UP Paper

February 5, 2024

1 Introduction

2 Literature Review

Alexakis et al. (2023)

3 Data and Methodology

4 Results

4.1 Macroprudential regulation and lending

Table 1: Macroprudential Draft Regulation Results

	total_unsecured	total lending aggregate	total installment	total mortgages	financial leasing	credit cards	transport	households	residential mortgages
draft	0.82***	-0.04	-0.05	0.68***	-0.12	0.11	1.01***	0.00	-0.12
	(0.16)	(0.28)	(0.42)	(0.12)	(0.27)	(0.42)	(0.30)	(0.29)	(0.45)
factor(banks)Absa Bank	9.24***	10.35***	8.24***	7.00***	10.00***	5.70***	13.64***	10.51***	9.06***
	(0.28)	(0.53)	(0.27)	(0.28)	(0.56)	(0.38)	(0.49)	(0.52)	(0.35)
factor(banks)FNB	8.87***	10.83***	9.30***	7.34***	10.16***	9.21***	12.41***	11.08***	9.32***
	(0.85)	(0.32)	(0.38)	(0.78)	(0.36)	(0.37)	(0.75)	(0.30)	(0.40)
factor(banks)Nedbank	8.44***	11.38***	9.60***	7.12***	10.10***	9.56***	12.60***	11.69***	9.65***
	(0.70)	(0.22)	(0.61)	(0.52)	(0.37)	(0.65)	(1.17)	(0.22)	(0.57)
factor(banks)Standard Bank	9.25***	10.93***	9.45***	7.14***	10.18***	9.21***	13.77***	11.81***	9.51***
	(1.13)	(0.32)	(0.36)	(1.11)	(0.40)	(0.47)	(0.80)	(0.27)	(0.36)
factor(month)2	-0.24***	-0.03	-0.08**	-0.21**	-0.02	-0.07+	-0.25**	-0.06+	-0.07+
	(0.06)	(0.04)	(0.03)	(0.08)	(0.05)	(0.04)	(0.08)	(0.04)	(0.04)
factor(month)3	-0.15**	-0.07*	-0.12*	-0.06	-0.07+	-0.12*	-0.23*	-0.09*	-0.12*
	(0.05)	(0.03)	(0.05)	(0.05)	(0.04)	(0.05)	(0.11)	(0.04)	(0.05)
factor(month)4	-0.39***	-0.16*	-0.22**	-0.26***	-0.10	-0.19*	-0.56***	-0.21*	-0.22**
	(0.08)	(0.08)	(0.07)	(0.06)	(0.07)	(0.08)	(0.16)	(0.09)	(0.08)
factor(month)5	-0.36***	-0.20**	-0.27**	-0.24***	-0.18*	-0.27*	-0.53**	-0.20*	-0.27**
	(0.09)	(0.08)	(0.09)	(0.07)	(0.08)	(0.11)	(0.20)	(0.08)	(0.10)
factor(month)6	-0.31***	-0.23**	-0.26***	-0.20**	-0.27*	-0.18+	-0.49*	-0.20**	-0.29***
	(0.08)	(0.08)	(0.07)	(0.07)	(0.12)	(0.09)	(0.20)	(0.07)	(0.08)
factor(month)7	-0.28**	-0.18*	-0.11	-0.15*	-0.22*	-0.22*	-0.50*	-0.16*	-0.09
	(0.10)	(0.08)	(0.10)	(0.07)	(0.11)	(0.11)	(0.20)	(0.08)	(0.11)
factor(month)8	-0.30**	-0.20*	-0.20+	-0.17*	-0.23+	-0.21+	-0.46+	-0.18+	-0.20+
	(0.09)	(0.10)	(0.11)	(0.07)	(0.13)	(0.12)	(0.24)	(0.09)	(0.11)
factor(month)9	-0.38***	-0.22*	-0.26**	-0.27**	-0.26*	-0.29*	-0.56*	-0.19*	-0.26**
	(0.10)	(0.09)	(0.09)	(0.09)	(0.12)	(0.11)	(0.22)	(0.08)	(0.09)
factor(month)10	-0.33***	-0.22*	-0.24*	-0.24***	-0.27*	-0.26*	-0.46*	-0.19+	-0.23*
	(0.08)	(0.10)	(0.11)	(0.07)	(0.12)	(0.13)	(0.22)	(0.10)	(0.12)
factor(month)11	-0.41**	-0.18*	-0.20*	-0.26**	-0.23+	-0.14	-0.67*	-0.16*	-0.20*
	(0.13)	(0.09)	(0.09)	(0.10)	(0.13)	(0.11)	(0.28)	(0.08)	(0.10)
factor(month)12	-0.36**	-0.63*	-1.09***	-0.22*	-0.61*	-1.11***	-0.77**	-0.67*	-1.05***
	(0.12)	(0.28)	(0.30)	(0.09)	(0.30)	(0.30)	(0.25)	(0.30)	(0.31)
Num.Obs.	816	816	816	816	816	816	816	816	816

