addition to the mixed effects model, I use additional robustness checks, including quantile and interquantile regression frameworks and a political influence control dummy.

After the panel data analysis (with special attention to mixed effects technique), I add a quantile regression framework to perform robustness checks and to verify if overall effects differ through quantiles. Following obtained results which indicate the existence of a positive effect of banking correspondents over residential loans also in a quantile regression framework, I conduct a political alignment (between the state and the federal government) analysis to check if previous results remain stable and if there is any kind of political influence on RRE loans in Brazil. Finally, the last analysis refers to interquantile regression techniques and how estimated effects vary throughout different pairs of quantiles.

Chapter 2 describes the definition and history of banking correspondents. Chapter 3 describes data and analyses its limitations and potential solutions. Chapter 4 introduces the methodology. In chapter 5, I introduce and analyze all results. Chapter 6 is reserved

[4] Banco Nacional de Desenvolvimento Econômico e Social, Portuguese

[5] Bolsa Familiar is a federal social program that concedes money to poor families as long as these families are compliant with certain conditions as keeping children at school, as an example.

to the conclusion .

2 History of Banking Correspondents

Banking correspondents are one of the most important Brazilian instrument used to reduce the shortage of banking services in Brazilian territory.

In 1999, the year of the first regulation that allowed the creation of banking correspondents, approximately 30% of Brazilian cities had no bank branches nor ATMs. This number raises to respectively 60.3% and 45.6% when only cities in the North and Northeast are considered. During the same year, Resolution 2,640 of the National Monetary Council (CMN[1]) authorized some banks and Caixa Econômica Federal (CEF) to create banking correspondents. In 2003, this authorization was extended to all banks, financial institutions and other entities authorized by the Central Bank of Brazil (BCB[2]). From 2003 until 2011, regulation has remained stable. In 2011, CMN edited Resolution 3.954, in which it altered banking services that banking correspondents could offer, including those related to the concession of loans. The most important change revoked the possibility of banking correspondents to be in charge of credit scoring of potential borrowers, granting banks to be the only one responsible for credit analysis, obliging banking correspondents to merely follow banks' credit analysis indications.

Considering the Principal-Agent problem mentioned in the previous chapter, by imposing a restriction on banking correspondents credit analysis, Resolution 3,954 reduced the possibility of correspondents to approve loans disregarding banks' risk guidelines, reducing Principal-Agent risk. This simple change produced an enormous change in banking correspondents market, since banks could use correspondents as loans promoters without assuming the risk of facing correspondents assuming the role of analyzing risk and granting loans instead of the bank itself. In other words, the new regulation kept correspondents from assuming banks' main activity: credit analysis and lending.

In summary, after the regulatory change in 2011, banking correspondents can receive loans proposals, and even simulate credit conditions and quality of potential borrowers, but using banks' credit analysis guidelines, software, scores, criteria and procedures. That said, the final decision of approving or denying a loan request is made by the bank itself, reducing uncertainty.

Another important regulatory change relates to data control and processing. Information is an important part of banking business and credit data is a strategical issue to banks. Before the 2011 regulatory change, if banks wanted a banking correspondent to

[1] Conselho Monetário Nacional, in Portuguese.
[2] Banco Central do Brasil, in Portuguese

create some information about its potential local borrowers, they were obliged to establish banking correspondents with the function of collecting and processing data. After the 2011 regulation change, banks became free to allow or not to allow banking correspondents to create and process data without the need of a formal (costly and slow) authorization by the regulator. This regulatory change also reduced uncertainty faced by banks and the costs of running banking correspondents, stimulating the use this kind of banking facility to concede loans.

Smaller fixed cost (or the absence of fixed costs) and the regulatory changes that reduced both Principal-Agent risk and regulatory costs created incentives for the rapid growth of banking correspondents from 63,500 units in 1999/2000 to 346,500 units in 2014. This raise becomes even more expressive when compared to the behavior of bank branches which raised from 16,000 units to 23.100 units during the same period.

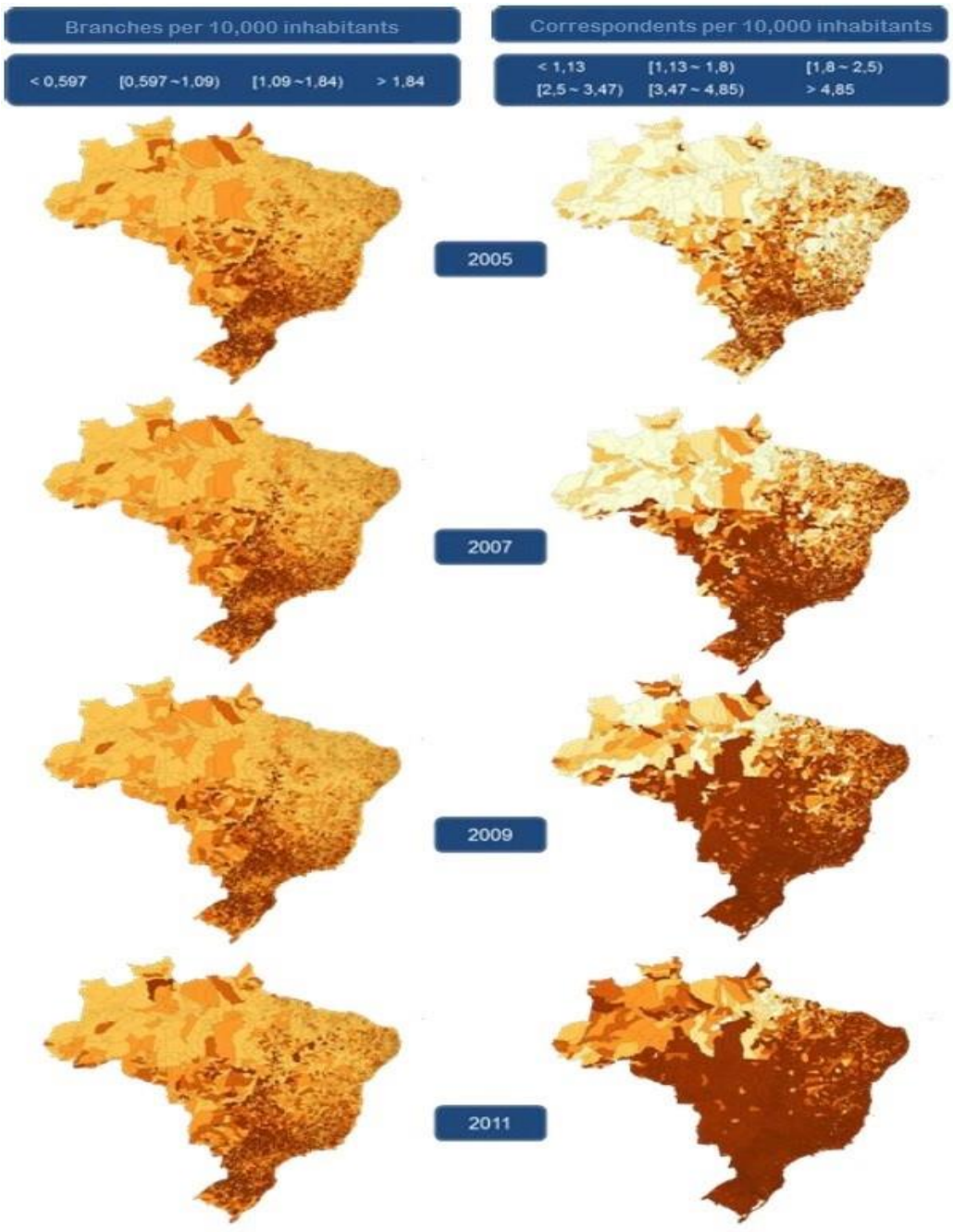
According to FEBRABAN, in 1999/2000, 30% of Brazilian cities had no banks branches nor ATMs. This number would raise to 42% if only bank branches were considered, a quite similar number compared to 40,5% of Brazilian cities without banking correspondent. Despite the similar starting point, since 2002 every Brazilian city has at least one kind of banking facility (branch, ATM or correspondent). In 2011, 36,1% of Brazilian cities remained without any banking branches while merely 0,036 % had no banking correspondent. Figure 1 shows the fast growth of banking correspondents in Brazil.

In 2013, Bankable Frontier Associates (BFA) published a survey with 2,883 families distributed among all Brazilian states with data collected between Sept 2012 and Jan 2013 ((SANFORD; COJOCARU, 2013). The most significant conclusions were: (1) 6% of the sample have got a loan through a banking correspondent; (2) this percentage raises to 9% in cities with less than 75,000 inhabitants and to 18% in cities with less than 75,000 inhabitants in the Northeast Region; (3) 13% of the sample living in rural areas have contracted a loan using a banking correspondent and (4) 79% of all banking correspondents were authorized to offer and contract loans on behalf of banks.

Until 2011/2012 banking correspondents' growth was related to simpler banking services such as payments, saving accounts openings and transactions and wage payments. After 2011 regulatory change, there has been an important change in the services associated with banking correspondents. Banking correspondents' growth became focused on banking correspondents that could offer and concede loans on behalf of banks (BCB, 2010; BCB, 2011; BCB, 2015). Figure 2 shows that change in the many Brazilian states from 2008 until 2015.

Rapid growth and presence on credit market shows that banking correspondents with loan services cannot be neglected and should be further studied, which is the objective of this paper.

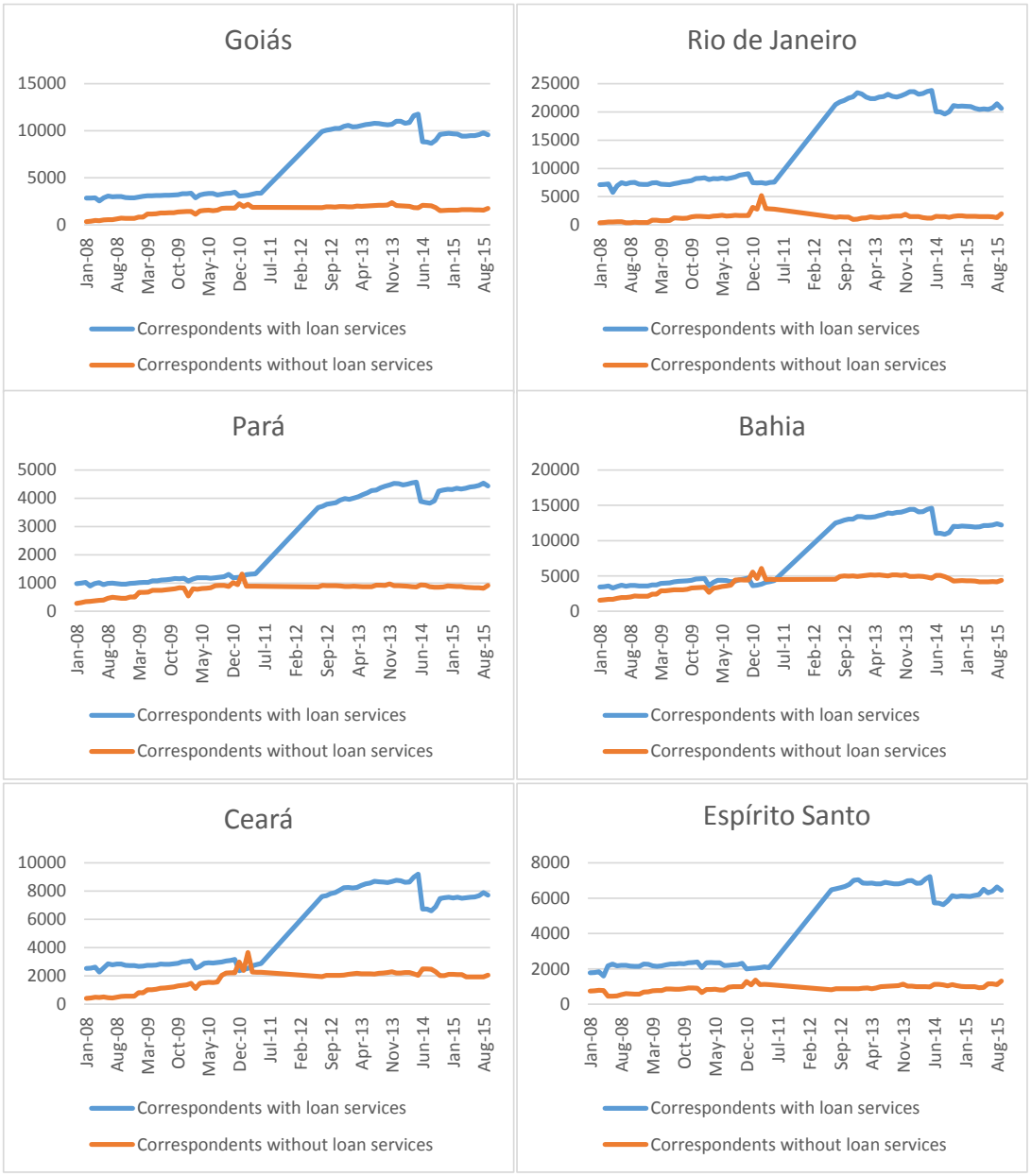
Figure 1
Evolution of Banking Correspondents and Bank Branches - Heat Map



This figure shows the evolution of the number of banking correspondents and bank branches per 10.000 inhabitants from 2005 until 2011 in Brazil. The left side of the figure shows bank branches' evolution. The right side of the figure shows banking correspondents' evolution. Red areas indicate zones with a larger number of bank branches or banking correspondents, while yellow areas indicate zones with smaller number of each the mentioned bank facilities. It is possible to note the fast growth on the number of banking correspondents as red areas in the right side of the figure gets quickly wider. The same does not apply to bank branches, since the left side of the figure shows a quite stable pattern. Source: Madeira and Nakane (2015)

Figure 2

Evolution of Banking Correspondents per State - with and without Loans Services



These graphics show the evolution of the number of banking correspondents from Jan 2008 until Aug 15 in a sampe of Brazilian states. Blue lines are related to banking correspondents with loans services and orange lines are related to correspondents without loans services. It is possible to note that there is evidence of a change in the pattern of banking correspondents evolution form 2011 banking correspondents regulatory change onwards. An evidence of the difference on the pattern of banking correspondents evolution resides on the large spikes on the number of banking correspondents with loans services while the number of banking correspondents without loan services remain fairly stable.

3 Data

The objective of this work is to determine if banking correspondents affect the volume of RRE loans and also if there is political influence on such volume of loans. In that sense, I use a new state monthly database with information from twenty Brazilian states from January 2008 until September 2015 including: the volume of RRE loans for new acquisitions (loans exclusively directed to renovations are not included), number of bank branches, banking correspondents, proportion of banking correspondents with loans services, GDP, residential collateral value, among others. The use of monthly state data differs from related articles, which in general adopt a municipal annual data and evaluate the effects of banking correspondents in general loans through a fixed effects model. In this research, I use state data instead of municipal data since there might be spillover effects between banking correspondents (and bank branches) in neighbor cities. The use of RRE loans relates to the fact that general loans might be affected by internet banking, while RRE loans seem less prompt to be affected by this virtual form of banking, due to its formal aspect and the paperwork needed (at least in Brazil) to have it approved by a bank, which demands a physical bank facility (a branch or a correspondent) and also because of potential location bias produce by internet banking.

I extract data from diverse sources such as: BCB, Serasa Experian, Construction Industry Brazilian Chamber (CBIC[1]), Brazilian Institute of Geography and Statistics (IBGE[2]) and Superior Electoral Court (TSE[3]). The result is a state monthly panel data with 1600 observations from 20 Brazilian states, from January 2008 until September 2015.

Regardless of the various estimation techniques I use in this research, the dependent and independent variables are stable with the only difference residing on the models with political influence control, in which I add a political influence control dummy variable. The dependent variable is the per capita volume of RRE loans. The basic independent variables are: i) per capita total number of banking correspondents, ii) per capita total number of bank branches and iii) proportion of banking correspondents with loan services in relation to the total number of banking correspondents. Finally, I use the following control variables: i) residential collateral value; ii) Selic rate[4]; iii) GDP; iv) civil construction costs; vi) population. In this work, control variables are also referred as macro variables.

The dependent variable is the state per capita volume of real estate loans (source: CBIC) for new acquisitions (new or old units), excluding loans related to the Fundo de

[1] Câmara Brasileira da Indústria da Construção, in Portuguese.
[2] Instituto Brasileiro de Geografia e Estatística, in Portuguese.
[3] Tribunal Superior Eleitoral, in Portuguese.
[4] Selic rate is the basic interest rate in Brazil.

Garantia do Tempo de Serviço (FGTS) which is a monopoly of Caixa Econômica Federal (a 100% state owned Brazilian financial institution)[5].

In relation to the independent variables, the total number of banking correspondents, bank branches and the number of banking correspondents with loan services (which is used to calculate the proportion of banking correspondents with loan services) are directly extracted from BCB website.

With attention to control variables, it is worth mentioning the use of a new index published by BCB as the residential collateral value: Residential Real Estate Collateral Valuation Index (IVG-R Index[6]). Additional control variables and their sources are: i) GDP (source: Serasa Experian); ii) Selic rate (source: BCB); iii) civil construction costs (source: CBIC) and iv) population projection (source: IBGE). I also use a regulatory time dummy (*dreg*) which is further discussed in the Data Limitation & Proposed solutions chapter and a temporal trend.

It is also important mentioning the political influence control dummy which I add to the model when investigating the potential political influence on RRE credit (*dgov*). The political influence control dummy is associated with state governors, president and vice-president parties, specifically if state governors belong to the same party of the president or the vice-president. Governors, president and vice-president parties obtained through TSE.

3.1 Data Limitations & Proposed Solutions

The decision to use state data instead of municipal data due to spillover effects imposes data challenges. The first challenge is the loss of observations. In order to minimize the loss of observations problem, I adopt monthly (instead of annual) data.

The second challenge relates to the fact that some monthly variables are only available at national level: GDP, Selic rate and residential collateral value[7]. With respect to the Selic rate, the absence of a local variable does not seem to consist in a problem, since federal bonds that pay Selic rate are available in every Brazilian state. Actually, It seems

[5] FGTS related loans demand a series of approval conditions which are not related to banks own credit standards analysis (since they are defined by FGTS Council which is constituted by government, workers and employers representatives) which include: i) a minimum working period of three years for the potential borrower (not necessarily consecutive); ii) no active RRE loan associated with the borrower; iii) no consecutive FGTS loan related to the same real estate unit during at least three years. Considering these specific aspects related to FGTS RRE loans approval standards and the fact that this real estate financing option is a monopoly of a state-owned bank, I decided to exclude this type of RRE financing, in order to avoid any risk of creating a bias in the obtained results. A possible extension of this work is to check if the same results also apply for FGTS loans.

[6] Índice de Valores de Garantia de Imóveis Residenciais Financiados, in Portuguese. BCB started publishing this index on 2013.

[7] I refer to this problem as "state x national" problem or "state x national" mismatch from now on.

that the proper treatment is to use federal Selic rate indeed. On the opposite situation, GDP and collateral value variables are submitted to important local/state influence. The technique chosen to mitigate this problem is a mixed effects approach which provides a traditional state varying intercept and allows for state varying slopes in selected variables. State varying estimates are obtained through a Maximum Likelihood method. In this specific study, the state varying slopes are applied to GDP and residential collateral value variables[8].

Another aspect related to the "state x national" problem refers to the fact that differently from banking correspondents, RRE loans volume and bank branches, GDP variable is not considered in per capita terms. The explanation resides on the fact that GDP is not a state based variable, while the other variables are state based. Adopting a GDP per capita through the combination of a national GDP and a state based population, would in fact create a "fake" state based GDP per capita variable, artificially adding a state variation that does not exist in data. Also, the possibility to use a national GDP per capita considering the national population would create a variable which could have two possible causes of "national x state" mismatch: national GDP and national population. That said, I use a national GDP variable (allowing it to "vary" among states through state varying mixed effects slopes) and a state based population variable separately.

Still related to endogeneity issues, variables might be simultaneous, leading to estimation problems. With the objective of avoiding simultaneity problem, I use 1-period lagged exogenous variables (Current variables results are reported at various tables at the Appendixes).

With regards to construction costs variable, by the time of database creation there was no available data for 7 states: Acre, Roraima, Amapá, Tocantis, Rio Grande do Norte, Piauí and Santa Catarina. Since the other 20 states formed (and still form) a representative and robust sample of RRE lending market, the absent states were removed from the sample.

Since there is only a state total real estate loan volume (including residential e and commercial), I also verify the monthly proportion of commercial loans in the total volume of real estate for new acquisitions (old or new units) in national terms and find that, during the observation period, commercial lending represents only 1,72% on average and 0.98% at median of total real estate loans for new acquisitions with a small dispersion. Due to the low values of the proportion of commercial real estate loans for new acquisitions, I consider the total volume of real estate loans for new acquisitions as a good proxy to the volume of RRE loans for new acquisitions[9].

