

Measure three times before you cut

Different approaches in money market measurement

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Disclaimer

The authors of this paper are members of one of the user groups with access to TARGET2 data in accordance with Article 1(2) of Decision ECB/2010/9 of 29 July 2010 on access to and use of certain TARGET2 data. The Deutsche Bundesbank and the MIPC have checked the paper against the rules for guaranteeing the confidentiality of transaction-level data imposed by the PSSC pursuant to Article 1(4) of the above mentioned issue. The views expressed in the paper are solely those of the author and do not necessarily represent the views of the Eurosystem.

Outline

Continuation of analysis of money market databases (presented at BoF in 2016)

Comparison of money market data extended to newly available MMSR database

Overview of different approaches and a detailed methodological and quantitative comparison of data sources for the Eurosystem and particularly Germany

Different settlement banks	Transaction class only included here	Identical advance payment, differing repayment	Loans outside corridor applied by A1	Identical advance payment, differing repayment
		Identical repayment, differing advance payment	Different consolidation	Identical repayment, differing advance payment
Missing information / Other		Unmatched loans with one or more collision	Missing information / Other	
Identified only in A1 (126.010)			Identified only in A2 (102.867)	

Conclusion

- Deviations exist between the two implementations, part of which can be explained by methodical differences
- We observe deviations at the transaction level rather than deviations on the part of indicators
- Applied range of rates by the Arciero et al. implementation seems to be the difference with highest impact on results
- Some evidence was found that “out of range” observations are correlated with crisis times
- Variety has merit for research!

- Future work: Validation with data from MMSR

Why do we care?

- The money market is the initial stance of monetary policy
- Money market is critical for monetary policy transmission, but also for monitoring financial stability
- Measurement is especially important in times of crisis and uncertainty
- Money market rates as reference and underlying for various derivatives (estimated 22 trillion interest rate derivatives outstanding of EONIA)
- New rate ESTER based on MMSR data

=> Considerable resources are devoted to measuring money market activity

What measures can be applied

– Survey data

- Voluntary provision of data
- Applied to a specified sample



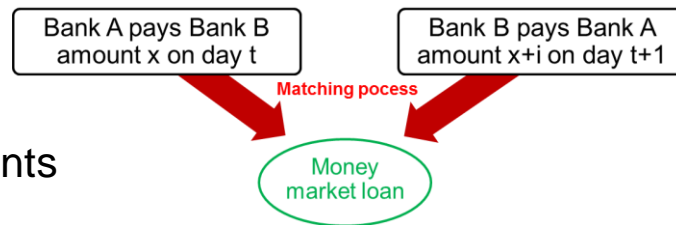
– Reported data

- Mandatory requirements
- Full or specified sample



– Furfine-type algorithms

- Extracted information from payments
- Includes (identifiable) loans of all participants



Three measures

	Survey data (EONIA)	Reported transactions (MMSR / ESTER)	Furfine-type algorithm (applied to TARGET2)
Scope	Unsecured money market transactions	Secured, unsecured, foreign exchange swap and euro overnight index swap money market transactions	Unsecured money market transactions
Sample	Panel of 28 banks	Panel of 52 reporting agents (EU panel) and 118 reporting agents (German panel)	Based on identified transactions in TARGET2, 938 participants (total BICs), 104 participants (German BICs)
Coverage	Transactions undertaken by panel banks in EU/EFTA (location of entity)	Transactions booked in EU/EFTA (independent of origination and execution location)	Transactions settled in TARGET2 (independent of booking location)
Granularity	Aggregates (reported on bank-level)	Transaction-level	Transaction-level
Calculation method	Value weighted average	Value weighted average	Value weighted average
Publication	Daily	Planned before 2020: Daily	Infrequently
Side of market	Lending only	Lending and borrowing	Lending and borrowing
Data availability	January 1999 onwards	July 2016 onwards	May 2008 onwards
Frequency	TARGET2 business day	TARGET2 business day	TARGET2 business day
Uncertainty and main reason for uncertainty	High Only aggregated data is provided on voluntary basis	Medium Misreporting may occur, double-checking of borrowing and lending not always possible	Medium Identified transfers may not reflect actual money market transactions
Speed of delivery	Day of trade	Day of trade	Day after maturity