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 2: Macroprudential Regulation Implementation Results

	total_unsecured_lending	total_leasing	total_installment	total_mortgage	financial_lease	duration...	corporate_banking	repayments	residential_mortgages_households
implementation	2.31***	0.25	0.29	1.96**	0.16	0.03	2.94***	0.31	0.34
	(0.56)	(0.31)	(0.39)	(0.70)	(0.36)	(0.44)	(0.40)	(0.30)	(0.39)
factor(banks)Absa Bank	7.74***	10.19***	8.06***	5.73***	9.89***	5.68***	11.74***	10.31***	8.84***
	(0.48)	(0.64)	(0.36)	(0.54)	(0.69)	(0.41)	(0.56)	(0.62)	(0.42)
factor(banks)FNB	7.37***	10.67***	9.12***	6.07***	10.05***	9.19***	10.51***	10.88***	9.10***
	(1.11)	(0.33)	(0.39)	(1.11)	(0.34)	(0.44)	(0.83)	(0.32)	(0.40)
factor(banks)Nedbank	6.94***	11.22***	9.42***	5.85***	9.99***	9.54***	10.70***	11.49***	9.44***
	(0.80)	(0.31)	(0.77)	(0.66)	(0.51)	(0.82)	(1.25)	(0.31)	(0.72)
factor(banks)Standard Bank	7.75***	10.76***	9.26***	5.87***	10.07***	9.19***	11.87***	11.61***	9.30***
	(1.35)	(0.30)	(0.42)	(1.44)	(0.38)	(0.55)	(0.82)	(0.26)	(0.40)
factor(month)2	1.31***	0.13	0.10	1.11**	0.08	-0.04	1.72***	0.14	0.14
	(0.34)	(0.18)	(0.26)	(0.39)	(0.21)	(0.28)	(0.31)	(0.18)	(0.25)
factor(month)3	1.35***	0.09	0.06	1.21**	0.04	-0.10	1.67***	0.11	0.09
	(0.36)	(0.19)	(0.25)	(0.41)	(0.22)	(0.26)	(0.37)	(0.18)	(0.25)
factor(month)4	1.01**	-0.02	-0.06	0.93*	-0.01	-0.16	1.22**	-0.03	-0.04
	(0.32)	(0.13)	(0.19)	(0.37)	(0.17)	(0.21)	(0.39)	(0.12)	(0.18)
factor(month)5	1.19***	-0.04	-0.09	1.07**	-0.08	-0.24	1.44***	0.01	-0.06
	(0.34)	(0.17)	(0.20)	(0.40)	(0.20)	(0.23)	(0.39)	(0.16)	(0.21)
factor(month)6	1.18***	-0.07	-0.08	1.07**	-0.17	-0.16	1.41***	0.01	-0.07
	(0.32)	(0.16)	(0.20)	(0.39)	(0.18)	(0.21)	(0.39)	(0.16)	(0.20)
factor(month)7	1.12***	-0.04	0.05	1.04**	-0.13	-0.20	1.28***	0.02	0.10
	(0.26)	(0.16)	(0.17)	(0.35)	(0.18)	(0.21)	(0.30)	(0.16)	(0.16)
factor(month)8	1.30***	-0.04	-0.03	1.18**	-0.14	-0.18	1.57***	0.02	0.00
	(0.32)	(0.19)	(0.21)	(0.39)	(0.21)	(0.22)	(0.38)	(0.19)	(0.22)
factor(month)9	1.12***	-0.05	-0.08	1.00**	-0.15	-0.27	1.34***	0.01	-0.04
	(0.29)	(0.17)	(0.20)	(0.36)	(0.20)	(0.24)	(0.37)	(0.17)	(0.20)
factor(month)10	1.27***	-0.07	-0.06	1.10**	-0.18	-0.23	1.56***	0.01	-0.03
	(0.31)	(0.20)	(0.21)	(0.40)	(0.22)	(0.23)	(0.37)	(0.19)	(0.22)
factor(month)11	1.09***	-0.02	-0.01	1.01**	-0.13	-0.12	1.24**	0.04	0.02
	(0.25)	(0.21)	(0.21)	(0.34)	(0.23)	(0.22)	(0.39)	(0.20)	(0.22)
factor(month)12	1.24**	-0.48+	-0.91**	1.14*	-0.52	-1.07***	1.26***	-0.47+	-0.85**
	(0.40)	(0.27)	(0.28)	(0.46)	(0.33)	(0.28)	(0.35)	(0.28)	(0.29)
Num.Obs.	816	816	816	816	816	816	816	816	816