[8] Variables GDP and residential collateral value are also referred as "randomized" variables from now on.

[9] Although outside the scope of this work, in the opposite side, commercial loans are the clear majority when considering credit for constructions or renovations

The last challenge relates to the banking correspondents' data. Due to the mentioned change in banking correspondents' regulation in 2011, banks had to change their internal classification of banking correspondents according to the new potential services correspondents could offer. Some banks adjusted their information system faster than others implying in different patterns of banking correspondents' information sent to supervisors/regulators at BCB. Probably because of this information heterogeneity, there is no public information about banking correspondents from June 2011 until June 2012. To mitigate this problem, I use two different specifications with different regulatory dummy variables ($dreg$): (1) a dummy variable which equals one when the regulatory change occurs ($dreg1 = 1$, when $t = 55$); (2) a dummy variable equal to one during the period without data and maintaining this unitary value until the next relevant regulatory change in banking correspondents with credit services - Dec. 2014 ($dreg3 = 1$, when $55 <= t <= 72$).

4 Methodology

This chapter is divided in three parts directly related to the questions which are analyzed in this work: i) Is there any evidence of potential effects of banking correspondents over RRE loans volume? ii) Is there any evidence of potential political influence on the volume of RRE loans? iii) Is there any evidence of potential heterogeneity of effects related to the volume of RRE loans?

It is important to note that despite this separation, there are connections between the methodology and results associated with the three questions. The use of quantile regression as a robustness check for the results of both questions about banking correspondents and political influences over RRE loans volume also helps to produce evidence related to the heterogeneity of effects. In a similar way, political influence methodology and results work also as a robustness check to banking correspondents impact on RRE credit initial results.

Finally, methodology and results associated with heterogeneity of effects related to the volume of residential loans in an interquantile framework works both as a robustness for initial heterogeneity results obtained through quantile regressions and as a robustness check to previous findings associated with the impact of banking correspondents and political influence.

4.1 Effects of Banking Correspondents on RRE Loans

I adopt a two steps estimation procedure. The first step refers to preliminary tests associated with endogeneity control, basically omitted variables tests. The second step refers to final estimation procedures. Considering the complete final estimation process, I run six different estimation techniques: OLS, fixed effects, random effects, mixed effects with independent "randomized" variables, mixed effects with unstructured "randomized" variables and quantile regression.

Even before estimation procedures, data characteristics evaluation indicates mixed effects as the potential more appropriate estimation technique[1]. In order to check if obtained results using mixed effects are robust, I run quantile regressions, analyze their results and compare both techniques' estimations.

After obtaining results without political influence control, I add a political influence dummy variable to the model and adopt the same estimation procedures related to the

[1] Despite the choice of using a mixed effects model, the results of all OLS and Panel Data techniques are reported at various tables.

framework without political control.

In addition to mixed effects, which relate to the mitigation of omitted variables as a source of potential endogeneity, I use simultaneity[2] control techniques, specifically 1-period lagged exogenous variables[3].

Finally, I run interquantile regressions with and without political influence control and evaluate estimates changes throughout different pair of quantiles and the robustness of other techniques' estimates.

The usual practice in literature is to adopt local fixed effects technique to avoid omitted variables problem. Random effects constitute a common alternative to fixed effects, with the same objective of controlling a potential omitted variables problem. Both techniques may be selected through a Hausman test. Although this procedure might seem a natural step, it might be inadequate considering available data characteristics, mostly because of "state x national" problem. Mixed effects technique may consist of a valid alternative method to mitigate the "state x national" mismatch. Because of that possible solution, I use a likelihood ratio preliminary tests, which allows for testing for the presence of random slopes and intercepts in a mixed effects approach (in other words, testing mixed effects vis a vis a linear approach). In case the test does not reject the presence of random slopes and intercepts, the mixed effects technique turns out to be preferred, constituting a potential strategy to mitigate the "state x national" mismatch, by indirectly adding state variation to GDP and residential collateral value variables through state varying slopes.

Mixed effects approach potentially allows a more adequate mitigation of the most important omitted variables problem present in data, specifically the "state x national" mismatch. It is thus expected to produce more robust and stable results, also better aligned with economic theory.

One potential drawback of the mixed effects technique resides on the fact that its results might be quite sensitive to how "randomized" variables relate to each other, since the existence of different correlation structures among them can significantly alter results. In order to avoid choosing a biased relation among "randomized" variables, I use two different correlation structures: independent "randomized" variables and unstructured "randomized" variables (this very last option imposes no correlation structure to "randomized" variables, allowing them to freely correlate).

The mixed effects (RABE-HESKETH; SKRONDAL, 2008; FITZMAURICE; LAIRD;

[2] Simultaneity constitutes another potential cause of endogeneity.
[3] Except for the temporal trend.

WARE, 2012) approach can be expressed as (variables in ln, when applicable):

$$\begin{aligned} laqpc_{idt} = \alpha + \beta corrpc_{id(t-1)} + \delta brpc_{id(t-1)} + \theta pcloan_{id(t-1)} + \eta dreg_{kid(t-1)} \\ + \zeta value_{id(t-1)} + \gamma selic_{id(t-1)} + \rho gdp_{id(t-1)} + \tau pop_{id(t-1)} \\ + \chi cost_{id(t-1)} + trend + \mathbf{w_{id}}' \upsilon_{id} + \varepsilon \end{aligned} \tag{4.1}$$

where

laqpc - volume of RRE loans per capita; *corrpc* - number of banking correspondents per capita; *brpc* - number of bank branches per capita; *pcred* - proportion of banking correspondents with loan services; $dreg_k$ - regulatory time dummy related to the regulatory change occurred in 2011, where k=1,3; *value* - residential collateral value; *gdp* - GDP; *selic* - Selic rate; *pop* - projected population; *cost* - civil construction costs; *trend* - temporal trend; *id* - state identifier; t - time identifier; υ_{id} - zero-mean random vector; and

$$\mathbf{w_{id}} = \begin{pmatrix} 1 \\ value_{id} \\ gdp_{id} \end{pmatrix}.$$

Estimates can be different when obtained at the mean or at different quantiles. With the objective of verifying if quantiles estimations significantly differ from the traditional "mean" regressions, I use a quantile regression framework with the following basic model (variables in ln, when applicable):

$$\begin{aligned} Q_q(laqpc_{qt}) = \alpha_q + \beta_q corrpc_{q(t-1)} + \delta_q brpc_{q(t-1)} + \theta_q pcloan_{q(t-1)} + \eta_q dreg_{kq(t-1)} \\ + \zeta_q value_{q(t-1)} + \gamma_q selic_{q(t-1)} + \rho_q gdp_{q(t-1)} + \tau_q pop_{q(t-1)} \\ + \chi_q cost_{q(t-1)} + trend_q + \varepsilon_q \end{aligned} \tag{4.2}$$

where

laqpc - volume of RRE loans per capita; *corrpc* - number of banking correspondents per capita; *brpc* - number of bank branches per capita; *pcred* - proportion of banking correspondents with loan services; $dreg_k$ - regulatory time dummy related to the regulatory change occurred in 2011, where k=1,3; *value* - residential collateral value; *gdp* - GDP; *selic* - Selic rate; *pop* - projected population; *cost* - civil construction costs; *trend* - temporal trend; t - time identifier; Q - use of quantile regression indicator; and q - quantile indicator.

The quantile regression framework (KOENKER; HALLOCK, 2001) works both as tool to provide information about how variables and estimates change in each quantile

and as a robustness check in relation to results obtained in the mixed effects approach. In fact, the adoption of a quantile regression framework allows for an evaluation of potential heterogeneity of effects related to the volume of RRE loans (also indirectly related to areas with different levels of RRE loans).

4.2 Political Influence on RRE Loans

After evaluating banking correspondents influence on residential loans, I add new political control variables to verify if there is evidence of political influence on residential loans.

Concerning the existence of political influence on the volume of RRE loans, I adopt an approach inspired in Carvalho (2014) with focus on governor's, president's and vice-president's political parties.

It is important to address that the period analyzed constitutes a stable political scenario in Brazil (at least at the Executive Power), since the country has been governed by the same party at the presidency and the vice-presidency has been occupied by only two parties: the presidency occupied by "Partido dos Trabalhadores" (PT - Workers Party) and the vice-presidency under control of "Partido Republicano Brasileiro (PRB-Brazilian Republican Party) until the end of 2010 and "Partido do Movimento Democrático Brasileiro" (PMDB - Brazilian Democratic Movement Party) from 2011 on. Despite this change on the vice-presidency, PMDB has been a political ally of PT and president Lula from (at least) the second half of the first mandate of president Lula on (2005/2006 on). It is also important to notice that, during the same period, federal parties' alliance at National Congress (Legislative Power) was not as stable as the one celebrated at the Executive Power, since it has changed from a quite stable environment during president Lula's mandates to a complete loss of political support occurred at the second Dilma Roussef's mandate [4]. Due to this political instability (which was more intense among political parties that did not occupy the presidency nor the vice-presidency), I only consider as potential allies the governors of the same party of the president (PT) or vice-presidents during the entire period (PRB[5] or PMDB). Despite the adoption of a restrictive political alignment criteria, it is important to mention that even the Executive Power alliance between PT and PMDB lost force during Dilma Roussef's government which may affect the results of political influence on RRE estimates.

Towards the implementation of a political influence control approach, I use two different political influence control dummies: $dgov1$ (which assumes the unitary value if the

[4] Although not included in data, the biggest evidence of the growing loss of political support resides on Dilma Roussef's impeachment which in May 2016.

[5] In relation to PRB, it is only a hypothetical situation, since the party had no governors during the observed period

governor belongs to the same party of the president) and $dogv2$ (which assumes the unitary value if the governor belongs to the same parties of the president or the vice-presidents of the entire period).

With regards to methodological aspects, the political influence analysis adopts the same procedures and models of the previous chapters: preliminary (omitted variables) tests, mixed effects, quantile and interquantile regressions[6].

In addition to the political control itself, the influence of banking correspondents over residential loans is also analyzed under the new political framework, since it constitutes a potentially relevant robustness check.

The mixed effects approach with political influence control can be expressed through the following formula (variables in ln, when applicable):

$$\begin{aligned} laqpc_{idt} = \alpha + \beta corrpc_{id(t-1)} + \delta brpc_{id(t-1)} + \theta pcloan_{id(t-1)} + \eta dreg_{kid(t-1)} \\ + \zeta value_{id(t-1)} + \gamma selic_{id(t-1)} + \rho gdp_{id(t-1)} + \tau pop_{id(t-1)} \\ + \chi cost_{id(t-1)} + \kappa dgov_{nid(t-1)} + trend + \mathbf{w_{id}}'\upsilon_{id} + \varepsilon \end{aligned} \tag{4.3}$$

where

$laqpc$ - volume of RRE loans per capita; $corrpc$ - number of banking correspondents per capita; $brpc$ - number of bank branches per capita; $pcred$ - proportion of banking correspondents with loan services; $dreg_k$ - regulatory time dummy related to the regulatory change occurred in 2011, where k=1,3; $value$ - residential collateral value; gdp - GDP; $selic$ - Selic rate; pop - projected population; $cost$ - civil construction costs; $trend$ - temporal trend; id - state identifier; t - time identifier; $dgov_n$ - dummy variable which equals 1 if the governor belongs to a certain set of political parties; $n = 1, 2$ - set of parties indicator, for $n = 1$, only president's party; for $n = 2$, president's or vice-president's parties; υ_{id} - zero-mean random vector; and

$$\mathbf{w_{id}} = \begin{pmatrix} 1 \\ value_{id} \\ gdp_{id} \end{pmatrix}.$$

Similarly, the quantile regression with political influence control can be expressed as (variables in ln, when applicable):

$$\begin{aligned} Q_q(laqpc_{qt}) = \alpha_q + \beta_q corrpc_{q(t-1)} + \delta_q brpc_{q(t-1)} + \theta_q pcloan_{q(t-1)} + \eta_q dreg_{kq(t-1)} \\ + \zeta_q value_{q(t-1)} + \gamma_q selic_{q(t-1)} + \rho_q gdp_{q(t-1)} + \tau_q pop_{q(t-1)} \\ + \chi_q cost_{q(t-1)} + \kappa_q dgov_{nq(t-1)} + trend_q + \varepsilon_q \end{aligned} \tag{4.4}$$

[6] Other techniques estimates - such as OLS, fixed and random effects - are also reported at various tables.

where

laqpc - volume of RRE loans per capita; *corrpc* - number of banking correspondents per capita; *brpc* - number of bank branches per capita; *pcred* - proportion of banking correspondents with loan services; $dreg_k$ - regulatory time dummy related to the regulatory change occurred in 2011, where k=1,3; *value* - residential collateral value; *gdp* - GDP; *selic* - Selic rate; *pop* - projected population; *cost* - civil construction costs; *trend* - temporal trend; t - time identifier; Q - use of quantile regression indicator; q - quantile indicator; $dgov_n$ - dummy variable which equals 1 if the governor belongs to a certain set of political parties; and $n = 1, 2$ - set of parties indicator, for $n = 1$, only president's party; for $n = 2$, president's or vice-president's parties.

4.3 Heterogeneity of Effects Related to RRE Loans Volume

All previously mentioned methodologies are focused at mean or quantiles estimates, without further attention to how estimates change throughout quantiles. To evaluate if estimates consistently differ throughout distinct quantiles and seek evidence associated with heterogeneity of effects related to RRE loans volume (CAJUEIRO; TABAK; OLIVEIRA, 2016), I estimate simultaneous interquantile regressions (GOULD et al., 1998) with 100 bootstrap extractions. Interquantile regression grants a more detailed and granular information about both political and banking correspondents' influences over RRE loans and may be expressed as (variables in ln, when applicable):

$$\begin{aligned} QQ_{qij}(laqpc_{qijt}) = \alpha_{qij} + \beta_{qij} corrpc_{qij(t-1)} + \delta_{qij} brpc_{qij(t-1)} + \theta_{qij} pcloan_{qij(t-1)} \\ +\eta_{q_ij} dreg_{kqij(t-1)} + \zeta_{qij} value_{qij(t-1)} + \gamma_{qij}) selic_{qij(t-1)} + \rho_{qij} gdp_{qij(t-1)} + \\ tau_{qij} pop_{qij(t-1)} + \chi_{qij} cost_{qij(t-1)} + trend_{qij} + \varepsilon_{qij} \end{aligned} \tag{4.5}$$

where

laqpc - volume of RRE loans per capita; *corrpc* - number of banking correspondents per capita; *brpc* - number of bank branches per capita; *pcred* - proportion of banking correspondents with loan services; $dreg_k$ - regulatory time dummy related to the regulatory change occurred in 2011, where k=1,3; *value* - residential collateral value; *gdp* - GDP; *selic* - Selic rate; *pop* - projected population; *cost* - civil construction costs; *trend* - temporal trend; t - time identifier; QQ - use of interquantile regression indicator; and qij - difference between quantile j and quantile i indicator.

With the objective of maintaining consistency among models with and without political control, the same interquantile technique is applied to political control models, although excluding specifications with $dgov2$, due to its overall lack of significance on both mixed effects and quantile regression approaches. Interquantile model with political dummy $dogv1$ does not vary significantly from the specification without political control and can be expressed as (variables in ln, when applicable):

$$\begin{aligned} QQ_{qij}(laqpc_{qijt}) = \alpha_{qij} + \beta_{qij} corrpc_{qijt-1} + \delta_{qij} brpc_{qijt-1} + \theta_{qij} pcloan_{qijt-1} \\ + \eta_{q_ij} dreg_{kqij} + \epsilon_{qij} value_{qijt-1} + \gamma_{qij}) selic_{qijt-1} + \rho_{qij} gdp_{qijt-1} \\ + tau_{qij} pop_{qijt-1} + \chi_{qij} cost_{qijt-1} + \kappa_{qij} dgov1_{qijt-1} + trend_{qij} + \varepsilon_{qij} \end{aligned} \tag{4.6}$$

where

$laqpc$ - volume of RRE loans per capita; $corrpc$ - number of banking correspondents per capita; $brpc$ - number of bank branches per capita; $pcred$ - proportion of banking correspondents with loan services; $dreg_k$ - regulatory time dummy related to the regulatory change occurred in 2011, where k=1,3; $value$ - residential collateral value; gdp - GDP; $selic$ - Selic rate; pop - projected population; $cost$ - civil construction costs; $trend$ - temporal trend; id - state identifier; t - time identifier; QQ - use of interquantile regression indicator; qij - difference between quantile j and quantile i indicator; $dgov_n$ - dummy variable which equals 1 if the governor belongs to a certain set of political parties; and $n = 1, 2$ - set of parties indicator, for $n = 1$, only president's party; for $n = 2$, president's or vice-president's parties.

As in quantile regression framework, interquantile regression works both as source of information about how variables and estimates vary when taking differences over each pair of quantiles and as a robustness check of previous results.

5 Results

In this chapter I discuss obtained results in both preliminary tests and final specifications with and without political influence control. With the interest of maintaining the text focused on main results, only estimations related to 1-period lagged exogenous variables with regulatory dummy *dreg*3 are fully described and analyzed in this chapter[1]. All remaining results may be found at the Appendixes.

Finally, I run interquantile regression models and analyze potential changes throughout different quantiles and if results are in line with those obtained in previous models.

5.1 Effects of Banking Correspondents on RRE Loans

The first step of the analysis relies on preliminary omitted variables tests, whose results indicate that regardless of the regulatory dummy adopted, mixed effects are preferable to traditional linear models whether adopting independent or unstructured "randomized" variables. Conclusions do not change when current variables are used instead of lagged variables. Results related to lagged exogenous variables are reported in tables A.1 and A.2 of Appendix A, while results associated with current variables may be found at Tables A.3 and A.4 at Appendix A.

Following preliminary tests results, I proceed to mixed effects estimations, which lead to stable results, irrespective of the regulatory time dummy used (at column (4) of Table 1 - with *dreg*3 - and Table C.1 at Appendix C - with *dreg*1). Total correspondents' coefficients are negative and statistically significant and, thus, indicate that total correspondents negatively affect RRE loans. Bank branches and proportion of correspondents with loan services positively affect RRE loans, so do GDP, residential collateral value and construction costs. Selic rate coefficients are significant and negative, so is its effect on the dependent variable. There are no significant impacts associated with population. There is also no evidence of significant but too small coefficients in any of the obtained results.

The adequateness of mixed effects is reinforced by significant GDP and residential collateral value state-varying slopes standard deviations associated the referred technique (at Tables E.1 and E.2 at Appendix E).

[1] Models with current exogenous variables with *dreg*3 are only briefly cited.

In order to check previous results robustness, I change "randomized" variables (GDP and collateral value) correlation structure from independent to unstructured, allowing such variables to correlate. Main results do not change in an expressive way with the use of unstructured "randomized" variables. The only exception relies on coefficients related to total correspondents which are not significant. Estimated coefficients can be found at column (5) of Tables 1 and C.1. ($dreg3$ and $dreg1$, respectively). In line with independent "randomized" variables estimates, there is strong evidence of "state-varying" slopes related to GDP, although evidences related to collateral value are not as strong. Despite the negative evidence towards state varying slopes with unstructured "randomized" variables associated with collateral value, all the remaining evidence point out to the adequateness of a mixed effects framework, such as the preliminary tests results and all other standard deviation and correlations related to "state-varying" mixed effects slopes (at Tables E.3 and E.4 at Appendix E) which are always significant at least for one "randomized" variable.

In relation to main independent variables (bank branches, banking correspondents and proportion of banking correspondents with loans services), other estimation techniques (OLS, fixed effects and random effects) produce results that are generally in line with mixed effects approach but not as robust as, since some non-significant estimates are obtained in relation to total correspondents' coefficients and there is one evidence of significant but very small coefficients associated with the proportion of banking correspondents with loans services. Results can be found at columns (1)-OLS, (2)-FE and (3)-RE of Tables 1 ($dreg3$) and C.1 ($dreg1$).

Results remain fairly stable regardless of the use of current (Table B.1 shows results associated with regulatory $dreg3$ and current exogenous variables) or lagged exogenous variables, regulatory time dummy and "randomized" variables correlation structure and can be summarized as follows: (i) proportion of banking correspondents with loans services affect the volume of RRE loans in a positive manner; (ii) bank branches also positively affect the volume of RRE loans; (iii) GDP, residential collateral value and construction costs also seem to cause a higher volume of RRE loans; (iv) there is evidence of negative effects of Selic rate on the volume of RRE loans; (v) population does not seem to affect RRE loans volume (in per capita terms); (vi) the effect of total correspondents is negative in general, but its coefficients significance is more volatile in comparison to those associated with correspondents with loans services and branches; (vii) there is evidence that the "state varying" slope introduced by the mixed effects technique plays an important role on the estimation process.

In short, there is reasonable evidence in the direction that banking correspondents with loans services and bank branches positively affect the (per capita) volume of RRE loans during the observed period. This result differs from Madeira and Nakane (2015) which finds only significant positive effects on general credit related to banking correspondents

Table 1

Do banking correspondents affect residential real estate loans? - Including regulatory dummy dreg3 and lagged exogenous variables

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Res. real estate loans	Res. real estate loans	Res. real estate loans	Res. real estate loans	Res. real estate loans
Total correspondents	-0.247	0.012	0.021	-0.124***	-0.081*
	(0.169)	(0.045)	(0.044)	(0.048)	(0.046)
Total branches	1.596***	0.649***	0.980***	0.656***	0.892***
	(0.239)	(0.131)	(0.099)	(0.192)	(0.132)
% correspondents w/ loans	0.893**	0.254***	0.287***	0.431***	0.412***
	(0.376)	(0.078)	(0.073)	(0.088)	(0.084)
dreg3	-0.147**	-0.097***	-0.114***	-0.107***	-0.121***
	(0.052)	(0.028)	(0.028)	(0.027)	(0.027)
Collateral value	3.541***	2.217***	2.366***	2.483***	2.760***
	(0.678)	(0.187)	(0.179)	(0.205)	(0.224)
Selic rate	-0.0849	-0.223***	-0.195***	-0.248***	-0.217***
	(0.094)	(0.062)	(0.063)	(0.059)	(0.059)
GDP	1.745***	2.505***	2.361***	2.499***	1.684***
	(0.575)	(0.340)	(0.340)	(0.335)	(0.508)
Population	-0.038	0.882	0.026	-0.387	-0.082
	(0.079)	(0.660)	(0.068)	(0.423)	(0.085)
Construction costs	0.108	0.622***	0.618***	1.388***	1.588***
	(0.329)	(0.185)	(0.176)	(0.233)	(0.230)
Trend	-0.025***	-0.016***	-0.017***	-0.020***	-0.023***
	-0.007	-0.002	-0.002	-0.002	-0.002
Constant	-12.77***	-34.09***	-17.62***	-21.86***	-22.66***
	(3.157)	(10.52)	(2.390)	(7.488)	(3.108)
Observations	1,560	1,560	1,560	1,560	1,560
R-squared	0.883	0.884			
Number of id		20	20		
Number of groups				20	20

This table presents various regressions of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

and no effect related to bank branches. The same authors also separate effects of banking correspondents related to private and state-owned banks and only find positive effects associated with private banking correspondents.

In relation to the signs of estimated coefficients, the positive effects of branches, GDP, collateral value might be intuitive. The same can be said about the negative effects of Selic rate. Potential explanations for the positive effects of correspondents with loan services have been explored in this work[2], such as: reduced financial intermediation cost, reduced fixed and personnel costs, creation of information about potential borrowers. The positive effect of costs may rely on an elasticity-price discussion, since higher construction costs probably lead to higher RRE prices and, thus, to a lower number of real estate units financed. Despite the negative effect on the number of financed RRE units, higher prices may more than compensate this effect, leading to a higher volume of RRE financing.

An explanation of total correspondents' negative coefficients may reside on the potential capture of great part of its possible material positive effects by the proportion of banking correspondents with loan services, whose coefficient measures the positive effects of correspondents with loan services over the volume of real estate loans. In this scenario, coefficients associated with the total correspondents probably mainly capture the effects of correspondents that do not offer loans over the volume of RRE loans. The following scenario provides a simple example in which a negative effect of total correspondents over RRE loans might be found. Consider a city with no bank branch and only two banking correspondents, one with loan services and the other one without such services. Each correspondent is connected to a different bank. The two correspondents have information about potential different borrowers, but only information produced by the correspondent which offers loans can be effectively used to select potential borrowers and contract loans (BHARATH et al., 2009) . All information produced by the other correspondent can be considered useless or destroyed in terms of granting access to loans. Therefore, I refer to this effect as "Information Destruction" effect. In summary, once the positive effects of banking correspondents with loan services are mainly captured by coefficients related to the variable directly associated to them (proportion of banking correspondents with loan services), coefficients associated with variable total correspondents potentially capture a material parcel of the "Information Destruction" effect, resulting in a negative impact on the volume of RRE loans.

With the objective of verifying the robustness of previously obtained results, I run quantile regressions, which produce information about how different variables are at specific quantiles (allowing for a first set of information about potential heterogeneity of effects according to RRE loans volumes) and constitute a set of robustness checks in relation to mixed effects results.

[2] Detailed explanation at the Introduction.

The first potential source of information about quantile data may be found at descriptive quantile statistics at Table 2. The volume of residential loans per capita follows an almost linear behavior from quantile 10 to quantile 50[3]. The relation changes significantly on the next quantiles. As an example, from Q50 to Q90, the volume of residential loans per capita raises more than three times. An interesting remark resides on total correspondents and branches relation. In each of the quantiles the proportion is approximately one branch per ten correspondents, while at Q90 this relation reaches 15 correspondents per branch.

In relation to obtained quantile regression estimates, coefficients related to the proportion of banking correspondents with loan services and bank branches are in line with previous results, which means positive and significant coefficients (at all quantiles). Quantile regression results associated with total correspondents' coefficients are also in line with mixed effects estimations (negative and significant), except at quantile Q10. (Results expressed at Table 3[4]). The positive and significant results at all quantiles related to banking correspondents with loans services and bank branches also vary from those expressed at Madeira and Nakane (2015), in which authors find evidence of banking correspondents influence on credit only at average-sized cities in their sample (and no significant impact on smaller and bigger cities), while the positive significant effects is restricted to smaller cities when considering bank branches' over credit (no significant coefficients related to average and bigger cities).

In relation to macro variables, residential collateral value coefficients are always positive and significant. GDP also presents positive and significant coefficients at the first four quantiles. Selic rate coefficients vary between non-significant to negative and significant (at Q50 and Q75) and cost's coefficients are significant (and positive) only at Q10. Population's coefficients show a unique pattern, significant and positive at Q10 and Q25, non-significant at the median and negative and significant at Q75 and Q90.

Quantile regression approach main results can be summarized as: (i) positive effects of branches and correspondents with loan services over the volume of RRE loans (per capita); (ii) negative impact of total correspondents, potentially due to the "Information Destruction" effect; (iii) positive impact of GDP (except at Q90) and residential collateral value; (iv) no evidence of significant effects of construction costs affect over the volume of RRE loans (Q10 is the only quantile associated with significant coefficients); (v) population seem to affect RRE loans positively at lower quantiles, although the impact seems negative

[3] Quantile XX% or quantile XX are thereafter referred as QXX in this work.

[4] In order to make this work more concise, references to results and Tables related to specification with regulatory dummy $dreg1$ - both current and lagged exogenous variables - and $dreg3$ with current exogenous variables are suppressed from the main body of the text from now on. All remaining information about results related to both lagged and current models with regulatory dummy $dreg1$ and $dreg3$ with current exogenous variables may be found at Appendix C, Appendix D and Appendix B, respectively.

Table 2

Quantile Descriptive Statistics

Quantile	Res. real estate loans	Total correspondents	Total branches	% correspondents w/ loans	Population (millions)	Construction cost (R$/m2)
10% (Q10)	2.66	0.0004	0.00004	0.59	2.32	699.24
25% (Q25)	5.28	0.0006	0.00006	0.69	3.21	773.97
50% (Q50)	11.09	0.0009	0.00009	0.79	6.52	900.76
75% (Q75)	21.08	0.0014	0.00012	0.86	11	1045.06
90% (Q90)	36.16	0.0021	0.00014	0.93	18.1	1166.47
mean	16.44	0.0011	0.00009	0.77	9.08	916.43

This table presents Quantile Descriptive Statistics of all state based variables. National based variables which are submitted to slope varying Mixed Effects are not included in the table.

Table 3

Do banking correspondents affect residential real estate loans? Quantile Regression - Including regulatory dummy dreg3 and lagged exogenous variables

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.064	-0.152***	-0.193***	-0.336***	-0.390***
	(0.067)	(0.050)	(0.044)	(0.076)	(0.108)
Total branches	1.429***	1.449***	1.475***	1.592***	1.673***
	(0.085)	(0.056)	(0.050)	(0.069)	(0.089)
% correspondents w/ loans	0.207**	0.479***	0.658***	0.959***	1.240***
	(0.101)	(0.106)	(0.113)	(0.108)	(0.144)
dreg3	0.085*	-0.059	-0.179***	-0.198***	-0.189***
	(0.047)	(0.039)	(0.040)	(0.051)	(0.071)
Collateral value	2.642***	3.112***	2.939***	3.001***	3.437***
	(0.339)	(0.291)	(0.259)	(0.253)	(0.388)
Selic rate	0.141	0.047	-0.233***	-0.372***	-0.087
	(0.121)	(0.096)	(0.089)	(0.105)	(0.152)
GDP	3.356***	2.390***	1.905***	1.800***	1.812
	(0.865)	(0.531)	(0.467)	(0.510)	(1.257)
Population	0.109***	0.079***	0.001	-0.045***	-0.099***
	(0.002)	(0.020)	(0.013)	(0.016)	(0.017)
Construction costs	0.368**	0.130	0.166	0.036	-0.004
	(0.171)	(0.158)	(0.109)	(0.130)	(0.156)
Trend	-0.022***	-0.022***	-0.018***	-0.017***	-0.022***
	(0.003)	(0.003)	(0.002)	(0.003)	(0.004)
Constant	-21.31***	-16.99***	-11.82***	-9.402***	-10.74**
	(3.590)	(2.638)	(2.031)	(2.321)	(5.325)
Observations	1,560	1,560	1,560	1,560	1,560

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

at higher quantiles (and not significant at the median)[5];vi) Selic coefficients are negative and significant only at Q50 and Q75.

In general terms, results obtained at "mean" mixed effects regressions are also present in various quantiles coefficients estimated through a quantile regression approach. Mixed effects results are, thus, confirmed with the use of quantile regression, mostly in relation to variables of interest such as proportion of correspondents with loan services bank branches and total correspondents (with independent "randomized" variables). There is also robust alignment between mixed effects and quantile regression estimations in relation to some of the macro variables, specifically GDP and residential collateral value. In relation to coefficients related to population, results might be in line between both estimation techniques, since its mixed effects coefficient is not significant (at the mean) and its quantile regression coefficients are positive and significant at Q10 and Q25, non-significant at Q50 and negative and significant at Q75 and Q90, which might be compatible with a non-significant estimator at mean (non-significant mixed effects estimator). Selic coefficients provides only partial alignment at Q50 an Q75 and costs coefficients differs in almost all quantile but Q10.

The presence of significant positive effects of banking correspondents with loans services over RRE credit volume at all quantiles is compatible with both findings of Degryse & Ongena (2005) and Burgess & Pande (2005). In relation to the first paper, the opening of banking correspondents with loan services may be partially similar to the opening of branches, which may consequently produce more information about potential borrowers due to distance reduction between them and bank facilities, improving credit conditions and increasing the volume of bank loans. With regards to the second paper, the banking inclusion produced by the opening of banking correspondents with loans services in areas not previously served by banking facilities may produce a similar effect of the opening of branches in India as analyzed by the authors, implicating also in the growth of credit volume.

Despite one partial (Selic rate variable) and one overall (construction costs variable) difference over coefficients produced by mixed effects and quantile regression, the remaining results are generally aligned in both techniques, which reinforces the robustness of the mixed effects' results. It is also important mentioning that there is no evidence of small but significant coefficients at both estimation techniques.

[5] This result may be connected to the fact that in Panel Data & OLS chapter, the mean estimator is not significant as well.

5.2 Political Influence on RRE Loans

The addition of political influence control dummies ($dogv1$ and $dgov2$) serves both as a robustness check and as an answer to a new question in the scope of this research: Is there political influence on the volume of RRE loans? Is there any evidence that politicians direct resources or housing programs to specific states which can stimulate residential loans?

In this sub-chapter, I analyze results associated with this question and its potential influence on the effects of correspondents with loan services over RRE loans. Following previously adopted methodology, analysis is focused on mixed effects and quantile regressions results. Other estimation techniques results are mentioned only exceptionally.

Following the methodology used in the framework without political control, the first evaluation is related to preliminary omitted variables tests, whose results closely follow those obtained when the use of the specification without political control. Irrespective of regulatory and political control dummies adopted, as well as the "randomized" variables correlation structure, estimates indicate that mixed effects are preferable to linear models. Results are reported at Tables A.5 until A.8 of Appendix A. There is no significant change when current exogenous variables are used instead of lagged variables as is shown at Tables A.9 until A.12 of Appendix A.

Estimations at Tables 4 and 5 show that there is no significant federal political influence on residential loans volume, with stable results that do not vary significantly with respect to different regulatory or political dummies. It is important to address that in many cases, fixed effects and random effects estimations show significant negative effects with respect to political influence on state residential loans. A negative political alignment impact on residential credit seems contrary to intuition, theory and academic literature (Carvalho (2014), as an example). The change produced by mixed effects technique (by turning negative significant impacts into non-significant impacts) reaffirms its potential adequacy to deal with data limitations (specifically "state x federal" mismatch problem) and the objective of this research.

Regardless of regulatory and political dummies and "randomized" variables correlation structure, main variables results greatly follow estimated coefficients without political control. In summary, with attention to branches and banking correspondents with loans services there are positive and significant effects on RRE loans. In relation to macro variables, GDP, residential collateral value and costs positively impact the volume of residential loans, while Selic rate impacts are negative, all of them with associated with statistically significant estimators. In relation to total correspondents' results point out negative impacts over residential loans, with one exception of non-significant coefficients when adopting unstructured "randomized" variables. Population is the only variable gener-

Table 4
Is there political influence over residential real estate loans? - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov1

VARIABLES	(1) Res. real estate loans	(2) Res. real estate loans	(3) Res. real estate loans	(4) Res. real estate loans	(5) Res. real estate loans
Total correspondents	-0.190	0.019	0.032	-0.106**	-0.064
	(0.148)	(0.045)	(0.045)	(0.048)	(0.047)
Total branches	1.541***	0.586***	0.968***	0.697***	0.917***
	(0.202)	(0.134)	(0.098)	(0.194)	(0.133)
% correspondents w/ loans	0.994**	0.256***	0.294***	0.450***	0.436***
	(0.368)	(0.079)	(0.073)	(0.089)	(0.086)
dreg3	-0.191***	-0.100***	-0.123***	-0.120***	-0.138***
	(0.057)	(0.028)	-0.028	-0.028	(0.027)
Collateral value	3.665***	2.204***	2.371***	2.529***	2.550***
	(0.651)	(0.187)	(0.180)	(0.204)	(0.231)
Selic rate	-0.079	-0.230***	-0.200***	-0.244***	-0.233***
	(0.089)	(0.061)	(0.061)	(0.058)	(0.057)
GDP	1.683**	2.575***	2.419***	2.552***	2.492***
	(0.600)	(0.340)	(0.340)	(0.337)	(0.522)
Population	-0.044	0.809	0.024	-0.409	-0.086
	(0.076)	(0.659)	(0.066)	(0.409)	(0.084)
Construction costs	0.164	0.668***	0.658***	1.366***	1.529***
	(0.306)	(0.185)	(0.176)	(0.233)	(0.229)
Trend	-0.028***	-0.016***	-0.018***	-0.021***	-0.023***
	(0.007)	(0.002)	(0.002)	(0.002)	(0.002)
dgov1	0.146	-0.068**	-0.044	-0.004	-0.007
	(0.097)	(0.028)	(0.027)	(0.032)	(0.032)
Constant	-13.50***	-34.04***	-18.17***	-21.05***	-24.57***
	(3.073)	(10.50)	(2.386)	(7.306)	(3.155)
Observations	1,560	1,560	1,560	1,560	1,560
R-squared	0.886	0.885			
Number of id		20	20		
Number of groups				20	20

This table presents various regressions of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 5
Is there political influence over residential real estate loans? - Including dreg3, lagged exogenous variables and political dummy dgov2

VARIABLES	(1) Res. real estate loans	(2) Res. real estate loans	(3) Res. real estate loans	(4) Res. real estate loans	(5) Res. real estate loans
Total correspondents	-0.253	-0.002	0.009	-0.115**	-0.071
	(0.182)	(0.046)	(0.045)	(0.049)	(0.047)
Total branches	1.607***	0.687***	1.003***	0.691***	0.880***
	(0.255)	(0.131)	(0.099)	(0.190)	(0.130)
% correspondents w/ loans	0.889**	0.290***	0.311***	0.456***	0.454***
	(0.365)	(0.079)	(0.073)	(0.089)	(0.085)
dreg3	-0.157***	-0.112***	-0.128***	-0.121***	-0.141***
	(0.053)	(0.023)	(0.028)	(0.027)	(0.027)
Collateral value	3.540***	2.312***	2.433***	2.549***	2.585***
	(0.670)	(0.187)	(0.179)	(0.204)	(0.230)
Selic rate	-0.099	-0.231***	-0.208***	-0.248***	-0.237***
	(0.088)	(0.061)	(0.061)	(0.058)	(0.057)
GDP	1.826***	2.494***	2.378***	2.539***	2.469***
	(0.545)	(0.339)	(0.338)	(0.336)	(0.525)
Population	-0.041	0.561	0.009	-0.387	-0.095
	(0.079)	(0.661)	(0.070)	(0.402)	(0.085)
Construction costs	0.098	0.678***	0.683***	1.371***	1.530***
	(0.344)	(0.185)	(0.176)	(0.232)	(0.228)
Trend	-0.025***	-0.016***	-0.018***	-0.021***	-0.023***
	(0.007)	(0.002)	(0.002)	(0.002)	(0.002)
dgov2	-0.025	-0.069***	-0.070***	-0.031	-0.035*
	(0.066)	(0.017)	(0.017)	(0.021)	(0.021)
Constant	-12.97***	-29.57***	-18.03***	-21.57***	-24.89***
	(3.204)	(10.51)	(2.397)	(7.192)	(3.136)
Observations	1,560	1,560	1,560	1,560	1,560
R-squared	0.883	0.885			
Number of id		20	20		
Number of groups				20	20

This table presents various regressions of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

ally associated with non-significant estimates. There is no evidence of significant but small coefficient throughout obtained results.

Regarding the adequacy of state varying slopes, all state "randomized" variables (GDP and collateral value) seem to be submitted to mixed effects, since their varying slopes standard deviations (at Tables F.2,F.4, F.6 and F.8 at Appendix F) are significant regardless of the political dummy included.

The main contribution related to the addition of political control may reside on an indirect robustness check in relation to mixed effects technique adequacy. When adopting other omitted variable mitigation techniques (fixed or random effects) the coefficients related to an alignment between federal and state government over the volume of residential loans are negative. The same coefficients become non-significant when the use of a mixed effects approach. Although a potential lack of effect between political alignment and residential loans could be theoretically explained by the existence of a very neutral federal government who could decide not to stimulate local residential loan markets through federal resources or housing programs, a potential negative effect of political alignment over residential loans does not seem plausible. The lack of significance of political alignment coefficients might be partially explained by the absence of changes in state and federal governments during the observation period. This can be partially explained by the high political stability scenario, at least at the Executive power. Considering the Executive power political stability and the fact that during the observation period there were two presidential and governors elections, it is possible that the amount of changes in federal-state governments alignments are not enough to have its potential effects to be captured by a Panel Data estimation technique.

Although results related to political influence lead to an inconclusive result, the same cannot be said about the other variables results which are quite in line with results presented in estimations without political influence control, specifically reinforcing the evidence of a positive influence of banking correspondents with loans services over RRE loans.

Following the same procedure adopted at the sub-chapter without political influence control, I use a quantile regression technique to both obtain first evidences regarding heterogeneity of effects related to the volume of RRE loans and to submit political influence mixed effects results to a robustness check.

Differently from the sub-chapter without political control, the use of quantile regression results in a radical change relatively to mixed effects estimated of political influence coefficients. While in mixed effects approach, there is no evidence of political influence, results associated with regressions at quantiles Q50, Q75 and Q90 (at Table 6) show positive and significant coefficients related to the political dummy $dgov1$. The scenario changes significantly when the political dummy $dgov1$ is substituted by $dgov2$

whose estimates at Table 7 evidence non-significant coefficients.

In relation to remaining variables of interest, results are quite stable and in line with mixed effects results. Coefficients associated with banking correspondents with loan services and bank branches are positive and significant at all quantiles, while total correspondents' coefficients are still negative and significant, except at Q10.