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

4.2 Competition regulation and lending

Table 3: Entry and exit effect on corporate unsecured lending

	non_financial_corporate_unsecured_lending_rate
entry_credit_non_fin_dummy	0.77*
	(0.30)
exit_credit_non_fin_dummy	1.16*
	(0.45)
factor(banks)Absa Bank	6.95***
	(0.32)
factor(banks)FNB	7.30***
	(0.82)
factor(banks)Nedbank	7.07***
	(0.55)
factor(banks)Standard Bank	7.09***
	(1.19)
factor(month)2	-0.12+
	(0.06)
factor(month)3	-0.06
	(0.05)
factor(month)4	-0.22***
	(0.06)
factor(month)5	-0.20**
	(0.07)
factor(month)6	-0.21**
	(0.08)
factor(month)7	-0.19+
	(0.09)
factor(month)8	-0.04
	(0.06)
factor(month)9	-0.35**
	(0.12)
factor(month)10	-0.16*
	(0.07)
factor(month)11	-0.32*
	(0.13)
factor(month)12	-0.22*
	(0.10)
Num.Obs.	816

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 4: Entry and exit effect on household unsecured lending

	household_unsecured_lending_rate
entry_credit_households_dummy	1.34***
	(0.31)
exit_credit_households_dummy	2.20***
	(0.56)
factor(banks)Absa Bank	13.64***
	(0.52)
factor(banks)FNB	12.41***
	(0.80)
factor(banks)Nedbank	12.60***
	(1.19)
factor(banks)Standard Bank	13.77***
	(0.79)
factor(month)2	-0.18**
	(0.06)
factor(month)3	-0.32**
	(0.11)
factor(month)4	-0.49**
	(0.17)
factor(month)5	-0.55**
	(0.18)
factor(month)6	-0.58**
	(0.22)
factor(month)7	-0.53**
	(0.18)
factor(month)8	-0.34
	(0.22)
factor(month)9	-0.65*
	(0.26)
factor(month)10	-0.42*
	(0.20)
factor(month)11	-0.67*
	(0.28)
factor(month)12	-0.79***
	(0.23)
Num.Obs.	816

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Conclusion

6 References

Alexakis, C., Chantziaras, A., Economou, F., Eleftheriou, K., and Grose, C. (2023). Animal behavior in capital markets: Herding formation dynamics, trading volume, and the role of covid-19 pandemic. *The North American Journal of Economics and Finance*, 67:101946.

A Appendix

A.1 Data sources (check)

Table A1: Data Sources

	Description	Availability	Source
Macroprudential narrative index		Public data	Own analysis
Competition narrative index		Public data	Own analysis
BA900	Banking sector balance sheet data at a bank level	Public data	South African Reserve Bank
BA930	Banking sector lending rates at a bank level	Aggregated data is public. Bank specific data is private	South African Reserve Bank
Controls	Banking sector performance data at a bank level	Aggregated data is public. Bank specific data is private	Prudential Authority

A.2 Aggregation scheme (check)