In relation to macro variables: (i) residential collateral value coefficients are positive and significant at all quantiles; (ii) GDP coefficients are also positive and significant but decreasing and non-significant at Q90 (with $dgov1$) and at both Q75 and Q90 (with $dgov2$); (iii) Selic rate variable coefficients are only significant at Q50 and Q75 (negative) when $dogv1$ is used, and non-significant when $dgov2$ is used;(iv) population coefficients are positive and significant at lower quantiles, negative and significant at higher quantiles and non-significant at the median; (v) cost coefficients are not significant at all quantiles (except for Q10 with $dgov2$, whose coefficients are positive and significant). Results are also in line with mixed effects results and do not indicate the existence of significant but small coefficients.

Differently from models without political control in which generally there are no significant differences between mixed effects and quantile regressions results, there is a relevant change within political control framework: quantile regressions' coefficients related to political influence control dummy $dogv1$ becomes significant and positive at various quantiles. This result indicates that the lack of change in federal-state government in available data might be a valid explanation to the non-significant mixed effects political influence dummies' coefficients. As quantile regression uses bootstrap extractions, the number of federal-state governments changes grows and a potential impact on the volume of residential loans may be captured in this framework and not in the mixed effects technique .

Results associated with the alignment between president and governors party indicate significant and positive political alignment impacts over residential loans, at least between the president and governors, but not between president/vice-president-governor parties, which is associated with non-significant coefficients. During PT presidency in Brazil (2003-2016), the alliance between president's party (PT) and vice-presidents parties started to lose commitment during the first mandate of Dilma Roussef (when PMDB was occupying the vice-presidency). With a weaker alliance , the president and its party may have decided to grant more federal resources to PT governors, whose loyalty was more stable. This potential decision may have affected eventual federal resources or official housing programs that could have been directed to vice-presidents parties' ruled states by the federal government to stimulate local residential loans. The finding of evidences of positive effects on RRE credit relative to an alignment between governors and president establishes a connection with results obtained by Carvalho (2014).

Table 6
Is there political influence over residential real estate loans? - Quantile Regression - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov1

VARIABLES	(1) Q10 Res. real estate loans	(2) Q25 Res. real estate loans	(3) Q50 Res. real estate loans	(4) Q75 Res. real estate loans	(5) Q90 Res. real estate loans
Total correspondents	-0.062	-0.139***	-0.177***	-0.290***	-0.337***
	(0.070)	(0.048)	(0.044)	(0.063)	(0.082)
Total branches	1.428***	1.439***	1.470***	1.568***	1.657***
	(0.090)	(0.053)	(0.055)	(0.057)	(0.074)
% correspondents w/ loans	0.197***	0.493***	0.773***	1.075***	1.475***
	(0.073)	(0.091)	-0.103	(0.057)	(0.134)
dreg3	0.085*	-0.070	-0.204***	-0.240***	-0.280***
	(0.047)	-0.049	-0.033	(0.041)	(0.044)
Collateral value	2.608***	3.156***	3.208***	3.277***	3.716***
	(0.305)	(0.346)	(0.257)	(0.224)	(0.383)
Selic rate	0.138	0.0455	-0.201***	-0.302***	-0.180
	(0.112)	(0.112)	(0.075)	(0.090)	(0.152)
GDP	3.444***	2.316***	1.766***	1.510***	1.430*
	(0.711)	(0.434)	(0.604)	(0.550)	(0.858)
Population	0.111***	0.076***	-0.0075	-0.054***	-0.110***
	(0.019)	(0.021)	(0.013)	(0.013)	(0.019)
Construction costs	0.362*	0.136	0.153	0.003	0.002
	(0.185)	(0.141)	(0.120)	(0.129)	(0.144)
Trend	-0.022***	-0.023***	-0.022***	-0.020***	-0.025***
	(0.003)	(0.004)	(0.002)	(0.002)	(0.004)
dgov1	-0.023	0.0190	0.134***	0.212***	0.269***
	(0.036)	(0.033)	(0.040)	(0.027)	(0.050)
Constant	-21.57***	-16.84***	-12.32***	-9.118***	-9.686***
	(2.680)	(2.840)	(2.507)	(2.275)	(2.478)
Observations	1,560	1,560	1,560	1,560	1,560

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 7
Is there political influence over residential real estate loans? - Quantile Regression - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov2

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.072	-0.170***	-0.247***	-0.420***	-0.514***
	(0.072)	(0.049)	(0.048)	(0.066)	(0.105)
Total branches	1.446***	1.469***	1.533***	1.674***	1.789***
	(0.096)	(0.055)	(0.054)	(0.068)	(0.084)
% correspondents w/ loans	0.256***	0.435***	0.532***	0.880***	1.036***
	(0.087)	(0.097)	(0.087)	(0.096)	(0.120)
dreg3	0.128	0.068	0.002	-0.034	-0.013
	(0.133)	(0.089)	(0.059)	(0.106)	(0.172)
Collateral value	2.551***	3.069***	2.824***	3.133***	3.426***
	(0.335)	(0.277)	(0.243)	(0.304)	(0.481)
Selic rate	0.019	0.096	0.014	-0.102	0.048
	(0.092)	(0.100)	(0.075)	(0.082)	(0.156)
GDP	3.694***	2.299***	2.037***	1.021*	0.334
	(0.832)	(0.478)	(0.553)	(0.572)	(1.171)
Population	0.099***	0.084***	0.003	-0.047***	-0.106***
	(0.020)	(0.017)	(0.015)	(0.015)	(0.019)
Construction costs	0.401**	0.096	0.115	-0.045	-0.060
	(0.175)	(0.144)	(0.119)	(0.106)	(0.143)
Trend	-0.022***	-0.021***	-0.017***	-0.016***	-0.017***
	(0.003)	(0.003)	(0.0028)	(0.003)	(0.005)
dgov2	-0.046*	0.008	0.023	0.005	-0.018
	(0.028)	(0.021)	(0.022)	(0.022)	(0.034)
Constant	-22.15***	-16.27***	-12.08***	-6.218***	-3.036
	(3.030)	(2.425)	(2.552)	(2.396)	(4.219)
Observations	1,560	1,560	1,560	1,560	1,560

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

In summary, the following overall effects are obtained: (i) positive effects of branches and correspondents with loan services over the volume of RRE loans; (ii) negative impact of total correspondents; (iii) positive impact of GDP (except for Q90 - $dgov1$ and Q75 and Q90 - $dgov2$) and residential collateral value; (iv) non-significant construction costs effects (except for significant positive coefficients ate Q10); (v) population at lower quantiles seem to affect real estate loans positively, at higher quantiles the impact seems negative, and not significant at the median[6]; vi) Selic coefficients are negative and significant only at Q50 and Q75 for $dogv1$ and non-significant for $dgov2$.

In relation to mains variables of interest, results reinforce the evidence of positive and significant effects of banking correspondents with loan services over residential loans. With regards to remaining variables, results are close to those described on the sub-chapter without political influence control, which indicate the robustness of the findings.

5.3 Heterogeneity of Effects Related to RRE Loans Volume

After finding evidence of positive effects of banking correspondents with loan services and bank branches over the volume of RRE loans both using mixed effects and quantile regression, I evaluate the potential presence of heterogeneity of effects related to the volume of RRE loans using an interquantile regression approach which checks if coefficients in distinct quantiles are significantly different. This estimation technique applied together with quantile regression allow to verify if effects are heterogeneous in relation to loans volume. Interquantile regression also serves as a last robustness check of previous findings.

Since evidences of political influence on residential loans are unclear due to the material difference in results related to mixed effects and quantile regression, I also apply interquantile regression technique to political influence framework. By adding this new procedure, it is possible to gather more evidence about potential political influence, most specifically with political control dummy $dogv1$, since quantile regressions' estimates show no effects in relation to $dgov2$.

Interquantile regression results tables are organized the following way: first table containing the estimations related to the differences from Q10 to all other quantiles; second table referring to coefficients related to differences from Q25 and higher quantiles (Q50,Q75,Q90); and a third table containing estimates associated with differences from Q50 and higher quantiles and differences between Q75 and Q90.

[6] This result may be connected to the fact that in Panel Data & OLS chapter, the mean estimator is not significant as well.

In a general manner, the effect of the proportion of banking correspondents with loan services significantly increases as quantiles grow, with the only exception at interquantile Q25-Q50. Changes in quantiles' coefficients related to total correspondents show a consistent increase in absolute values whenever Q75 and Q90 are used as higher quantiles (except for Q50-Q90 and Q75-Q90 interquantile regressions, whose coefficients are non-significant). Bank branches interquantile coefficients follow similar pattern to total correspondents but with positive signs: an increase in its positive effects whenever Q75 and Q90 are used as higher quantiles (except for Q10-Q75 and Q75-Q90 whose interquantile coefficients are non-significant). Results are expressed at Tables 8, 9 and 10.

With respect to macro variables, some patterns may also be pointed out. The most evident is the absence of significant difference among quantiles in relation to collateral value and GDP interquantile coefficients. The lack of difference in collateral value's coefficients may reside on the fact that its quantile regression coefficients are the most stable among all variables coefficients (always positive and significant) which may be related with the absence of significant interquantile differences. GDP interquantile results are slightly disconnected to quantile regression results, since despite the absence of significant interquantile effects, GDP quantile regression coefficients are decreasing at all quantiles and non-significant at Q90.

Another quite widespread macro variable effect is the decrease in population coefficients at higher quantiles. It should be noted that population quantile coefficients assume positive values at lower quantiles and gradually change signs, turning negative at higher quantiles (and non-significant at Q50). The constant negative interquantile effect seems to be in line with quantile regression "change signs" effect.

Interquantile changes related to construction costs coefficients are non-significant, but it should be noted that this result may be connected to the fact that quantile regression produces significant negative effect related to construction costs only at Q10.

In relation to Selic rate interquantile coefficients, there is some evidence of an amplifying negative effect whenever Q50 and Q75 are used as higher quantiles. In addition to this effect, there is a positive and significant interquantile coefficient at Q75-Q90. Results are in line with quantile regression coefficients (negative and significant only at Q50 and Q75).

In relation to political influence, interquantile regression estimates mainly confirm quantile regression results, which indicate significant positive effects of political government alignment over the volume of residential loans. Interquantile $dgov1$ coefficients are positive and significant at all interquantile regressions (except for Q10-Q25 and Q75-Q90).

In addition to the political influence evidence, interquantile regressions also produce relevant overall positive coefficients related to the proportion of correspondents with loan

Table 8

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3 and lagged exogenous variables - (1)

	(1)	(2)	(3)	(4)
	Q10-Q25	Q10-Q50	Q10-Q75	Q10-Q90
	Res. real estate	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans	loans
Total correspondents	-0.088	-0.130*	-0.273***	-0.326***
	(0.058)	(0.077)	(0.076)	(0.125)
Total branches	0.020	0.046	0.164*	0.244**
	(0.069)	(0.086)	(0.084)	(0.110)
% correspondents w/ loans	0.272***	0.452***	0.752***	1.034***
	(0.100)	(0.127)	(0.131)	(0.177)
dreg3	-0.145***	-0.264***	-0.283***	-0.274***
	(0.045)	(0.050)	(0.058)	(0.074)
Collateral value	0.469	0.297	0.358	0.795
	(0.288)	(0.438)	(0.399)	(0.592)
Selic rate	-0.094	-0.374***	-0.513***	-0.228
	(0.104)	(0.134)	(0.132)	(0.199)
GDP	-0.966	-1.451	-1.556*	-1.545
	(0.666)	(0.888)	(0.884)	(1.365)
Population	-0.030*	-0.108***	-0.154***	-0.208***
	(0.017)	(0.019)	(0.023)	(0.024)
Construction costs	-0.238	-0.202	-0.332	-0.371*
	(0.174)	(0.179)	(0.217)	(0.223)
Trend	-0.001	0.004	0.005	0.001
	(0.003)	(0.004)	(0.004)	(0.006)
Constant	4.327	9.494***	11.91***	10.58*
	(2.945)	(3.324)	(3.751)	(5.679)
Observations	1,560	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 9

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3 and lagged exogenous variables - (2)

	(1)	(2)	(3)
	Q25-Q50	Q25-Q75	Q25-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.041	-0.184**	-0.238**
	(0.047)	(0.077)	(0.121)
Total branches	0.025	0.143**	0.224**
	(0.050)	(0.071)	(0.104)
% correspondents w/ loans	0.180*	0.481***	0.762***
	(0.102)	(0.117)	(0.159)
dreg3	-0.119***	-0.139**	-0.129
	(0.041)	(0.055)	(0.083)
Collateral value	-0.172	-0.111	0.326
	(0.267)	(0.305)	(0.441)
Selic rate	-0.280***	-0.419***	-0.134
	(0.092)	(0.128)	(0.173)
GDP	-0.485	-0.590	-0.579
	(0.562)	(0.622)	(1.130)
Population	-0.078***	-0.124***	-0.178***
	(0.015)	(0.020)	(0.022)
Construction costs	0.036	-0.094	-0.133
	(0.144)	(0.168)	(0.222)
Trend	0.004	0.005	0.001
	(0.003)	(0.004)	(0.005)
Constant	5.167**	7.586***	6.252
	(2.403)	(2.825)	(5.312)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 10

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3 and lagged exogenous variables - (3)

VARIABLES	(1) Q50-Q75 Res. real estate loans	(2) Q50-Q90 Res. real estate loans	(3) Q75-Q90 Res. real estate loans
Total correspondents	-0.143***	-0.196*	-0.054
	(0.054)	(0.101)	(0.090)
Total branches	0.118**	0.198**	0.080
	(0.054)	(0.089)	(0.073)
% correspondents w/ loans	0.301***	0.582***	0.281**
	(0.095)	(0.140)	(0.121)
dreg3	-0.019	-0.010	0.010
	(0.045)	(0.064)	(0.069)
Collateral value	0.061	0.498	0.437
	(0.279)	(0.419)	(0.403)
Selic rate	-0.139	0.146	0.285**
	(0.095)	(0.146)	(0.139)
GDP	-0.105	-0.094	0.012
	(0.573)	(1.146)	(1.073)
Population	-0.046***	-0.099***	-0.054***
	(0.012)	(0.020)	(0.015)
Construction costs	-0.130	-0.169	-0.040
	(0.118)	(0.182)	(0.188)
Trend	0.002	-0.003	-0.005
	(0.003)	(0.005)	(0.004)
Constant	2.419	1.085	-1.333
	(2.020)	(4.797)	(4.504)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

services, with significant positive estimates at all interquantile regressions.

With respect to branches and total correspondents, results are close to those obtained without political control. Bank branches and total correspondents interquantile coefficients are generally significant when Q75 and Q90 are used as higher quantiles (except for Q75-Q90 for both variables and Q10-Q75 for branches), the difference resides on the sign: positive coefficients for bank branches and negative for total correspondents.

Results related to macro variables are also in line with those described at interquantile regression without political influence control chapter. In summary there is no overall interquantile significant effect related to collateral value (except for Q10-Q90, whose coefficient is positive), GDP(except for Q10-Q50 and Q10-Q75, which are negative) and construction costs, while there are significant and negative interquantile coefficients associated with population. The two exceptions of negative significant GDP coefficients are slightly in line with its decreasing quantile coefficients.

Mentioned results are presented at tables 11, 12 and 13 where it is also possible to check the non-existence of small but significant coefficients.

With the objective of evaluating a potential heterogeneity of effects associated with the volume o RRE loans, I analyze interquantile results combined with quantile regression results, since some lack of information related to interquantile estimations may be explained by quantile coefficients.

Interquantile and quantile results show that there are positive effects related to the proportion of banking correspondents with loan services over RRE loans. This positive effect is widespread and increasing throughout quantiles and interquantile differences, which indicate that the positive influence of banking correspondents with loan services might be present in regions with high or low residential loans volume and the presence of heterogeneity of effects related to the volume of RRE loans. In regions with a low volume of residential loans, banking correspondents in the form of lottery houses may offer low income residential loans connected to official low cost housing programs, while in regions with high RRE loans volume, banking correspondents influence on loans may be also related to developers and construction companies which are connected to banks and offer loans on their behalf (not necessarily exclusively linked to low-cost units). A similar situation occurs with bank branches, since their positive effect is relevant throughout almost all quantiles, although not consistently increasing. In relation to total correspondents' negative impacts over residential loans (possibly connected to "Information Destruction" effect), it is also present in almost all quantiles, and there is mixed evidence if this effect is stable or increasing over quantiles. In case of an increasing total correspondents negative effect, this would indicate that the "Information Destruction" effect is more intense in areas with higher volume of residential loans. This possibly happens because there is a reasonably high amount of bank branches and correspondents with loan services in such areas and

Table 11

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov1 - (1)

	(1)	(2)	(3)	(4)
	Q10-Q25	Q10-Q50	Q10-Q75	Q10-Q90
	Res. real estate	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans	loans
Total correspondents	-0.076	-0.114	-0.227***	-0.274***
	(0.060)	(0.079)	(0.087)	(0.106)
Total branches	0.012	0.042	0.140	0.229**
	(0.066)	(0.098)	(0.096)	(0.106)
% correspondents w/ loans	0.296***	0.576***	0.878***	1.278***
	(0.101)	(0.129)	(0.113)	(0.160)
dreg3	-0.156***	-0.290***	-0.326***	-0.366***
	(0.046)	(0.059)	(0.064)	(0.066)
Collateral value	0.547	0.600*	0.669	1.108**
	(0.341)	(0.345)	(0.420)	(0.529)
Selic rate	-0.093	-0.339***	-0.440***	-0.318**
	(0.098)	(0.100)	(0.137)	(0.157)
GDP	-1.128	-1.678**	-1.934**	-2.014
	(0.696)	(0.798)	(0.956)	(1.237)
Population	-0.035**	-0.119***	-0.165***	-0.221***
	(0.017)	(0.017)	(0.018)	(0.023)
Construction costs	-0.227	-0.210	-0.360*	-0.360
	(0.157)	(0.167)	(0.206)	(0.227)
Trend	-0.001	0.001	0.002	-0.003
	(0.003)	(0.004)	(0.004)	(0.005)
dgov1	0.0417	0.157***	0.235***	0.292***
	(0.039)	(0.041)	(0.044)	(0.058)
Constant	4.738*	9.251***	12.46***	11.89***
	(2.800)	(3.378)	(3.515)	(4.400)
Observations	1,560	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 12
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov1 - (2)

VARIABLES	(1) Q25-Q50 Res. real estate loans	(2) Q25-Q75 Res. real estate loans	(3) Q25-Q90 Res. real estate loans
Total correspondents	-0.038	-0.151**	-0.198**
	(0.043)	(0.065)	(0.093)
Total branches	0.0300	0.128**	0.217***
	(0.049)	(0.059)	(0.082)
% correspondents w/ loans	0.280**	0.582***	0.981***
	(0.109)	(0.110)	(0.165)
dreg3	-0.134***	-0.170***	-0.210***
	(0.034)	(0.049)	(0.060)
Collateral value	0.052	0.121	0.561
	(0.306)	(0.349)	(0.509)
Selic rate	-0.247***	-0.348***	-0.225
	(0.088)	(0.119)	(0.176)
GDP	-0.550	-0.806	-0.886
	(0.547)	(0.698)	(1.052)
Population	-0.084***	-0.130***	-0.186***
	(0.015)	(0.018)	(0.022)
Construction costs	0.017	-0.133	-0.133
	(0.138)	(0.161)	(0.204)
Trend	0.001	0.003	-0.002
	(0.003)	(0.004)	(0.005)
dgov1	0.115***	0.194***	0.250***
	(0.038)	(0.039)	(0.058)
Constant	4.513*	7.718***	7.150*
	(2.386)	(2.850)	(4.179)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 13
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov1 - (3)

VARIABLES	(1) Q50-Q75 Res. real estate loans	(2) Q50-Q90 Res. real estate loans	(3) Q75-Q90 Res. real estate loans
Total correspondents	-0.113**	-0.160**	-0.047
	(0.047)	(0.078)	(0.068)
Total branches	0.098**	0.187**	0.089
	(0.048)	(0.078)	(0.064)
% correspondents w/ loans	0.302***	0.702***	0.400***
	(0.072)	(0.150)	(0.101)
dreg3	-0.036	-0.076	-0.040
	(0.041)	(0.053)	(0.046)
Collateral value	0.069	0.508	0.439
	(0.228)	(0.429)	(0.370)
Selic rate	-0.101	0.022	0.123
	(0.085)	(0.141)	(0.132)
GDP	-0.256	-0.336	-0.080
	(0.508)	(0.963)	(0.826)
Population	-0.046***	-0.102***	-0.056***
	(0.011)	(0.017)	(0.013)
Construction costs	-0.150	-0.151	-0.001
	(0.095)	(0.152)	(0.119)
Trend	0.002	-0.003	-0.005
	(0.002)	(0.004)	(0.004)
dgov1	0.079***	0.135***	0.057
	(0.029)	(0.043)	(0.035)
Constant	3.206	2.637	-0.569
	(1.981)	(3.446)	(2.923)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

the existence of a banking correspondent which does not offer loans means that some information about its clients that could be used by other facilities with loan services might not be available. With less information about potential clients available, it is probable to see residential loans shrink.

In relation to political influence there is an increasing positive effect over quantiles, which are significant at Q50, Q75 and Q90. This result suggests that politicians prefer to use their influence in areas with higher volume of residential loans. This preference might be explained by the fact that by acting in such areas, politicians grant more visibility to their actions, and, thus, potentially conquer more votes.

A variable that is also noticeable is residential collateral value whose coefficients are non-significant in a interquantile regression approach, but positive and significant at all quantiles in a quantile regression framework. This effect points out that the value of the collateral is relevant to all regions, regardless of the volume of residential loans, which might be explained by a couple of factors: (i) higher collateral values may imply in higher prices and higher prices might lead to higher volumes of RRE loans; (ii) higher collateral value allows higher residential loans (example: in case a borrower gets a loan amount larger than the collateral value to buy and refurbish the property).

With respect to other variables, It might pointed out that: (i) GDP impact is less relevant in areas with higher volume of residential loans possibly because the access to financial services and credit is easier in such areas allowing the smoothing of economic conditions; (ii) the positive impact of construction costs concentrated at Q10 might be explained by the fact that those costs might be less relevant in areas with higher volume of residential loans, due to potentially increasing costs associated with the purchase of the terrain or personnel costs; (iii) the decreasing effects of population might be connected to the fact that at places with higher volume of residential loans a part of the houses/apartments acquired are directed to renting, and a significant part of the population lives in rented houses; (iv) the concentrated effects of Selic rate at quantiles Q50 and Q75 might be explained by the fact that residential loans in areas with low volumes of residential credit are influenced by official housing programs which do not use Selic rate as its interest rate, while in very high volume of residential loans (Q90) there might be material banking competition and costumers are able to contract loans at long term rates which are lower than Selic rate.

Finally, results confirm previous findings and also produce evidence in the direction of heterogeneous effects related to the volume of RRE loans.

6 Conclusion

In this work, I analyze the impact of banking correspondents with loans services and a potential political influence on the volume of RRE loans by exploring a new state monthly data from 2008 to 2015 in Brazil. In relation to data, I have composed state real estate credit volume as the dependent variable and some previously unexplored (at least, in Brazilian literature) exogenous variables such as: the proportion of banking correspondents with loan services and residential collateral value. To achieve the results, I use of a variety of estimation techniques and robustness checks, including: mixed effects, quantile and interquantile regressions.

Firstly, in a panel data framework, I find evidence of positive effects related to the proportion of banking correspondents with loan services over RRE loans and also of positive effects of bank branches and negative effects of total banking correspondents. To check the robustness of the mixed effects findings, I run quantile regressions and find that quantile regressions' results confirm the conclusion obtained through the mixed effects framework.

In addition to the impact of banking correspondents with loan services over residential loans volume, I search for potential impacts of political influence on residential loans in Brazil. With the objective of establishing a political influence parameter, I define a political alignment between state governors and the president or the vice-president when they belong to the same parties. Although there is no evidence of political influence on residential loans in mixed effects approach, results change when quantile regression is adopted. While quantile regression estimates point out a positive influence of political alignment between the president and the governor over residential loans (at quantiles Q50, Q75 and Q90), there is no evidence of effects related to alignment between governors and the president or the vice-presidents.

Despite the difference between political influence results, mixed effects and quantile regression coefficients associated with the remaining variables are generally in line, so are estimates in frameworks with or without political influence control, which reinforces the robustness of the findings (mostly the positive impact of the proportion of banking correspondents with loan services over residential loans).

Finally, by adding an interquantile regression framework, I explore the estimates changes among diverse quantiles to potentially detect heterogeneity of effects related to RRE loans volumes. The interquantile regression technique also constitutes a robustness check to previous results. I find that interquantile regression estimates mainly confirm quantile regression results (and partially confirm mixed effects results). With respect to

main variables of interests, it is worth mentioning two important results: (i) a potential preference of politicians to direct resources to areas with higher volumes of RRE loans; and (ii) the potential influence of banking correspondents with loan services on RRE loans volume whether in areas with high or low volumes of RRE credit.

In relation to political influence, results illustrate that politicians prefer to use their influence where there is higher volume of residential loans. This preference may be connected to the fact that by doing so politicians are able to show their influence to more people and publicize their actions more efficiently, granting more potential votes.

With regards to the influence of banking correspondents with loan services over residential loans, interquantile regression results show that banking correspondents' influence is present regardless of the volume of residential loans. In areas with lower levels of residential loans, the influence of banking correspondents might be associated with lottery houses which mainly offer low cost residential loans through official housing programs, while in areas with higher volume of residential loans, banking correspondents effects might also be related to construction companies and developers that act as banking correspondents (in addition to low costs residential financing through lottery houses, since there are official housing programs even in areas with high volume of RRE loans).

As previously mentioned, research on the field of banking correspondents is scarce, even scarcer when associating banking correspondents, real estate loans and political influence. Due to this research scarcity, there is large potential for extensions to this work.

One of the possible extensions resides on the Principal Agent problem and possible deterioration of loans concessions standards and quality when contracted through banking correspondents. In this case, it is possible to obtain evidence if loans standards and the quality adopted by banking correspondents are not binding to those required by its associated banks. This could be done through regressing dependent variables related to loans performance (such as: delinquency rate, amount of provisions, number of days loans are past due) and many of the independent and control variables used in this work.

Another possible extension relies on using a political influence control methodology not only inspired, but similar to Carvalho (2014). In this case, political influence control would be associated with potential higher volumes of RRE loans in states politically aligned with the federal government during election periods.

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A Omitted Variables Preliminary Tests

Table A.1

Omitted variables test - Mixed Effects - Including regulatory dummy dreg1 and lagged exogenous variables

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	985.78	0	Mixed
Mixed Effects (unstructured)	LR	1073.94	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.2

Omitted variables test - Mixed Effects - Including regulatory dummy dreg3 and lagged exogenous variables

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	983.19	0	Mixed
Mixed Effects (unstructured)	LR	1077.4	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.3

Omitted variables test - Mixed Effects - Including regulatory dummy dreg1 and current exogenous variables

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	1010.71	0	Mixed
Mixed Effects (unstructured)	LR	1104.28	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the χ2 distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.4

Omitted variables test - Mixed Effects - Including regulatory dummy dreg3 and current exogenous variables

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	1004.65	0	Mixed
Mixed Effects (unstructured)	LR	1102.06	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the χ2 distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.5

Omitted variables test - Mixed Effects - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov1

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	957.17	0	Mixed
Mixed Effects (unstructured)	LR	1045.27	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables e unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.6

omitted variables test - Mixed Effects - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov1

omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	945.90	0	Mixed
Mixed Effects (unstructured)	LR	1040.13	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.7

Omitted variables test - Mixed Effects - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov2

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	984.80	0	Mixed
Mixed Effects (unstructured)	LR	1072.82	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.8

Omitted variables test - Mixed Effects - Including regulatory dummy dreg3, lagged exogenous variables and political dummy dgov2

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	983.6	0	Mixed
Mixed Effects (unstructured)	LR	1078.24	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.9

Omitted variables test - Mixed Effects - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov1

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	983.03	0	Mixed
Mixed Effects (unstructured)	LR	1076.71	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.10

Omitted variables test - Mixed Effects - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov1

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	970.44	0	Mixed
Mixed Effects (unstructured)	LR	1068.01	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.11

Omitted variables test - Mixed Effects - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov2

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	1009.57	0	Mixed
Mixed Effects (unstructured)	LR	1103.10	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear model or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

Table A.12

Omitted variables test - Mixed Effects - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov2

Omitted variable test	Test type	LR test Statistic	Probability	Conclusion
Mixed Effects (independent)	LR	1004.57	0	Mixed
Mixed Effects (unstructured)	LR	1102.26	0	Mixed

This table presents Likelihood Ratio (LR) test results which compares the ordinary linear regression model with mixed effects model. LR test statistic tail probabilities are bounded above by those of the $\chi 2$ distribution with degrees of freedom equal to the full number of restricted parameters. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains the following information: Type of omitted variable which is being tested (column 1), type of test (column 2), test statistic (column 3), probability of exceeding test statistics (column 4) and test conclusion if ordinary linear models or mixed effects models are preferred (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Results include different correlation structure between "randomized" mixed effects variables: independent variables and unstructured variables. This very last option allows for correlation between "randomized" mixed effects variables.

B Current Exogenous Variables with Regulatory Dummy $dreg3$

Table B.1

Do banking correspondents affect residential real estate loans? - Including regulatory dummy dreg3 and current exogenous variables

	(1)	(2)	(3)	(4)	(5)
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.252	0.00833	0.0180	-0.119**	-0.0820*
	(0.171)	(0.0450)	(0.0442)	(0.0477)	(0.0472)
Total branches	1.610***	0.703***	1.014***	0.808***	1.043***
	(0.240)	(0.129)	(0.0975)	(0.186)	(0.128)
% correspondents w/ loans	0.863**	0.166**	0.212***	0.277***	0.259***
	(0.380)	(0.0778)	(0.0720)	(0.0874)	(0.0849)
dreg3	-0.137**	-0.0762***	-0.0951***	-0.0784***	-0.0958***
	(0.0550)	(0.0280)	(0.0278)	(0.0272)	(0.0269)
Collateral value	3.452***	2.069***	2.237***	2.259***	2.281***
	(0.670)	(0.182)	(0.175)	(0.199)	(0.226)
Selic rate	-0.0341	-0.166***	-0.137**	-0.193***	-0.181***
	(0.0861)	(0.0596)	(0.0596)	(0.0569)	(0.0560)
GDP	1.890***	2.759***	2.598***	2.801***	2.737***
	(0.581)	(0.335)	(0.335)	(0.333)	(0.527)
Population	-0.0351	1.109*	0.0381	-0.304	-0.0619
	(0.0787)	(0.648)	(0.0680)	(0.395)	(0.0800)
Construction costs	0.0677	0.442**	0.440**	1.094***	1.285***
	(0.326)	(0.183)	(0.174)	(0.229)	(0.226)
Trend	-0.0232***	-0.0126***	-0.0143***	-0.0157***	-0.0183***
	(0.00684)	(0.00213)	(0.00203)	(0.00220)	(0.00213)
Constant	-12.94***	-36.67***	-17.06***	-20.00***	-22.34***
	(3.242)	(10.32)	(2.333)	(7.064)	(3.091)
Observations	1,600	1,600	1,600	1,600	1,600
R-squared	0.885	0.889			
Number of groups				20	20
Number of id		20	20		

This table presents various regressions of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table B.2
Do banking correspondents affect residential real estate loans? Quantile Regression - Including regulatory dummy dreg3 and current exogenous variables

VARIABLES	(1) Q10 Res. real estate loans	(2) Q25 Res. real estate loans	(3) Q50 Res. real estate loans	(4) Q75 Res. real estate loans	(5) Q90 Res. real estate loans
Total correspondents	-0.0197	-0.151***	-0.205***	-0.358***	-0.427***
	(0.0595)	(0.0537)	(0.0448)	(0.0612)	(0.111)
Total branches	1.375***	1.455***	1.490***	1.616***	1.760***
	(0.0679)	(0.0601)	(0.0517)	(0.0615)	(0.0907)
% correspondents w/ loans	0.207	0.412***	0.566***	0.975***	1.098***
	(0.128)	(0.103)	(0.0881)	(0.0886)	(0.126)
dreg3	0.0740*	-0.0445	-0.146***	-0.180***	-0.149***
	(0.0449)	(0.0332)	(0.0376)	(0.0453)	(0.0571)
Collateral value	2.312***	2.813***	2.695***	3.093***	3.303***
	(0.368)	(0.266)	(0.223)	(0.248)	(0.461)
Selic rate	0.209*	0.0705	-0.134	-0.232**	-0.0111
	(0.122)	(0.108)	(0.0952)	(0.0947)	(0.157)
GDP	4.459***	2.901***	2.490***	1.942***	1.789*
	(0.914)	(0.506)	(0.509)	(0.616)	(1.086)
Population	0.121***	0.0821***	0.00252	-0.0482***	-0.113***
	(0.0187)	(0.0160)	(0.0123)	(0.0163)	(0.0195)
Construction costs	0.480***	0.155	0.119	-0.0524	-0.0253
	(0.147)	(0.140)	(0.108)	(0.124)	(0.175)
Trend	-0.0206***	-0.0191***	-0.0155***	-0.0168***	-0.0185***
	(0.00331)	(0.00300)	(0.00231)	(0.00262)	(0.00430)
Constant	-26.38***	-18.24***	-13.43***	-10.33***	-9.293**
	(3.777)	(2.696)	(2.180)	(2.771)	(4.034)
Observations	1,600	1,600	1,600	1,600	1,600

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous varibales are current. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1

Table B.3

Is there political influence over residential real estate loans? - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov1

VARIABLES	(1) Res. real estate loans	(2) Res. real estate loans	(3) Res. real estate loans	(4) Res. real estate loans	(5) Res. real estate loans
Total correspondents	-0.206	0.00601	0.0178	-0.119**	-0.0793*
	(0.153)	(0.0449)	(0.0441)	(0.0477)	(0.0468)
Total branches	1.564***	0.625***	0.997***	0.795***	1.006***
	(0.206)	(0.132)	(0.0974)	(0.188)	(0.129)
% correspondents w/ loans	0.943**	0.151*	0.199***	0.277***	0.265***
	(0.369)	(0.0779)	(0.0723)	(0.0874)	(0.0844)
dreg3	-0.165***	-0.0685**	-0.0910***	-0.0773***	-0.0951***
	(0.0577)	(0.0281)	(0.0279)	(0.0274)	(0.0269)
Collateral value	3.554***	2.031***	2.215***	2.256***	2.283***
	(0.640)	(0.182)	(0.176)	(0.199)	(0.226)
Selic rate	-0.0212	-0.172***	-0.139**	-0.193***	-0.181***
	(0.0845)	(0.0596)	(0.0596)	(0.0569)	(0.0559)
GDP	1.760***	2.810***	2.624***	2.806***	2.739***
	(0.612)	(0.335)	(0.335)	(0.333)	(0.530)
Population	-0.0403	1.059	0.0390	-0.298	-0.0652
	(0.0758)	(0.647)	(0.0660)	(0.393)	(0.0807)
Construction costs	0.116	0.478***	0.470***	1.094***	1.282***
	(0.302)	(0.183)	(0.174)	(0.229)	(0.226)
Trend	-0.0250***	-0.0121***	-0.0142***	-0.0156***	-0.0182***
	(0.00702)	(0.00213)	(0.00203)	(0.00221)	(0.00213)
dgov1	0.138	-0.0736***	-0.0507*	-0.0144	-0.0220
	(0.0969)	(0.0269)	(0.0266)	(0.0311)	(0.0319)
Constant	-13.18***	-36.91***	-17.44***	-20.23***	-22.62***
	(3.138)	(10.30)	(2.326)	(7.050)	(3.107)
Observations	1,600	1,600	1,600	1,600	1,600
R-squared	0.888	0.889			
Number of groups		20	20		
Number of id				20	20

This table presents various regressions of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table B.4

Is there political influence over residential real estate loans? - Including dreg3, current exogenous variables and political dummy dgov2

VARIABLES	(1) Res. real estate loans	(2) Res. real estate loans	(3) Res. real estate loans	(4) Res. real estate loans	(5) Res. real estate loans
Total correspondents	-0.268	-0.0126	-0.00347	-0.128***	-0.0883*
	(0.187)	(0.0451)	(0.0443)	(0.0481)	(0.0472)
Total branches	1.630***	0.728***	1.034***	0.798***	1.009***
	(0.257)	(0.129)	(0.0983)	(0.185)	(0.127)
% correspondents w/ loans	0.840**	0.182**	0.215***	0.282***	0.274***
	(0.366)	(0.0776)	(0.0717)	(0.0872)	(0.0842)
dreg3	-0.133**	-0.0800***	-0.0969***	-0.0793***	-0.0981***
	(0.0548)	(0.0279)	(0.0277)	(0.0272)	(0.0268)
Collateral value	3.433***	2.129***	2.272***	2.277***	2.311***
	(0.659)	(0.182)	(0.175)	(0.199)	(0.226)
Selic rate	-0.0419	-0.174***	-0.149**	-0.198***	-0.186***
	(0.0832)	(0.0594)	(0.0594)	(0.0570)	(0.0560)
GDP	1.907***	2.720***	2.577***	2.789***	2.716***
	(0.566)	(0.334)	(0.333)	(0.332)	(0.532)
Population	-0.0380	0.831	0.0248	-0.282	-0.0674
	(0.0790)	(0.649)	(0.0696)	(0.388)	(0.0803)
Construction costs	0.0514	0.484***	0.489***	1.100***	1.290***
	(0.341)	(0.182)	(0.173)	(0.228)	(0.225)
Trend	-0.0227***	-0.0129***	-0.0146***	-0.0158***	-0.0184***
	(0.00662)	(0.00212)	(0.00203)	(0.00220)	(0.00212)
dgov2	-0.0278	-0.0650***	-0.0674***	-0.0308	-0.0340
	(0.0661)	(0.0169)	(0.0168)	(0.0204)	(0.0208)
Constant	-12.67***	-32.60***	-17.17***	-20.55***	-22.68***
	(3.320)	(10.33)	(2.340)	(6.960)	(3.097)
Observations	1,600	1,600	1,600	1,600	1,600
R-squared	0.886	0.890			
Number of groups		20	20		
Number of id				20	20

This table presents various regressions of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table B.5

Is there political influence over residential real estate loans? Quantile Regression - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov1

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.0410	-0.168***	-0.197***	-0.285***	-0.395***
	(0.0584)	(0.0504)	(0.0421)	(0.0447)	(0.0901)
Total branches	1.390***	1.471***	1.497***	1.573***	1.727***
	(0.0621)	(0.0579)	(0.0501)	(0.0438)	(0.0810)
% correspondents w/ loans	0.162	0.405***	0.712***	1.082***	1.335***
	(0.118)	(0.113)	(0.101)	(0.0816)	(0.113)
dreg3	0.0891*	-0.0364	-0.186***	-0.197***	-0.238***
	(0.0456)	(0.0346)	(0.0381)	(0.0425)	(0.0504)
Collateral value	2.195***	2.850***	2.992***	3.289***	3.412***
	(0.346)	(0.253)	(0.245)	(0.191)	(0.368)
Selic rate	0.196	0.0602	-0.138	-0.177**	-0.118
	(0.123)	(0.116)	(0.0961)	(0.0857)	(0.127)
GDP	4.642***	2.765***	2.177***	1.301***	1.829***
	(0.893)	(0.492)	(0.457)	(0.501)	(0.672)
Population	0.132***	0.0835***	-0.00982	-0.0519***	-0.106***
	(0.0207)	(0.0187)	(0.0128)	(0.0124)	(0.0161)
Construction costs	0.429***	0.132	0.120	-0.0911	-0.161
	(0.146)	(0.148)	(0.104)	(0.127)	(0.137)
Trend	-0.0190***	-0.0189***	-0.0186***	-0.0185***	-0.0196***
	(0.00339)	(0.00296)	(0.00282)	(0.00251)	(0.00397)
dgov1	-0.0281	0.00936	0.111***	0.213***	0.247***
	(0.0367)	(0.0341)	(0.0335)	(0.0261)	(0.0355)
Constant	-26.50***	-17.59***	-13.10***	-7.837***	-9.089***
	(3.686)	(2.820)	(2.127)	(2.492)	(2.825)
Observations	1,600	1,600	1,600	1,600	1,600

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, *p<0.1

Table B.6

Is there political influence over residential real estate loans? Quantile Regression - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov2