Table A2: Aggregation schema

BA 900 Categories	Item Number	Sector	Aggregation Key
Installment sales	141	Financial corporate sector	-
	142	Non financial corporate sector	g
	143	Household sector	h
	144	Other	-
Leasing transactions	146	Financial corporate sector	-
	147	Non financial corporate sector	g
	148	Household sector	h
	149	Other	-
Farm mortgages	152	Non financial corporate sector	d
	153	Household sector	d
	154	Other	-
Residential mortgages	156	Non financial corporate sector	e
	157	Household sector	-
	158	Other	-
Commercial and other mortgages	160	Public financial corporates	-
	161	Public non-financial corporates	-
	162	Private financial corporate	d
	163	Private non-financial corporates	d
	164	Household sector	-
	165	Other	-
Credit cards	167	Financial corporate sector	a
	168	Non financial corporate sector	b
	169	Household sector	-
	170	Other	-
Overdrafts	178	Public sector (includes public corporations and local government)	-
	181	Financial corporate sector	-
	182	Non financial corporate sector	-
	183	Unincorporated business enterprises	a
	184	Other Household sector	-
	185	Non-profit organisations serving households	b
Factoring debtors	187		-
Other loans and advances	189	Financial corporate sector	-
	190	Non financial corporate sector	a
	191	Unincorporated business enterprises	-
	192	Other Household sector	b
	193	Non-profit organisations serving households	-

The following aggregation scheme which results in nine categories was followed based on

Table A2:

a. Non-financial corporate unsecured lending: Items 168 + 183 + 190

b. Household unsecured lending: Items 169 + 185 + 192

c. Total unsecured lending: Non-financial corporate unsecured lending + Household unsecured lending

d. Commercial mortgages to corporates and households: Items 152 + 153 + 156 + 163 + 164

e. Residential mortgages to household: Item 157

f. Total mortgage lending: Commercial mortgages to corporates and households + Residential mortgages to household

g. Leasing and instalments to corporates: Items 142 + 147

h. Leasing and instalments to households: Items 143 + 148

i. Total leasing and instalments: Leasing and instalments to corporates + Leasing and instalments to households

A.3 Bank lending rates weighting scheme (check)

The loans quantities from the BA900s are then linked to the lending rate data from the BA930s using table to create nine lending rate categories the schema on Table A3. The weights for each category are then calculated by dividing the total value of the loans in each category by the total value of all loans in the BA900s. The weights are then used to calculate the weighted average lending rate for each month. The weighted average lending rate is calculated by multiplying the lending rate for each category by the weight for that category and then summing the results.

Table A3: Weighting schema

Sector	BA 930 Categories	Item Number	Weighting Key
Corporate sector	Overdraft rate	48	a and c
	Instalment sale agreements flexible rate	49	g and i
	Instalment sale fixed rate	50	-
	Leasing transactions flexible rate	51	g and i
	Leasing transactions fixed rate	52	-
	Mortgage advances flexible rate	53	d and f
	Mortgage advances fixed rate	54	-
	Credit card rate	55	a and c
	Other	56	a and c
Household sector	Overdraft rate	58	b and c
	Instalment sale agreements flexible rate	59	h and i
	Instalment sale fixed rate	60	-
	Leasing transactions flexible rate	61	h and i
	Leasing transactions fixed rate	62	-
	Mortgage advances flexible rate	63	e and f
	Mortgage advances fixed rate	64	-
	Credit card rate	65	b and c
	Other	66	b and c

The nine categories, therefore, are as follows:

a. Non-financial corporate unsecured lending: Weighted average of items 55 + 48 + 56

b. Household unsecured lending: Weighted average of items 65 + 58 + 66

c. Total unsecured lending: Weighted average of items 55 + 48 + 56 + 65 + 58 + 66

d. Commercial mortgages to corporates and households: Weighted average of items 53

e. Residential mortgages to household: Item 63

f. Total mortgage lending: Weighted average of items 53 + 63

g. Leasing and instalments to corporates: Weighted average of items 49 + 51

h. Leasing and instalments to households: Weighted average of items 59 + 61

i. Total leasing and instalments: Weighted average of items 49 + 51 + 59 + 61

A.4 Description of narrative events (check)

Table A4: Description of the narrative indexes

Index	Description
Macroprudential	The macroprudential narrative index
Competition	The competition narrative index