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.0482	-0.160***	-0.188***	-0.360***	-0.438***
	(0.0602)	(0.0530)	(0.0435)	(0.0598)	(0.122)
Total branches	1.404***	1.457***	1.474***	1.628***	1.767***
	(0.0737)	(0.0562)	(0.0467)	(0.0623)	(0.102)
% correspondents w/ loans	0.159	0.416***	0.591***	0.970***	1.093***
	(0.112)	(0.0939)	(0.0894)	(0.0931)	(0.128)
dreg3	0.0983**	-0.0367	-0.151***	-0.182***	-0.151**
	(0.0420)	(0.0307)	(0.0292)	(0.0437)	(0.0703)
Collateral value	2.205***	2.865***	2.783***	3.181***	3.302***
	(0.381)	(0.274)	(0.225)	(0.278)	(0.414)
Selic rate	0.205*	0.0756	-0.128	-0.223**	-0.0117
	(0.108)	(0.0946)	(0.0784)	(0.0939)	(0.144)
GDP	4.534***	2.727***	2.255***	1.731***	1.788*
	(0.940)	(0.576)	(0.461)	(0.550)	(1.013)
Population	0.117***	0.0849***	0.00324	-0.0523***	-0.110***
	(0.0191)	(0.0178)	(0.0143)	(0.0165)	(0.0184)
Construction costs	0.451**	0.137	0.166	-0.0235	-0.0539
	(0.176)	(0.130)	(0.112)	(0.128)	(0.214)
Trend	-0.0189***	-0.0191***	-0.0165***	-0.0174***	-0.0183***
	(0.00343)	(0.00253)	(0.00249)	(0.00302)	(0.00426)
dgov2	-0.0255	0.00679	0.0204	0.0182	-0.00430
	(0.0322)	(0.0222)	(0.0203)	(0.0217)	(0.0293)
Constant	-25.88***	-17.65***	-13.10***	-9.814***	-9.168**
	(3.497)	(2.551)	(2.158)	(2.501)	(4.188)
Observations	1,600	1,600	1,600	1,600	1,600

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.***p<0.01, **p<0.05, *p<0.1

Table B.7

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3 and current exogenous variables - (1)

	(1)	(2)	(3)	(4)
	Q10-Q25	Q10-Q50	Q10-Q75	Q10-Q90
	Res. real estate	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans	loans
Total correspondents	-0.131***	-0.185***	-0.338***	-0.408***
	(0.0476)	(0.0658)	(0.0778)	(0.131)
Total branches	0.0802	0.115	0.241***	0.385***
	(0.0609)	(0.0760)	(0.0828)	(0.117)
% correspondents w/ loans	0.205*	0.360***	0.768***	0.891***
	(0.108)	(0.139)	(0.133)	(0.138)
dreg3	-0.119***	-0.220***	-0.254***	-0.223***
	(0.0417)	(0.0526)	(0.0577)	(0.0722)
Collateral value	0.502	0.383	0.782**	0.991*
	(0.334)	(0.367)	(0.395)	(0.525)
Selic rate	-0.139	-0.343***	-0.441***	-0.220
	(0.117)	(0.130)	(0.133)	(0.177)
GDP	-1.557**	-1.968**	-2.516***	-2.670*
	(0.761)	(0.862)	(0.877)	(1.519)
Population	-0.0392**	-0.119***	-0.169***	-0.234***
	(0.0166)	(0.0179)	(0.0209)	(0.0220)
Construction costs	-0.324**	-0.360**	-0.532***	-0.505**
	(0.136)	(0.177)	(0.176)	(0.247)
Trend	0.00151	0.00507	0.00385	0.00208
	(0.00312)	(0.00394)	(0.00380)	(0.00494)
Constant	8.136***	12.95***	16.05***	17.09***
	(2.860)	(3.328)	(3.436)	(6.398)
Observations	1,600	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table B.8
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3 and current exogenous variables - (2)

	(1)	(2)	(3)
	Q25-Q50	Q25-Q75	Q25-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.0540	-0.207***	-0.276**
	(0.0478)	(0.0614)	(0.123)
Total branches	0.0350	0.161**	0.305***
	(0.0465)	(0.0655)	(0.101)
% correspondents w/ loans	0.155*	0.563***	0.686***
	(0.0917)	(0.116)	(0.137)
dreg3	-0.101***	-0.136***	-0.105*
	(0.0347)	(0.0450)	(0.0622)
Collateral value	-0.119	0.280	0.489
	(0.215)	(0.309)	(0.468)
Selic rate	-0.204**	-0.303**	-0.0816
	(0.0895)	(0.128)	(0.157)
GDP	-0.411	-0.959	-1.112
	(0.556)	(0.643)	(1.099)
Population	-0.0796***	-0.130***	-0.195***
	(0.0134)	(0.0186)	(0.0230)
Construction costs	-0.0357	-0.208	-0.180
	(0.114)	(0.145)	(0.201)
Trend	0.00356	0.00234	0.000567
	(0.00233)	(0.00346)	(0.00504)
Constant	4.813*	7.912**	8.949*
	(2.537)	(3.146)	(4.655)
Observations	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.***p<0.01, ** p<0.05, * p<0.1

Table B.9
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3 and current exogenous variables - (3)

	(1)	(2)	(3)
	Q50-Q75	Q50-Q90	Q75-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.153***	-0.222*	-0.0695
	(0.0527)	(0.117)	(0.104)
Total branches	0.126**	0.270***	0.144
	(0.0521)	(0.0987)	(0.0952)
% correspondents w/ loans	0.409***	0.531***	0.123
	(0.0779)	(0.122)	(0.111)
dreg3	-0.0349	-0.00380	0.0311
	(0.0393)	(0.0666)	(0.0556)
Collateral value	0.399	0.608	0.209
	(0.248)	(0.396)	(0.373)
Selic rate	-0.0985	0.122	0.221*
	(0.0878)	(0.138)	(0.120)
GDP	-0.548	-0.702	-0.153
	(0.518)	(0.984)	(0.919)
Population	-0.0507***	-0.115***	-0.0644***
	(0.0119)	(0.0185)	(0.0164)
Construction costs	-0.172	-0.145	0.0271
	(0.105)	(0.196)	(0.182)
Trend	-0.00122	-0.00299	-0.00177
	(0.00251)	(0.00450)	(0.00376)
Constant	3.098	4.135	1.037
	(2.253)	(4.161)	(3.937)
Observations	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.***p<0.01, ** p<0.05, * p<0.1

Table B.10

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov1 - (1)

	(1)	(2)	(3)	(4)
	Q10-Q25	Q10-Q50	Q10-Q75	Q10-Q90
	Res. real estate	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans	loans
Total correspondents	-0.127***	-0.156***	-0.244***	-0.354***
	(0.0476)	(0.0565)	(0.0775)	(0.103)
Total branches	0.0815	0.107	0.183**	0.337***
	(0.0615)	(0.0678)	(0.0837)	(0.102)
% correspondents w/ loans	0.243**	0.550***	0.920***	1.173***
	(0.106)	(0.151)	(0.133)	(0.157)
dreg3	-0.126***	-0.276***	-0.286***	-0.328***
	(0.0431)	(0.0551)	(0.0626)	(0.0720)
Collateral value	0.656**	0.798*	1.095***	1.217**
	(0.302)	(0.441)	(0.393)	(0.504)
Selic rate	-0.135	-0.333***	-0.373***	-0.313*
	(0.115)	(0.126)	(0.137)	(0.181)
GDP	-1.878**	-2.466**	-3.341***	-2.813**
	(0.744)	(1.018)	(1.043)	(1.134)
Population	-0.0483***	-0.142***	-0.184***	-0.237***
	(0.0175)	(0.0200)	(0.0229)	(0.0222)
Construction costs	-0.297**	-0.309**	-0.520***	-0.590***
	(0.143)	(0.145)	(0.192)	(0.195)
Trend	0.000148	0.000384	0.000524	-0.000573
	(0.00324)	(0.00413)	(0.00365)	(0.00507)
dgov1	0.0374	0.139***	0.241***	0.275***
	(0.0391)	(0.0461)	(0.0457)	(0.0447)
Constant	8.911***	13.41***	18.67***	17.41***
	(3.170)	(3.649)	(4.126)	(4.803)
Observations	1,600	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table B.11
Is there heterogeineity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov1 - (2)

	(1)	(2)	(3)
	Q25-Q50	Q25-Q75	Q25-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.0288	-0.117*	-0.227**
	(0.0484)	(0.0608)	(0.0970)
Total branches	0.0259	0.102	0.256***
	(0.0528)	(0.0641)	(0.0834)
% correspondents w/ loans	0.307***	0.677***	0.930***
	(0.0995)	(0.103)	(0.144)
dreg3	-0.150***	-0.160***	-0.202***
	(0.0337)	(0.0524)	(0.0557)
Collateral value	0.142	0.439	0.561
	(0.277)	(0.294)	(0.498)
Selic rate	-0.198**	-0.237*	-0.178
	(0.101)	(0.137)	(0.174)
GDP	-0.588	-1.464**	-0.935
	(0.536)	(0.577)	(0.849)
Population	-0.0933***	-0.135***	-0.189***
	(0.0148)	(0.0154)	(0.0217)
Construction costs	-0.0121	-0.223	-0.293
	(0.102)	(0.160)	(0.187)
Trend	0.000235	0.000375	-0.000722
	(0.00306)	(0.00335)	(0.00496)
dgov1	0.101***	0.204***	0.237***
	(0.0348)	(0.0333)	(0.0462)
Constant	4.495*	9.754***	8.502**
	(2.559)	(2.672)	(3.664)
Observations	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table B.12
Is there heterogeineity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg3, current exogenous variables and political dummy dgov1 - (3)

	(1)	(2)	(3)
	Q50-Q75	Q50-Q90	Q75-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.0883**	-0.198**	-0.110
	(0.0436)	(0.0822)	(0.0736)
Total branches	0.0760	0.230***	0.154**
	(0.0477)	(0.0730)	(0.0626)
% correspondents w/ loans	0.370***	0.623***	0.253**
	(0.0804)	(0.123)	(0.110)
dreg3	-0.0102	-0.0521	-0.0419
	(0.0359)	(0.0539)	(0.0467)
Collateral value	0.297	0.419	0.122
	(0.244)	(0.457)	(0.326)
Selic rate	-0.0391	0.0202	0.0593
	(0.0851)	(0.142)	(0.120)
GDP	-0.876	-0.347	0.528
	(0.573)	(0.840)	(0.544)
Population	-0.0421***	-0.0959***	-0.0538***
	(0.0119)	(0.0170)	(0.0142)
Construction costs	-0.211**	-0.281**	-0.0701
	(0.101)	(0.134)	(0.139)
Trend	0.000140	-0.000957	-0.00110
	(0.00242)	(0.00418)	(0.00376)
dgov1	0.103***	0.136***	0.0333
	(0.0281)	(0.0476)	(0.0277)
Constant	5.260**	4.008	-1.252
	(2.237)	(2.959)	(2.534)
Observations	1,600	1,600	1,600

This table presents Interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

C Lagged Exogenous Variables with Regulatory Dummy $dreg1$

Table C.1
Do banking correspondents affect residential real estate loans? - Including regulatory dummy dreg1 and lagged exogenous variables

	(1)	(2)	(3)	(4)	(5)
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.285	-0.0354	-0.0314	-0.185***	-0.167***
	(0.171)	(0.0436)	(0.0430)	(0.0456)	(0.0454)
Total branches	1.637***	0.629***	0.993***	0.652***	0.914***
	(0.241)	(0.131)	(0.0988)	(0.194)	(0.143)
% correspondents w/ loans	0.811**	0.161**	0.188***	0.283***	0.238***
	(0.363)	(0.0753)	(0.0696)	(0.0829)	(0.0805)
dreg1	5.63e-05	0.0492	0.0406	0.0494	0.0469
	(0.0490)	(0.0576)	(0.0580)	(0.0532)	(0.0529)
Collateral value	3.547***	2.127***	2.294***	2.315***	2.308***
	(0.697)	(0.188)	(0.181)	(0.203)	(0.227)
Selic rate	0.0980	-0.131**	-0.0792	-0.169***	-0.150***
	(0.148)	(0.0562)	(0.0555)	(0.0555)	(0.0546)
GDP	1.495**	2.452***	2.266***	2.570***	2.522***
	(0.643)	(0.341)	(0.341)	(0.340)	(0.496)
Population	-0.0361	1.118*	0.0407	-0.293	-0.0470
	(0.0789)	(0.661)	(0.0684)	(0.420)	(0.0911)
Construction costs	0.0711	0.527***	0.505***	1.303***	1.456***
	(0.325)	(0.184)	(0.175)	(0.234)	(0.233)
Trend	-0.0244***	-0.0134***	-0.0150***	-0.0167***	-0.0186***
	(0.00706)	(0.00215)	(0.00207)	(0.00218)	(0.00212)
Constant	-11.72***	-37.20***	-16.83***	-22.66***	-24.66***
	(3.149)	(10.53)	(2.394)	(7.467)	(3.217)
Observations	1,560	1,560	1,560	1,560	1,560
R-squared	0.881	0.883			
Number of id		20	20		
Number of groups				20	20

This table presents various regressions of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.2
Do banking correspondents affect residential real estate loans? - Quantile Regression - Including regulatory dummy dreg1 and lagged exogenous variables

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.0258	-0.170***	-0.255***	-0.427***	-0.490***
	(0.0624)	(0.0438)	(0.0405)	(0.0660)	(0.100)
Total branches	1.381***	1.477***	1.543***	1.681***	1.771***
	(0.0832)	(0.0512)	(0.0477)	(0.0704)	(0.0802)
% correspondents w/ loans	0.238***	0.444***	0.532***	0.863***	1.081***
	(0.0883)	(0.101)	(0.105)	(0.109)	(0.115)
dreg1	0.110	0.0914	0.0168	-0.0335	-0.00782
	(0.108)	(0.0813)	(0.0616)	(0.115)	(0.160)
Collateral value	2.569***	3.110***	2.916***	3.071***	3.501***
	(0.340)	(0.273)	(0.255)	(0.278)	(0.432)
Selic rate	0.0303	0.0953	-0.00441	-0.110	0.0774
	(0.109)	(0.103)	(0.0801)	(0.0807)	(0.143)
GDP	3.516***	2.272***	1.806***	1.189*	0.0708
	(0.808)	(0.481)	(0.508)	(0.623)	(1.101)
Population	0.109***	0.0829***	0.00340	-0.0466***	-0.106***
	(0.0177)	(0.0175)	(0.0164)	(0.0164)	(0.0186)
Construction costs	0.458**	0.0741	0.0731	-0.0411	-0.0131
	(0.188)	(0.141)	(0.107)	(0.114)	(0.185)
Trend	-0.0224***	-0.0217***	-0.0169***	-0.0153***	-0.0178***
	(0.00376)	(0.00286)	(0.00263)	(0.00286)	(0.00461)
Constant	-22.20***	-16.10***	-11.06***	-6.728**	-2.481
	(3.567)	(2.434)	(2.499)	(2.622)	(4.090)
Observations	1,560	1,560	1,560	1,560	1,560

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.3
Is there political influence over residential real estate loans? - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov1

	(1)	(2)	(3)	(4)	(5)
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.247	-0.0339	-0.0295	-0.184***	-0.163***
	(0.153)	(0.0435)	(0.0429)	(0.0456)	(0.0451)
Total branches	1.601***	0.548***	0.974***	0.637***	0.877***
	(0.210)	-0.134	(0.0989)	(0.196)	(0.144)
% correspondents w/ loans	0.871**	0.151**	0.177**	0.284***	0.245***
	(0.351)	(0.0752)	(0.0698)	(0.0829)	(0.0801)
dreg1	-0.0158	0.0520	0.0424	0.0496	0.0464
	(0.0495)	(0.0575)	(0.0580)	(0.0532)	(0.0529)
Collateral value	3.646***	2.089***	2.271***	2.313***	2.310***
	(0.675)	(0.188)	(0.182)	(0.203)	(0.227)
Selic rate	0.141	-0.146***	-0.0867	-0.171***	-0.150***
	(0.148)	(0.0564)	(0.0556)	(0.0556)	(0.0546)
GDP	1.327*	2.512***	2.298***	2.576***	2.524***
	(0.694)	(0.341)	(0.341)	(0.340)	(0.498)
Population	-0.0403	1.066	0.0414	-0.286	-0.0500
	(0.0762)	(0.659)	(0.0665)	(0.418)	(0.0924)
Construction cost	0.110	0.575***	0.541***	1.305***	1.453***
	(0.305)	(0.184)	(0.175)	(0.234)	(0.233)
Trend	-0.0260***	-0.0130***	-0.0150***	-0.0167***	-0.0186***
	(0.00721)	(0.00215)	(0.00207)	(0.00218)	(0.00212)
dgov1	0.128	-0.0791***	-0.0545**	-0.0178	-0.0179
	(0.0952)	(0.0275)	(0.0272)	(0.0322)	(0.0327)
Constant	-11.76***	-37.52***	-17.26***	-22.94***	-24.93***
	(3.152)	(10.51)	(2.390)	(7.444)	(3.239)
Observations	1,560	1,560	1,560	1,560	1,560
R-squared	0.884	0.884			
Number of id		20	20		
Number of groups				20	20

This table presents various regression of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.4
Is there political influence over residential real estate loans? - Including dreg1, lagged exogenous variables and political dummy dgov2

VARIABLES	(1) Res. real estate loans	(2) Res. real estate loans	(3) Res. real estate loans	(4) Res. real estate loans	(5) Res. real estate loans
Total correspondents	-0.301	-0.0595	-0.0551	-0.194***	-0.173***
	(0.184)	(0.0438)	(0.0432)	(0.0461)	(0.0456)
Total branches	1.659***	0.655***	1.012***	0.642***	0.865***
	(0.256)	(0.131)	(0.0997)	(0.193)	(0.143)
% correspondents w/ loans	0.788**	0.176**	0.191***	0.288***	0.254***
	(0.350)	(0.0751)	(0.0693)	(0.0828)	(0.0800)
dreg1	0.00420	0.0479	0.0406	0.0491	0.0455
	(0.0465)	(0.0573)	(0.0577)	(0.0532)	(0.0529)
Collateral value	3.526***	2.191***	2.334***	2.333***	2.336***
	(0.687)	(0.188)	(0.181)	(0.203)	(0.227)
Selic rate	0.0839	-0.135**	-0.0881	-0.173***	-0.152***
	(0.143)	(0.0560)	(0.0553)	(0.0556)	(0.0545)
GDP	1.524**	2.413***	2.245***	2.559***	2.503***
	(0.626)	(0.340)	(0.339)	(0.340)	(0.498)
Population	-0.0394	0.861	0.0279	-0.271	-0.0525
	(0.0792)	(0.661)	(0.0699)	(0.414)	(0.0927)
Construction costs	0.0535	0.565***	0.552***	1.307***	1.453***
	(0.340)	(0.184)	(0.175)	(0.233)	(0.232)
Trend	-0.0239***	-0.0137***	-0.0154***	-0.0168***	-0.0187***
	(0.00683)	(0.00214)	(0.00207)	(0.00218)	(0.00212)
dgov2	-0.0315	-0.0662***	-0.0684***	-0.0295	-0.0296
	(0.0654)	(0.0173)	(0.0173)	(0.0212)	(0.0214)
Constant	-11.47***	-33.49***	-17.00***	-23.22***	-25.09***
	(3.166)	(10.53)	(2.401)	(7.378)	(3.227)
Observations	1,560	1,560	1,560	1,560	1,560
R-squared	0.882	0.884			
Number of id		20	20		
Number of groups				20	20

This table presents various regressions of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.5
Is there political influence over residential real estate loans? Quantile Regression - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov1

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.0364	-0.171***	-0.227***	-0.375***	-0.440***
	(0.0568)	(0.0425)	(0.0401)	(0.0602)	(0.104)
Total branches	1.382***	1.478***	1.525***	1.656***	1.740***
	(0.0691)	(0.0495)	(0.0510)	(0.0512)	(0.0775)
% correspondents w/ loans	0.232***	0.451***	0.583***	0.978***	1.232***
	(0.0815)	(0.106)	(0.0984)	(0.0844)	(0.134)
dreg1	0.148	0.0651	-0.00252	-0.0359	-0.0581
	(0.149)	(0.0907)	(0.0534)	(0.0776)	(0.0786)
Collateral value	2.561***	3.126***	3.028***	3.459***	3.645***
	(0.359)	(0.336)	(0.281)	(0.277)	(0.553)
Selic rate	0.0312	0.101	0.0535	0.00287	0.140
	(0.0900)	(0.102)	(0.0692)	(0.0719)	(0.157)
GDP	3.653***	2.282***	1.842***	0.409	0.250
	(0.845)	(0.468)	(0.547)	(0.701)	(0.998)
Population	0.120***	0.0807***	-0.00237	-0.0556***	-0.108***
	(0.0197)	(0.0173)	(0.0143)	(0.0121)	(0.0185)
Construction costs	0.430**	0.0704	0.158	0.00899	-0.132
	(0.200)	(0.154)	(0.116)	(0.0982)	(0.150)
Trend	-0.0221***	-0.0219***	-0.0192***	-0.0194***	-0.0205***
	(0.00329)	(0.00341)	(0.00289)	(0.00272)	(0.00552)
dgov1	-0.0443	0.0164	0.101***	0.204***	0.214***
	(0.0450)	(0.0385)	(0.0369)	(0.0309)	(0.0389)
Constant	-22.90***	-16.18***	-12.40***	-5.178**	-3.381
	(3.334)	(2.360)	(2.470)	(2.620)	(3.015)
Observations	1,560	1,560	1,560	1,560	1,560

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.6
Is there political influence over residential real estate loans? Quantile Regression - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov2

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.0721	-0.170***	-0.247***	-0.420***	-0.514***
	(0.0721)	(0.0494)	(0.0479)	(0.0662)	(0.105)
Total branches	1.446***	1.469***	1.533***	1.674***	1.789***
	(0.0959)	(0.0551)	(0.0542)	(0.0683)	(0.0836)
% correspondents w/ loans	0.256***	0.435***	0.532***	0.880***	1.036***
	(0.0869)	(0.0970)	(0.0874)	(0.0963)	(0.120)
dreg1	0.128	0.0684	0.00214	-0.0336	-0.0125
	(0.133)	(0.0892)	(0.0594)	(0.106)	(0.172)
Collateral value	2.551***	3.069***	2.824***	3.133***	3.426***
	(0.335)	(0.277)	(0.243)	(0.304)	(0.481)
Selic rate	0.0190	0.0961	0.0144	-0.102	0.0476
	(0.0922)	(0.0989)	(0.0746)	(0.0816)	(0.156)
GDP	3.694***	2.299***	2.037***	1.021*	0.334
	(0.832)	(0.478)	(0.553)	(0.572)	(1.171)
Population	0.0985***	0.0843***	0.00324	-0.0466***	-0.106***
	(0.0204)	(0.0172)	(0.0154)	(0.0152)	(0.0188)
Construction costs	0.401**	0.0963	0.115	-0.0455	-0.0601
	(0.175)	(0.144)	(0.119)	(0.106)	(0.143)
Trend	-0.0215***	-0.0213***	-0.0165***	-0.0157***	-0.0169***
	(0.00315)	(0.00305)	(0.00276)	(0.00324)	(0.00493)
dgov2	-0.0464*	0.00832	0.0233	0.00534	-0.0179
	(0.0277)	(0.0211)	(0.0222)	(0.0215)	(0.0338)
Constant	-22.15***	-16.27***	-12.08***	-6.218***	-3.036
	(3.030)	(2.425)	(2.552)	(2.396)	(4.219)
Observations	1,560	1,560	1,560	1,560	1,560

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.7

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1 and lagged exogenous variables - (1)

	(1)	(2)	(3)	(4)
	Q10-Q25	Q10-Q50	Q10-Q75	Q10-Q90
	Res. real estate	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans	loans
Total correspondents	-0.145***	-0.229***	-0.402***	-0.464***
	(0.0542)	(0.0718)	(0.0892)	(0.114)
Total branches	0.0952	0.161*	0.299***	0.390***
	(0.0653)	(0.0839)	(0.101)	(0.113)
% correspondents w/ loans	0.205**	0.294***	0.624***	0.843***
	(0.0879)	(0.110)	(0.127)	(0.139)
dreg1	0.101	0.0263	-0.0239	0.0225
	(0.114)	(0.143)	(0.132)	(0.183)
Collateral value	0.541*	0.347	0.502	0.932*
	(0.304)	(0.383)	(0.419)	(0.542)
Selic rate	0.0650	-0.0347	-0.140	0.0471
	(0.103)	(0.0990)	(0.125)	(0.171)
GDP	-1.244*	-1.710*	-2.327**	-3.445**
	(0.740)	(0.934)	(0.924)	(1.386)
Population	-0.0265	-0.106***	-0.156***	-0.216***
	(0.0173)	(0.0208)	(0.0202)	(0.0241)
Construction costs	-0.384**	-0.385**	-0.499**	-0.471**
	(0.161)	(0.189)	(0.217)	(0.239)
Trend	0.000737	0.00552	0.00714*	0.00466
	(0.00339)	(0.00348)	(0.00425)	(0.00533)
Constant	6.095*	11.14***	15.47***	19.72***
	(3.503)	(3.837)	(3.801)	(5.730)
Observations	1,560	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.8
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1 and lagged exogenous variables - (2)

	(1)	(2)	(3)
	Q25-Q50	Q25-Q75	Q25-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.0846	-0.257***	-0.319**
	(0.0514)	(0.0670)	(0.127)
Total branches	0.0659	0.204***	0.295***
	(0.0516)	(0.0663)	(0.0980)
% correspondents w/ loans	0.0880	0.419***	0.637***
	(0.0911)	(0.110)	(0.134)
dreg1	-0.0746	-0.125	-0.0784
	(0.0838)	(0.108)	(0.173)
Collateral value	-0.194	-0.0392	0.391
	(0.256)	(0.326)	(0.467)
Selic rate	-0.0997	-0.205*	-0.0179
	(0.0827)	(0.111)	(0.167)
GDP	-0.467	-1.083	-2.202**
	(0.515)	(0.710)	(1.069)
Population	-0.0795***	-0.130***	-0.189***
	(0.0147)	(0.0157)	(0.0203)
Construction costs	-0.000956	-0.115	-0.0872
	(0.117)	(0.160)	(0.226)
Trend	0.00478	0.00640*	0.00392
	(0.00292)	(0.00337)	(0.00489)
Constant	5.044**	9.375***	13.62***
	(2.343)	(3.090)	(4.271)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.9

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1 and lagged exogenous variables - (3)

	(1)	(2)	(3)
	Q50-Q75	Q50-Q90	Q75-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.172***	-0.235**	-0.0624
	(0.0588)	(0.109)	(0.0963)
Total branches	0.138***	0.229***	0.0908
	(0.0532)	(0.0854)	(0.0781)
% correspondents w/ loans	0.331***	0.549***	0.218*
	(0.0867)	(0.127)	(0.122)
dreg1	-0.0503	-0.00379	0.0465
	(0.0784)	(0.160)	(0.162)
Collateral value	0.155	0.585	0.431
	(0.273)	(0.456)	(0.446)
Selic rate	-0.105	0.0819	0.187
	(0.0745)	(0.149)	(0.149)
GDP	-0.616	-1.735	-1.118
	(0.505)	(1.097)	(0.888)
Population	-0.0500***	-0.110***	-0.0596***
	(0.0129)	(0.0218)	(0.0163)
Construction costs	-0.114	-0.0862	0.0280
	(0.115)	(0.177)	(0.140)
Trend	0.00162	-0.000862	-0.00248
	(0.00293)	(0.00522)	(0.00460)
Constant	4.331**	8.578*	4.247
	(2.122)	(4.459)	(3.569)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.10

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov1 - (1)

	(1)	(2)	(3)	(4)
	Q10-Q25	Q10-Q50	Q10-Q75	Q10-Q90
	Res. real estate	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans	loans
Total correspondents	-0.134**	-0.191**	-0.338***	-0.403***
	(0.0606)	(0.0741)	(0.0829)	(0.100)
Total branches	0.0960	0.143	0.274***	0.358***
	(0.0695)	(0.0878)	(0.0934)	(0.0998)
% correspondents w/ loans	0.219**	0.351***	0.746***	1.000***
	(0.0959)	(0.102)	(0.103)	(0.140)
dreg1	0.0773	0.00970	-0.0237	0.00923
	(0.117)	(0.134)	(0.159)	(0.183)
Collateral value	0.565*	0.467	0.898**	1.084**
	(0.333)	(0.346)	(0.378)	(0.525)
Selic rate	0.0701	0.0223	-0.0283	0.109
	(0.0866)	(0.0932)	(0.116)	(0.154)
GDP	-1.371*	-1.811*	-3.245***	-3.403***
	(0.784)	(0.933)	(0.990)	(1.170)
Population	-0.0390**	-0.122***	-0.175***	-0.228***
	(0.0157)	(0.0191)	(0.0215)	(0.0238)
Construction costs	-0.360**	-0.272	-0.421**	-0.562**
	(0.148)	(0.183)	(0.164)	(0.236)
Trend	0.000199	0.00291	0.00272	0.00162
	(0.00306)	(0.00356)	(0.00366)	(0.00554)
dgov1	0.0606	0.145***	0.248***	0.258***
	(0.0438)	(0.0423)	(0.0507)	(0.0567)
Constant	6.722**	10.51***	17.73***	19.52***
	(2.944)	(3.888)	(3.902)	(4.669)
Observations	1,560	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.11
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov1 - (2)

VARIABLES	(1) Q25-Q50 Res. real estate loans	(2) Q25-Q75 Res. real estate loans	(3) Q25-Q90 Res. real estate loans
Total correspondents	-0.0564	-0.204***	-0.269**
	(0.0482)	(0.0631)	(0.106)
Total branches	0.0471	0.178***	0.262***
	(0.0545)	(0.0608)	(0.0891)
% correspondents w/ loans	0.132	0.527***	0.781***
	(0.0886)	(0.0990)	(0.138)
dreg1	-0.0676	-0.101	-0.0681
	(0.0832)	(0.0927)	(0.129)
Collateral value	-0.0979	0.333	0.519
	(0.274)	(0.316)	(0.502)
Selic rate	-0.0479	-0.0984	0.0391
	(0.0917)	(0.107)	(0.176)
GDP	-0.440	-1.873**	-2.032**
	(0.509)	(0.748)	(0.945)
Population	-0.0831***	-0.136***	-0.189***
	(0.0149)	(0.0162)	(0.0219)
Construction costs	0.0876	-0.0614	-0.202
	(0.138)	(0.146)	(0.174)
Trend	0.00271	0.00252	0.00142
	(0.00314)	(0.00329)	(0.00535)
dgov1	0.0847**	0.187***	0.197***
	(0.0387)	(0.0472)	(0.0570)
Constant	3.784	11.00***	12.80***
	(2.579)	(3.281)	(3.836)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table C.12
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1, lagged exogenous variables and political dummy dgov1 - (3)

	(1)	(2)	(3)
	Q50-Q75	Q50-Q90	Q75-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.147***	-0.212***	-0.0649
	(0.0517)	(0.0762)	(0.0766)
Total branches	0.131***	0.215***	0.0834
	(0.0482)	(0.0692)	(0.0657)
% correspondents w/ loans	0.395***	0.649***	0.254**
	(0.0790)	(0.135)	(0.105)
dreg1	-0.0334	-0.000476	0.0329
	(0.0676)	(0.0982)	(0.0896)
Collateral value	0.431*	0.617	0.186
	(0.239)	(0.445)	(0.427)
Selic rate	-0.0506	0.0870	0.138
	(0.0714)	(0.135)	(0.141)
GDP	-1.434***	-1.592*	-0.159
	(0.550)	(0.967)	(0.811)
Population	-0.0532***	-0.106***	-0.0524***
	(0.0129)	(0.0175)	(0.0151)
Construction costs	-0.149	-0.290**	-0.141
	(0.118)	(0.138)	(0.135)
Trend	-0.000190	-0.00129	-0.00110
	(0.00259)	(0.00441)	(0.00460)
dgov1	0.103***	0.113**	0.00979
	(0.0314)	(0.0464)	(0.0359)
Constant	7.219***	9.017**	1.797
	(2.488)	(3.765)	(3.087)
Observations	1,560	1,560	1,560

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are 1-period lagged. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 Banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

D Current Exogenous Variables with Regulatory Dummy $dreg1$

Table D.1

Do banking correspondents affect residential real estate loans? - Including regulatory dummy dreg1 and current exogenous variables

	(1)	(2)	(3)	(4)	(5)
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.286	-0.0263	-0.0240	-0.165***	-0.145***
	(0.172)	(0.0430)	(0.0424)	(0.0451)	(0.0449)
Total branches	1.645***	0.681***	1.019***	0.772***	1.041***
	(0.242)	(0.129)	(0.0977)	(0.188)	(0.135)
% correspondents w/ loans	0.791**	0.105	0.140**	0.190**	0.142*
	(0.364)	(0.0743)	(0.0687)	(0.0816)	(0.0792)
dreg1	-0.102*	-0.0518	-0.0606	-0.0480	-0.0507
	(0.0495)	(0.0573)	(0.0577)	(0.0532)	(0.0528)
Collateral value	3.475***	2.027***	2.202***	2.166***	2.158***
	(0.684)	(0.183)	(0.176)	(0.198)	(0.223)
Selic rate	0.128	-0.0962*	-0.0447	-0.137**	-0.117**
	(0.143)	(0.0545)	(0.0537)	(0.0542)	(0.0532)
GDP	1.619**	2.686***	2.485***	2.789***	2.737***
	(0.660)	(0.336)	(0.335)	(0.336)	(0.512)
Population	-0.0332	1.259*	0.0495	-0.243	-0.0419
	(0.0786)	(0.647)	(0.0680)	(0.403)	(0.0839)
Construction costs	0.0364	0.376**	0.356**	1.058***	1.240***
	(0.323)	(0.181)	(0.172)	(0.229)	(0.228)
Trend	-0.0226***	-0.0113***	-0.0128***	-0.0138***	-0.0158***
	(0.00679)	(0.00207)	(0.00199)	(0.00210)	(0.00204)
Constant	-11.87***	-38.65***	-16.46***	-21.02***	-22.40***
	(3.238)	(10.32)	(2.332)	(7.184)	(3.129)
Observations	1,600	1,600	1,600	1,600	1,600
R-squared	0.884	0.888			
Number of groups				20	20
Number of id		20	20		

This table presents various regressions of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table D.2
Do banking correspondents affect residential real estate loans? Quantile Regression - Including regulatory dummy dreg1 and current exogenous variables

VARIABLES	(1) Q10 Res. real estate loans	(2) Q25 Res. real estate loans	(3) Q50 Res. real estate loans	(4) Q75 Res. real estate loans	(5) Q90 Res. real estate loans
Total correspondents	-0.0192	-0.179***	-0.247***	-0.403***	-0.496***
	(0.0523)	(0.0480)	(0.0377)	(0.0592)	(0.0964)
Total branches	1.366***	1.475***	1.536***	1.670***	1.802***
	(0.0655)	(0.0509)	(0.0482)	(0.0616)	(0.0783)
% correspondents w/ loans	0.206*	0.382***	0.470***	0.829***	1.024***
	(0.119)	(0.103)	(0.0798)	(0.0995)	(0.103)
dreg1	0.0350	-0.0562	-0.0481	-0.170**	-0.193
	(0.0562)	(0.0660)	(0.0542)	(0.0701)	(0.148)
Collateral value	2.301***	2.844***	2.766***	3.223***	3.235***
	(0.398)	(0.278)	(0.227)	(0.296)	(0.429)
Selic rate	0.0885	0.117	0.0520	-0.0541	0.109
	(0.0980)	(0.105)	(0.0714)	(0.0811)	(0.131)
GDP	4.382***	2.814***	2.067***	1.099**	1.204
	(0.909)	(0.546)	(0.440)	(0.494)	(1.022)
Population	0.115***	0.0829***	0.00944	-0.0446**	-0.111***
	(0.0168)	(0.0149)	(0.0125)	(0.0175)	(0.0165)
Construction costs	0.500***	0.166	0.0813	-0.0726	-0.232
	(0.152)	(0.139)	(0.109)	(0.103)	(0.175)
Trend	-0.0202***	-0.0190***	-0.0149***	-0.0161***	-0.0151***
	(0.00342)	(0.00297)	(0.00244)	(0.00308)	(0.00387)
Constant	-25.77***	-18.21***	-11.94***	-7.063***	-5.123
	(3.437)	(2.880)	(2.136)	(2.126)	(3.343)
Observations	1,600	1,600	1,600	1,600	1,600

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous varibales are current. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1

Table D.3

Is there political influence over residential real estate loans? - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov1

	(1)	(2)	(3)	(4)	(5)
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.251	-0.0249	-0.0220	-0.164***	-0.140***
	(0.156)	(0.0429)	(0.0424)	(0.0451)	(0.0446)
Total branches	1.611***	0.599***	0.999***	0.753***	0.991***
	(0.212)	(0.132)	(0.0976)	(0.190)	(0.135)
% correspondents w/ loans	0.849**	0.0959	0.128*	0.192**	0.151*
	(0.351)	(0.0742)	(0.0688)	(0.0816)	(0.0786)
dreg1	-0.117**	-0.0491	-0.0587	-0.0478	-0.0515
	(0.0511)	(0.0572)	(0.0577)	(0.0532)	(0.0528)
Collateral value	3.571***	1.992***	2.179***	2.165***	2.164***
	(0.660)	(0.183)	(0.177)	(0.198)	(0.223)
Selic rate	0.170	-0.111**	-0.0522	-0.139**	-0.117**
	(0.143)	(0.0546)	(0.0538)	(0.0543)	(0.0531)
GDP	1.454*	2.747***	2.521***	2.796***	2.738***
	(0.700)	(0.336)	(0.336)	(0.336)	(0.516)
Population	-0.0374	1.187*	0.0501	-0.235	-0.0446
	(0.0759)	(0.645)	(0.0660)	(0.400)	(0.0851)
Construction costs	0.0744	0.423**	0.395**	1.059***	1.235***
	(0.301)	(0.182)	(0.173)	(0.229)	(0.228)
Trend	-0.0242***	-0.0110***	-0.0128***	-0.0138***	-0.0158***
	(0.00694)	(0.00207)	(0.00199)	(0.00210)	(0.00203)
dgov1	0.125	-0.0799***	-0.0578**	-0.0222	-0.0284
	(0.0949)	(0.0268)	(0.0265)	(0.0311)	(0.0321)
Constant	-11.89***	-38.68***	-16.93***	-21.35***	-22.79***
	(3.222)	(10.29)	(2.326)	(7.147)	(3.150)
Observations	1,600	1,600	1,600	1,600	1,600
R-squared	0.886	0.889			
Number of groups		20	20		
Number of id				20	20

This table presents various regressions of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table D.4

Is there political influence over residential real estate loans? - Including dreg1, current exogenous variables and political dummy dgov2

VARIABLES	(1) Res. real estate loans	(2) Res. real estate loans	(3) Res. real estate loans	(4) Res. real estate loans	(5) Res. real estate loans
Total correspondents	-0.303	-0.0485	-0.0460	-0.173***	-0.152***
	(0.186)	(0.0432)	(0.0426)	(0.0455)	(0.0451)
Total branches	1.668***	0.705***	1.038***	0.762***	1.008***
	(0.257)	(0.129)	(0.0986)	(0.187)	(0.134)
% correspondents w/ loans	0.767**	0.117	0.140**	0.195**	0.153*
	(0.351)	(0.0740)	(0.0684)	(0.0815)	(0.0788)
dreg1	-0.0979*	-0.0528	-0.0603	-0.0482	-0.0518
	(0.0473)	(0.0571)	(0.0574)	(0.0532)	(0.0527)
Collateral value	3.451***	2.083***	2.235***	2.183***	2.182***
	(0.672)	(0.183)	(0.176)	(0.197)	(0.223)
Selic rate	0.113	-0.102*	-0.0549	-0.142***	-0.120**
	(0.138)	(0.0543)	(0.0536)	(0.0543)	(0.0531)
GDP	1.650**	2.645***	2.463***	2.777***	2.718***
	(0.641)	(0.335)	(0.334)	(0.335)	(0.517)
Population	-0.0365	0.996	0.0370	-0.222	-0.0457
	(0.0790)	(0.648)	(0.0696)	(0.396)	(0.0847)
Construction costs	0.0184	0.413**	0.402**	1.064***	1.243***
	(0.339)	(0.181)	(0.172)	(0.229)	(0.228)
Trend	-0.0221***	-0.0116***	-0.0131***	-0.0139***	-0.0159***
	(0.00657)	(0.00206)	(0.00199)	(0.00210)	(0.00203)
dgov2	-0.0327	-0.0634***	-0.0662***	-0.0297	-0.0308
	(0.0656)	(0.0169)	(0.0169)	(0.0205)	(0.0211)
Constant	-11.60***	-34.79***	-16.57***	-21.56***	-22.73***
	(3.299)	(10.33)	(2.340)	(7.090)	(3.139)
Observations	1,600	1,600	1,600	1,600	1,600
R-squared	0.885	0.889			
Number of groups		20	20		
Number of id				20	20

This table presents various regressions of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results obtained through the following regression techniques: OLS (column 1), Fixed Effects (column 2), Random Effects (column 3), Mixed Effects with independent "randomized variables" (column 4) and Mixed Effects with unstructured "randomized variables" (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table D.5
Is there political influence over residential real estate loans? - Quantile Regression - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov1