A.5 Competition narrative indexes (check)
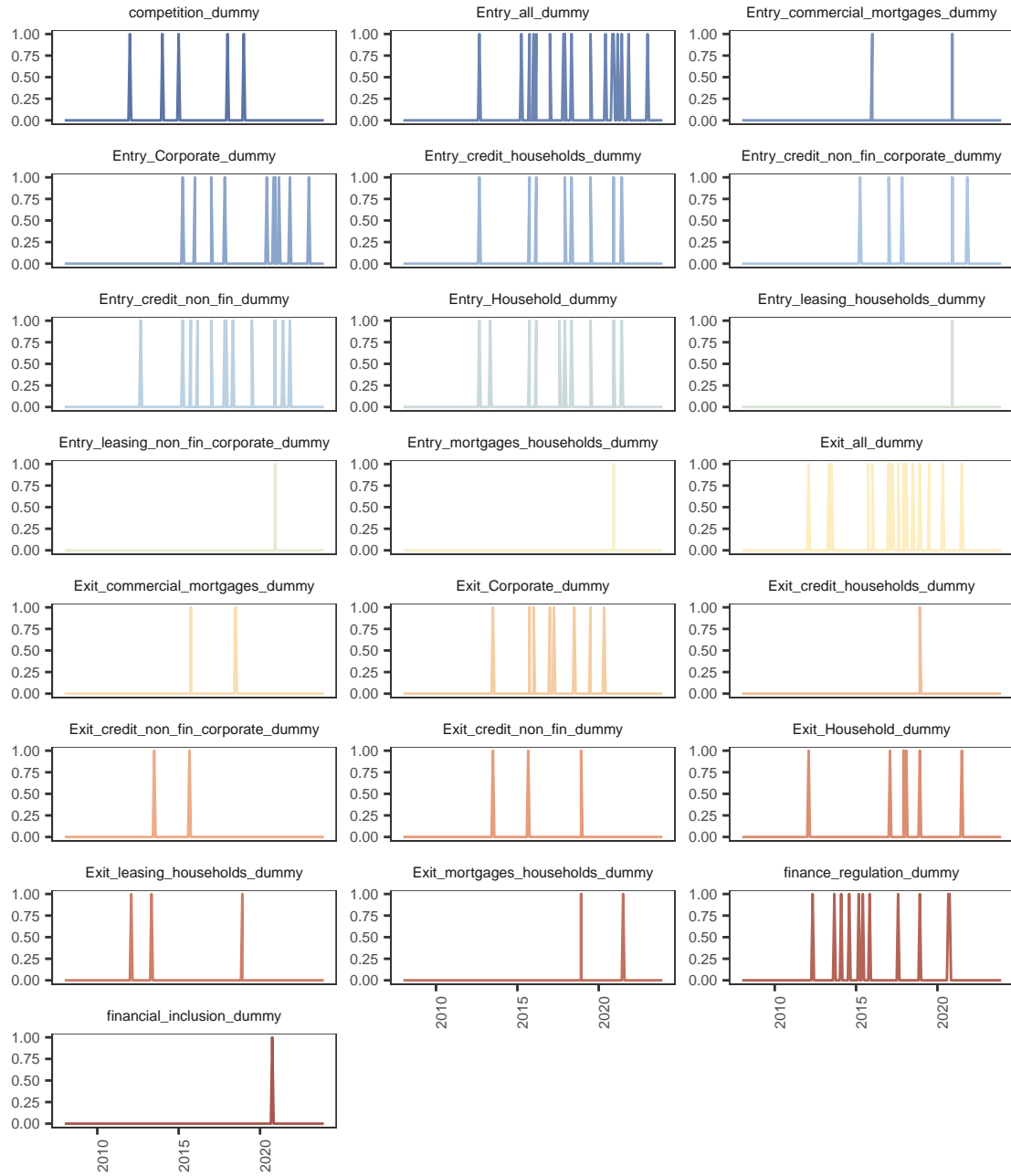
Figure A1: Competition narrative indexes

A.6 Macroprudential narrative indexes (check)
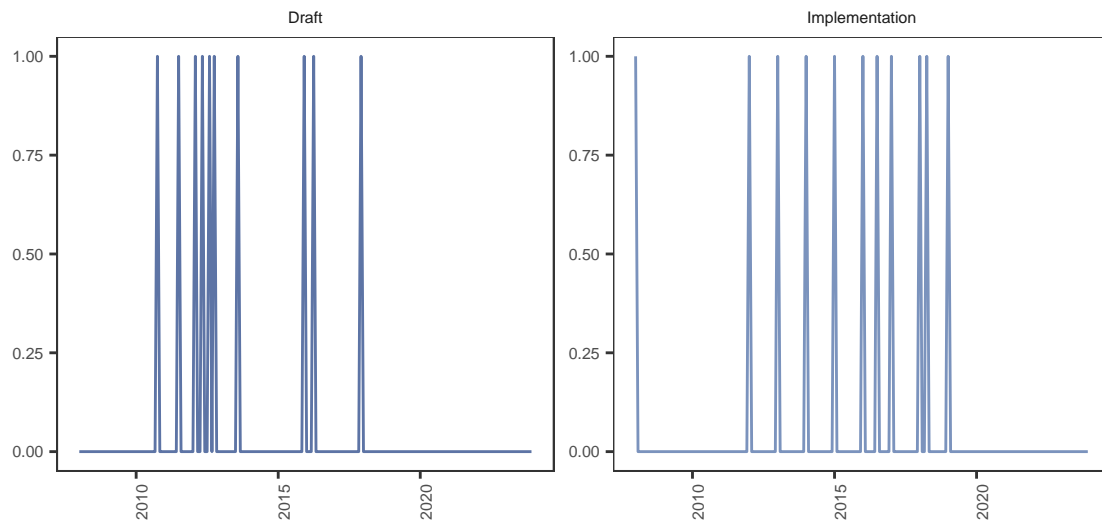
Figure A2: Macroprudential narrative indexes
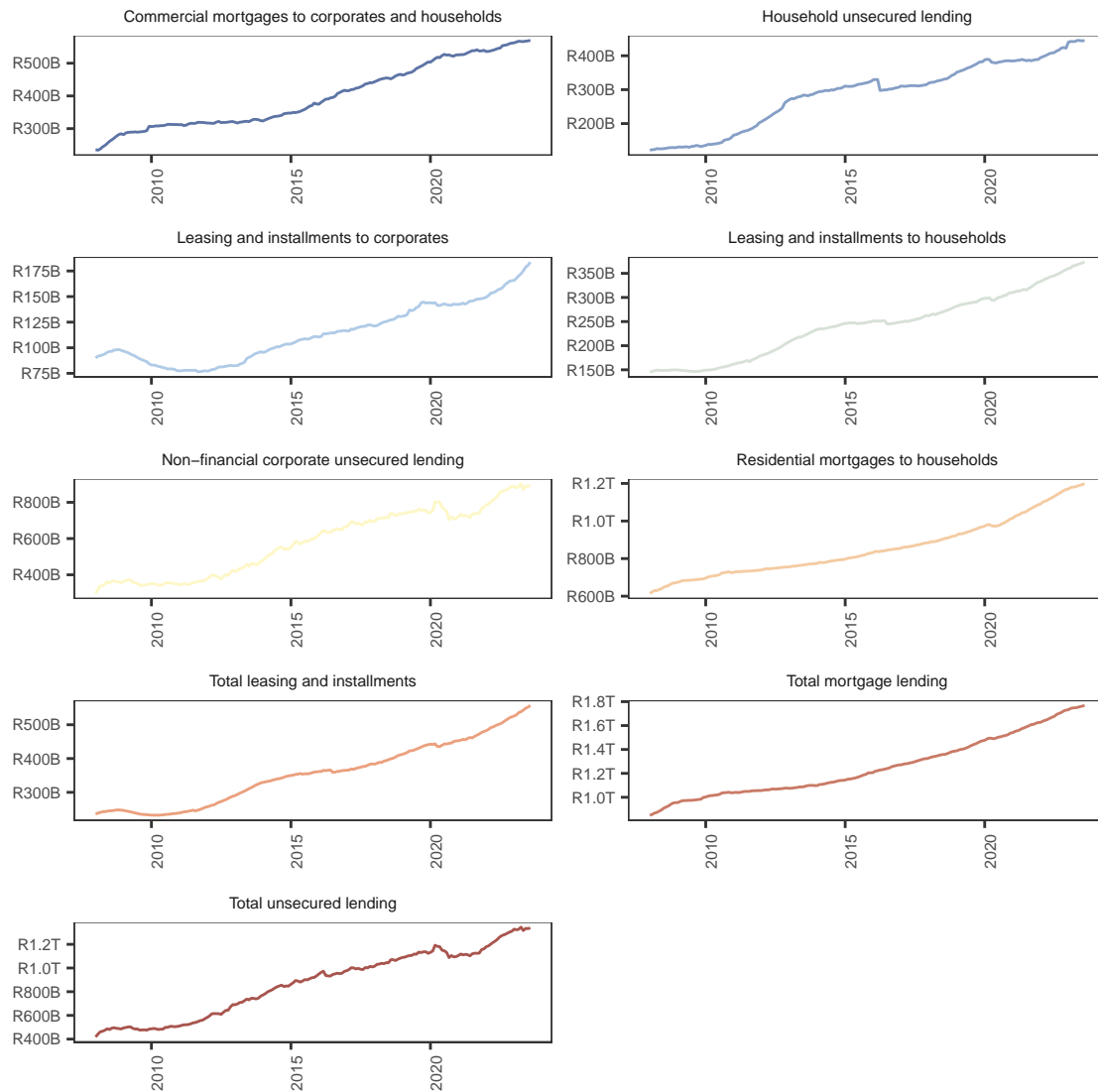
A.7 Aggregated bank lending