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.0315	-0.183***	-0.219***	-0.313***	-0.422***
	(0.0583)	(0.0484)	(0.0378)	(0.0678)	(0.103)
Total branches	1.372***	1.480***	1.528***	1.620***	1.759***
	(0.0737)	(0.0542)	(0.0442)	(0.0603)	(0.0921)
% correspondents w/ loans	0.201	0.393***	0.570***	0.955***	1.099***
	(0.139)	(0.0993)	(0.101)	(0.0740)	(0.121)
dreg1	0.0810	-0.0479	-0.0974*	-0.196***	-0.189**
	(0.0604)	(0.0638)	(0.0525)	(0.0625)	(0.0945)
Collateral value	2.252***	2.876***	2.874***	3.408***	3.247***
	(0.438)	(0.280)	(0.254)	(0.213)	(0.517)
Selic rate	0.0651	0.121	0.106	0.0413	0.133
	(0.105)	(0.0892)	(0.0698)	(0.0791)	(0.134)
GDP	4.424***	2.783***	2.095***	0.575	0.885
	(0.934)	(0.603)	(0.454)	(0.512)	(1.058)
Population	0.122***	0.0822***	0.00499	-0.0523***	-0.110***
	(0.0184)	(0.0184)	(0.0155)	(0.0126)	(0.0182)
Construction costs	0.469***	0.156	0.0671	-0.0605	-0.204
	(0.155)	(0.140)	(0.109)	(0.112)	(0.161)
Trend	-0.0193***	-0.0192***	-0.0167***	-0.0187***	-0.0160***
	(0.00391)	(0.00289)	(0.00274)	(0.00248)	(0.00469)
dgov1	-0.0470	0.00886	0.102***	0.194***	0.190***
	(0.0440)	(0.0381)	(0.0367)	(0.0294)	(0.0414)
Constant	-25.62***	-18.14***	-12.47***	-5.373**	-3.670
	(3.252)	(2.522)	(2.106)	(2.157)	(3.630)
Observations	1,600	1,600	1,600	1,600	1,600

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov1, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, *p<0.1

Table D.6
Is there political influence over residential real estate loans? Quantile Regression - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov2

	(1)	(2)	(3)	(4)	(5)
	Q10	Q25	Q50	Q75	Q90
	Res. real	Res. real	Res. real	Res. real	Res. real
VARIABLES	estate loans	estate loans	estate loans	estate loans	estate loans
Total correspondents	-0.0354	-0.167***	-0.240***	-0.406***	-0.506***
	(0.0581)	(0.0540)	(0.0494)	(0.0688)	(0.0990)
Total branches	1.388***	1.467***	1.528***	1.673***	1.805***
	(0.0761)	(0.0616)	(0.0562)	(0.0731)	(0.0820)
% correspondents w/ loans	0.233*	0.406***	0.508***	0.844***	0.994***
	(0.126)	(0.109)	(0.0894)	(0.0918)	(0.119)
dreg1	0.0768	-0.0583	-0.0404	-0.162**	-0.193
	(0.0538)	(0.0659)	(0.0512)	(0.0742)	(0.142)
Collateral value	2.282***	2.867***	2.786***	3.249***	3.269***
	(0.363)	(0.261)	(0.254)	(0.280)	(0.396)
Selic rate	0.0601	0.123	0.0678	-0.0327	0.0952
	(0.101)	(0.0979)	(0.0768)	(0.0728)	(0.132)
GDP	4.439***	2.746***	2.109***	1.042*	1.068
	(0.856)	(0.537)	(0.444)	(0.563)	(1.001)
Population	0.110***	0.0824***	0.0103	-0.0455**	-0.112***
	(0.0190)	(0.0146)	(0.0152)	(0.0203)	(0.0200)
Construction costs	0.486***	0.162	0.0907	-0.0707	-0.183
	(0.138)	(0.120)	(0.111)	(0.116)	(0.202)
Trend	-0.0198***	-0.0193***	-0.0155***	-0.0162***	-0.0153***
	(0.00329)	(0.00290)	(0.00276)	(0.00282)	(0.00398)
dgov2	-0.0209	0.00798	0.0144	0.0111	-0.0120
	(0.0256)	(0.0188)	(0.0192)	(0.0227)	(0.0283)
Constant	-25.63***	-17.96***	-12.38***	-6.960***	-4.958
	(3.265)	(2.617)	(2.181)	(2.348)	(3.934)
Observations	1,600	1,600	1,600	1,600	1,600

This table presents quantile regressions for various quantiles of the volume of residential real estate loans against the political dummy dgov2, total number of banking correspondents, total number of bank branches, the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following quantiles: Q10 (column 1), Q25 (column 2), Q50 (column 3), Q75 (column 4) and Q90 (column 5). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. Robust standard errors in parentheses.***p<0.01, **p<0.05, *p<0.1

Table D.7

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1 and current exogenous variables - (1)

	(1)	(2)	(3)	(4)
	Q10-Q25	Q10-Q50	Q10-Q75	Q10-Q90
	Res. real estate	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans	loans
Total correspondents	-0.160***	-0.227***	-0.384***	-0.477***
	(0.0517)	(0.0669)	(0.0772)	(0.103)
Total branches	0.109*	0.170**	0.304***	0.436***
	(0.0591)	(0.0803)	(0.0940)	(0.0976)
% correspondents w/ loans	0.176*	0.264**	0.623***	0.818***
	(0.105)	(0.112)	(0.111)	(0.153)
dreg1	-0.0912	-0.0831	-0.205***	-0.228
	(0.0699)	(0.0665)	(0.0760)	(0.150)
Collateral value	0.543*	0.465	0.922**	0.934*
	(0.307)	(0.359)	(0.373)	(0.556)
Selic rate	0.0290	-0.0365	-0.143	0.0208
	(0.0949)	(0.102)	(0.103)	(0.135)
GDP	-1.569**	-2.315***	-3.283***	-3.178**
	(0.744)	(0.883)	(0.992)	(1.387)
Population	-0.0319**	-0.105***	-0.159***	-0.226***
	(0.0150)	(0.0196)	(0.0212)	(0.0222)
Construction costs	-0.335**	-0.419**	-0.573***	-0.733***
	(0.146)	(0.166)	(0.208)	(0.212)
Trend	0.00115	0.00525	0.00407	0.00507
	(0.00296)	(0.00348)	(0.00377)	(0.00493)
Constant	7.563**	13.84***	18.71***	20.65***
	(2.992)	(3.519)	(4.321)	(5.187)
Observations	1,600	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table D.8

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1 and current exogenous variables - (2)

VARIABLES	(1) Q25-Q50 Res. real estate loans	(2) Q25-Q75 Res. real estate loans	(3) Q25-Q90 Res. real estate loans
Total correspondents	-0.0672	-0.224***	-0.317***
	(0.0505)	(0.0679)	(0.103)
Total branches	0.0607	0.194***	0.327***
	(0.0519)	(0.0682)	(0.0804)
% correspondents w/ loans	0.0872	0.447***	0.642***
	(0.0911)	(0.115)	(0.134)
dreg1	0.00814	-0.114	-0.137
	(0.0628)	(0.106)	(0.132)
Collateral value	-0.0778	0.379	0.391
	(0.258)	(0.313)	(0.447)
Selic rate	-0.0655	-0.172*	-0.00820
	(0.0916)	(0.104)	(0.148)
GDP	-0.746	-1.714**	-1.610*
	(0.476)	(0.692)	(0.965)
Population	-0.0735***	-0.127***	-0.194***
	(0.0142)	(0.0184)	(0.0218)
Construction costs	-0.0844	-0.238	-0.398**
	(0.117)	(0.150)	(0.194)
Trend	0.00410	0.00292	0.00391
	(0.00267)	(0.00351)	(0.00452)
Constant	6.273***	11.15***	13.09***
	(2.129)	(2.961)	(3.439)
Observations	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.***p<0.01, ** p<0.05, * p<0.1

Table D.9

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1 and current exogenous variables - (3)

	(1)	(2)	(3)
	Q50-Q75	Q50-Q90	Q75-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.157***	-0.250***	-0.0933
	(0.0589)	(0.0918)	(0.0873)
Total branches	0.134**	0.266***	0.132*
	(0.0627)	(0.0730)	(0.0751)
% correspondents w/ loans	0.360***	0.554***	0.195**
	(0.0849)	(0.107)	(0.0981)
dreg1	-0.122*	-0.145	-0.0232
	(0.0636)	(0.141)	(0.128)
Collateral value	0.457*	0.469	0.0124
	(0.272)	(0.441)	(0.358)
Selic rate	-0.106	0.0573	0.163
	(0.0767)	(0.140)	(0.113)
GDP	-0.968*	-0.863	0.105
	(0.553)	(1.106)	(0.887)
Population	-0.0540***	-0.120***	-0.0662***
	(0.0138)	(0.0209)	(0.0168)
Construction costs	-0.154	-0.314*	-0.160
	(0.103)	(0.180)	(0.151)
Trend	-0.00118	-0.000185	0.000994
	(0.00282)	(0.00423)	(0.00367)
Constant	4.872**	6.812*	1.940
	(2.215)	(3.979)	(3.635)
Observations	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. Robust standard errors in parentheses.***p<0.01, ** p<0.05, * p<0.1

Table D.10

Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov1 - (1)

VARIABLES	(1) Q10-Q25 Res. real estate loans	(2) Q10-Q50 Res. real estate loans	(3) Q10-Q75 Res. real estate loans	(4) Q10-Q90 Res. real estate loans
Total correspondents	-0.152***	-0.188***	-0.281***	-0.390***
	(0.0489)	(0.0612)	(0.0831)	(0.111)
Total branches	0.108*	0.156**	0.248***	0.388***
	(0.0578)	(0.0746)	(0.0849)	(0.0991)
% correspondents w/ loans	0.192	0.369***	0.754***	0.897***
	(0.121)	(0.134)	(0.134)	(0.159)
dreg1	-0.129**	-0.178***	-0.277***	-0.161
	(0.0534)	(0.0628)	(0.0856)	(0.107)
Collateral value	0.623*	0.622	1.155***	0.994
	(0.330)	(0.398)	(0.387)	(0.654)
Selic rate	0.0558	0.0412	-0.0238	0.0683
	(0.0870)	(0.103)	(0.119)	(0.136)
GDP	-1.642**	-2.329**	-3.850***	-3.540***
	(0.818)	(0.976)	(1.023)	(1.359)
Population	-0.0401**	-0.117***	-0.175***	-0.233***
	(0.0161)	(0.0197)	(0.0212)	(0.0241)
Construction costs	-0.314**	-0.402***	-0.530***	-0.673***
	(0.135)	(0.151)	(0.166)	(0.187)
Trend	8.64e-05	0.00260	0.000591	0.00324
	(0.00302)	(0.00360)	(0.00374)	(0.00583)
dgov1	0.0559	0.149***	0.241***	0.237***
	(0.0402)	(0.0446)	(0.0444)	(0.0548)
Constant	7.481**	13.15***	20.24***	21.95***
	(2.968)	(3.588)	(3.896)	(4.329)
Observations	1,600	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q10-Q25 (column 1), Q10-Q50 (column 2), Q10-Q75 (column 3) and Q10-Q90 (column 4). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table D.11
Is there heterogeneity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov1 - (2)

	(1)	(2)	(3)
	Q25-Q50	Q25-Q75	Q25-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.0364	-0.130*	-0.239**
	(0.0429)	(0.0664)	(0.100)
Total branches	0.0480	0.140**	0.280***
	(0.0471)	(0.0663)	(0.0970)
% correspondents w/ loans	0.177**	0.561***	0.705***
	(0.0860)	(0.104)	(0.142)
dreg1	-0.0495	-0.148	-0.0317
	(0.0561)	(0.0982)	(0.116)
Collateral value	-0.00175	0.532*	0.371
	(0.218)	(0.290)	(0.535)
Selic rate	-0.0146	-0.0796	0.0125
	(0.0718)	(0.111)	(0.156)
GDP	-0.687	-2.208***	-1.898**
	(0.480)	(0.653)	(0.932)
Population	-0.0772***	-0.134***	-0.193***
	(0.0159)	(0.0162)	(0.0246)
Construction costs	-0.0884	-0.216	-0.360*
	(0.138)	(0.161)	(0.203)
Trend	0.00251	0.000504	0.00316
	(0.00242)	(0.00322)	(0.00533)
dgov1	0.0932***	0.185***	0.181***
	(0.0348)	(0.0363)	(0.0544)
Constant	5.670**	12.76***	14.47***
	(2.542)	(2.879)	(3.010)
Observations	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q25-Q50 (column 1), Q25-Q75 (column 2), Q25-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table D.12
Is there heterogeineity of effects related to the volume of residential real estate loans? An Interquantile Regression approach - Including regulatory dummy dreg1, current exogenous variables and political dummy dgov1 - (3)

	(1)	(2)	(3)
	Q50-Q75	Q50-Q90	Q75-Q90
	Res. real estate	Res. real estate	Res. real estate
VARIABLES	loans	loans	loans
Total correspondents	-0.0933*	-0.202**	-0.109
	(0.0525)	(0.0850)	(0.0795)
Total branches	0.0921**	0.231***	0.139*
	(0.0463)	(0.0809)	(0.0766)
% correspondents w/ loans	0.384***	0.528***	0.144
	(0.0770)	(0.110)	(0.110)
dreg1	-0.0988	0.0178	0.117
	(0.0766)	(0.101)	(0.101)
Collateral value	0.534**	0.373	-0.161
	(0.208)	(0.504)	(0.420)
Selic rate	-0.0651	0.0271	0.0922
	(0.0715)	(0.124)	(0.114)
GDP	-1.521***	-1.211	0.310
	(0.441)	(0.963)	(0.850)
Population	-0.0573***	-0.115***	-0.0580***
	(0.0101)	(0.0156)	(0.0154)
Construction costs	-0.128	-0.271**	-0.144
	(0.0992)	(0.137)	(0.143)
Trend	-0.00201	0.000643	0.00265
	(0.00221)	(0.00467)	(0.00383)
dgov1	0.0921***	0.0876*	-0.00452
	(0.0323)	(0.0467)	(0.0426)
Constant	7.094***	8.796***	1.703
	(1.999)	(3.118)	(2.688)
Observations	1,600	1,600	1,600

This table presents interquantile regressions for various pairs of quantiles of the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. Variables are in per capita terms when applicable. All exogenous variables are current. This table contains results associated with the following pairs of quantiles: Q50-Q75 (column 1), Q50-Q90 (column 2), Q75-Q90 (column 3). I use state monthly data and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

E Mixed Effects "Randomized" Variables - state varying slopes (sd)

Table E.1

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, lagged exogenous variables and independent "randomized" mixed effects variables

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.374**	0.480**	3.42e-06^{+}	0.229**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table E.2

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, lagged exogenous variables and independent "randomized" mixed effects variables

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.366**	0.462**	5.77e-07**	0.227**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table E.3

Mixed Effects "Randomized Variables" - State varying sopes/intercept (sd) - Including regulatory dummy dreg1, lagged exogenous variables and unstructured "randomized" mixed effects variables

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.590**	1.695**	5.255**	-0.948**	0.864**	-0.978**	0.227**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table E.4

Mixed Effects "Randomized Variables" - State varying sopes/intercept (sd) - Including regulatory dummy dreg3, lagged exogenous variables and unstructured "randomized" mixed effects variables

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.621^{+}	1.852**	5.822^{+}	-0.963**	-0.910^{+}	-0.988^{+}	0.226**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table E.5

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, current exogenous variables and independent "randomized" mixed effects variables

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.359**	0.455**	1.66e-10^{+}	0.229**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table E.6

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, current exogenous variables and independent "randomized" mixed effects variables

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.353**	0.443**	4.80e-07^{+}	0.228**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table E.7

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, current exogenous variables and unstructured "randomized" mixed effects variables

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.595**	1.804**	5.831**	-0.944**	0.862**	-0.981**	0.227**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous are current. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table E.8

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, current exogenous variables and unstructured "randomized" mixed effects variables

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.612**	1.895**	6.148**	-0.955**	0.893**	-0.986**	0.226**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous are current. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

F Mixed Effects "Randomized" Variables - state varying slopes (sd) - political influence

Table F.1

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, lagged exogenous variables, independent "randomized" mixed effects variables and political dummy dgov1

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.370**	0.476**	8.29e-11^{+}	0.229**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.2

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, lagged exogenous variables, independent "randomized" mixed effects variables and political dummy dgov1

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.365**	0.462**	3.93e-09^{+}	0.228**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.3

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, lagged exogenous variables and unstructured "randomized" mixed effects variables and political dummy dgov1

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.593**	1.704**	5.227**	-0.954**	0.883**	-0.982**	0.227**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.4

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, lagged exogenous variables and unstructured "randomized" mixed effects variables and political dummy dgov1

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.622**	1.855**	5.817**	-0.964**	0.915**	-0.988**	0.226**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.5

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, lagged exogenous variables, independent "randomized" mixed effects variables and political dummy dgov2

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.364**	0.470**	2.19e-09**	0.229**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.6

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, lagged exogenous variables, independent "randomized" mixed effects variables and political dummy dgov2

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.356**	0.452**	5.34e-07^{+}	0.228**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.7

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, lagged exogenous variables and unstructured "randomized" mixed effects variables and political dummy dgov2

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.590**	1.709**	5.235**	-0.957**	0.891**	-0.983**	0.227**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.8

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, lagged exogenous variables and unstructured "randomized" mixed effects variables and political dummy dgov2

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.621**	1.874**	5.840**	-0.971**	0.935**	-0.992**	0.226**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are 1-period lagged. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.9

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, current exogenous variables, independent "randomized" mixed effects variables and political dummy dgov1

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.355**	0.450**	1.31e-10^{+}	0.229**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.10

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, current exogenous variables, independent "randomized" mixed effects variables and political dummy dgov1

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.351**	0.440**	1.34e-09^{+}	0.228**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.11

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, current exogenous variables, unstructured "randomized" mixed effects variables and political dummy dgov1

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.599**	1.825**	5.845**	-0.951**	0.884**	-0.984**	0.227**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.12

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, current exogenous variables, unstructured "randomized" mixed effects variables and political dummy dgov1

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.615**	1.910**	6.164**	-0.960**	0.907**	-0.988**	0.226**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov1, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov1 is related to the alignment between president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.13

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, current exogenous variables, independent "randomized" mixed effects variables and political dummy dgov2

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.350**	0.445**	8.12e-09^{+}	0.229**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.14

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, current exogenous variables, independent "randomized" mixed effects variables and political dummy dgov2

(1)	(2)	(3)	(4)
sd (collateral value)	sd (GDP)	sd (Constant)	sd (Residuals)
0.343**	0.432**	2.04e-06^{+}	0.228**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value (column 1), GDP (column 2), Constant (column 3). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 4). I use state monthly data, independent "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.15

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg1, current exogenous variables, unstructured "randomized" mixed effects variables and political dummy dgov2

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.594**	1.828**	5.903**	-0.949**	0.878**	-0.983**	0.227**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg1 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).

Table F.16

Mixed Effects "Randomized Variables" - State varying slopes/intercept (sd) - Including regulatory dummy dreg3, current exogenous variables, unstructured "randomized" mixed effects variables and political dummy dgov2

(1) sd (collateral value)	(2) sd (GDP)	(3) sd (Constant)	(4) corr (collateral value, GDP)	(5) corr (collateral value,constant)	(6) corr (GDP, constant)	(7) sd (Residuals)
0.611**	1.924**	6.246**	-0.960**	0.909**	-0.989**	0.226**

This table presents standard deviations for "randomized" mixed effects variables with state varying slopes or state varying intercepts. The underlying regression relates the volume of residential real estate loans against the political dummy dgov2, the total number of banking correspondents, total number of bank branches and the proportion of banking correspondents with loan services and a set of control variables, explained at Methodology chapter. All exogenous variables are current. This table contains standard deviation and correlations of the following mixed effects "randomized" variables with state varying slopes or state varying intercepts: collateral value-sd (column 1), GDP-sd (column 2), Constant-sd (column 3), collateral value_GDP-correlation (column 4), collateral value_constant-correlation (column 5), GDP_constant-correlation (column 6). The last column refers to the standard deviation of estimated Residuals before the use of sate-varying slopes and intercepts (column 7). I use state monthly data, unstructured "randomized" mixed effects variables and include a regulatory dummy dreg3 in order to control for 2011 banking correspondents regulatory change. The political dummy dgov2 is related to the alignment between president or vice-president and state governors. ** significant sate varying slopes or intercepts (standard deviations). + non significant or non-robust state varying slopes or intercepts (standard deviations).