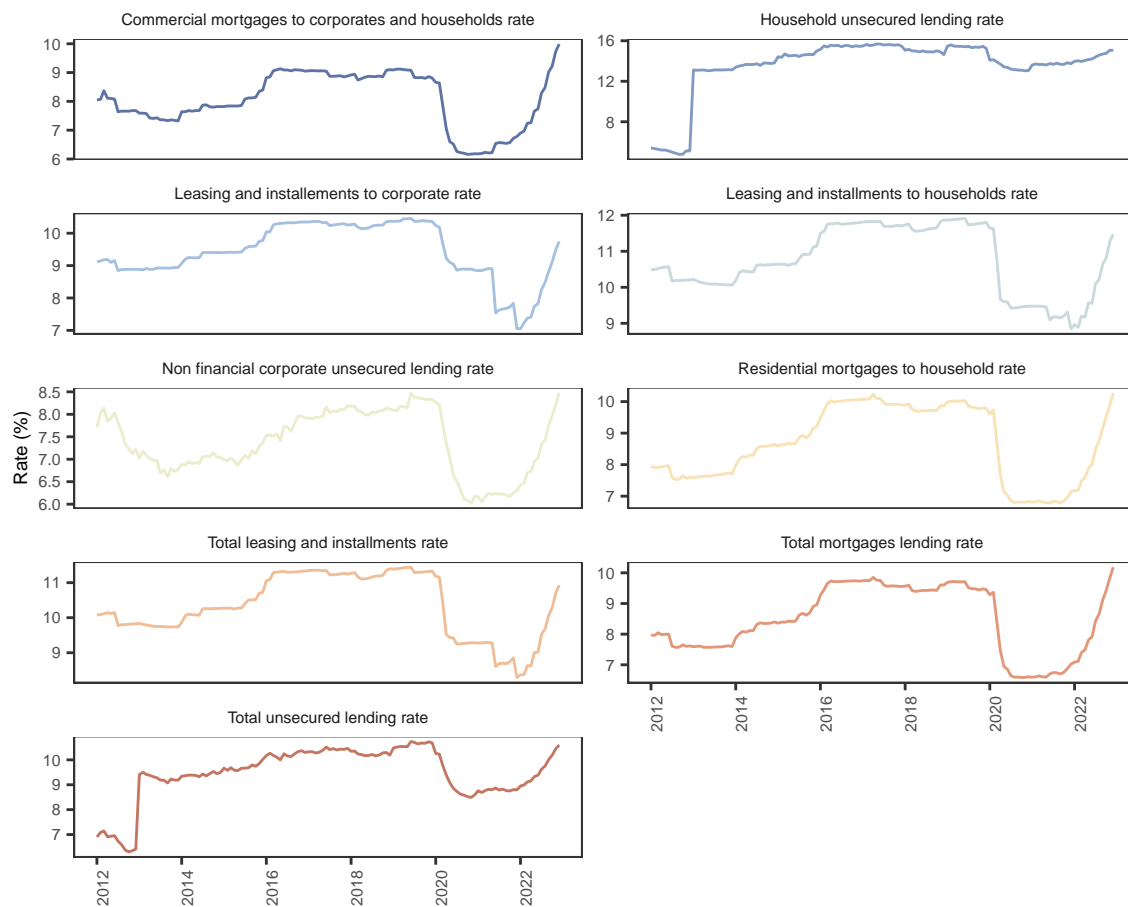Figure A3: Total aggregated bank lending

A.8 Weighted lending rates (aggregated)

Figure A4: Weighted lending rates