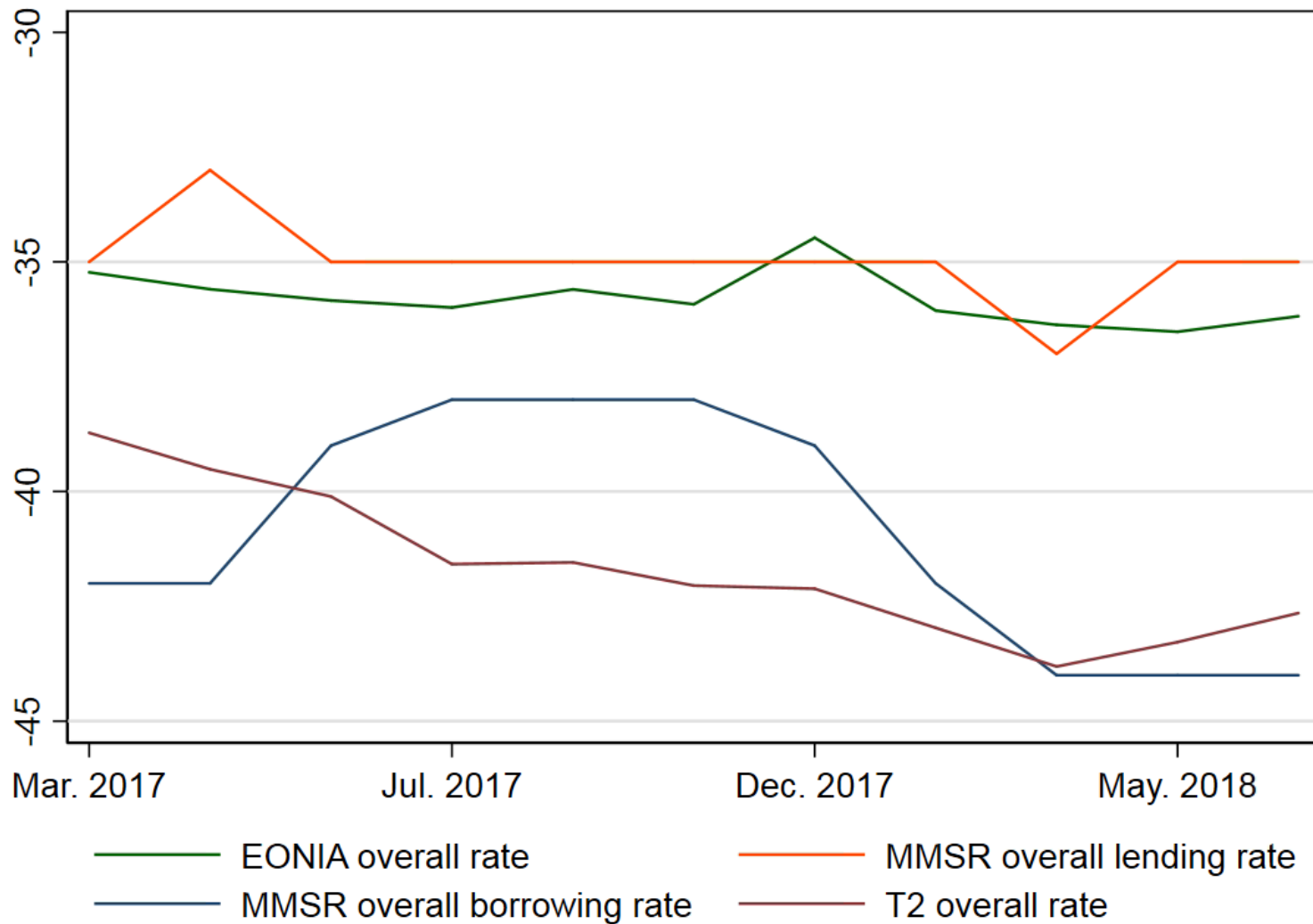
Data availability

- EONIA:
 - Eurosystem aggregate rate and value (from EMMI)

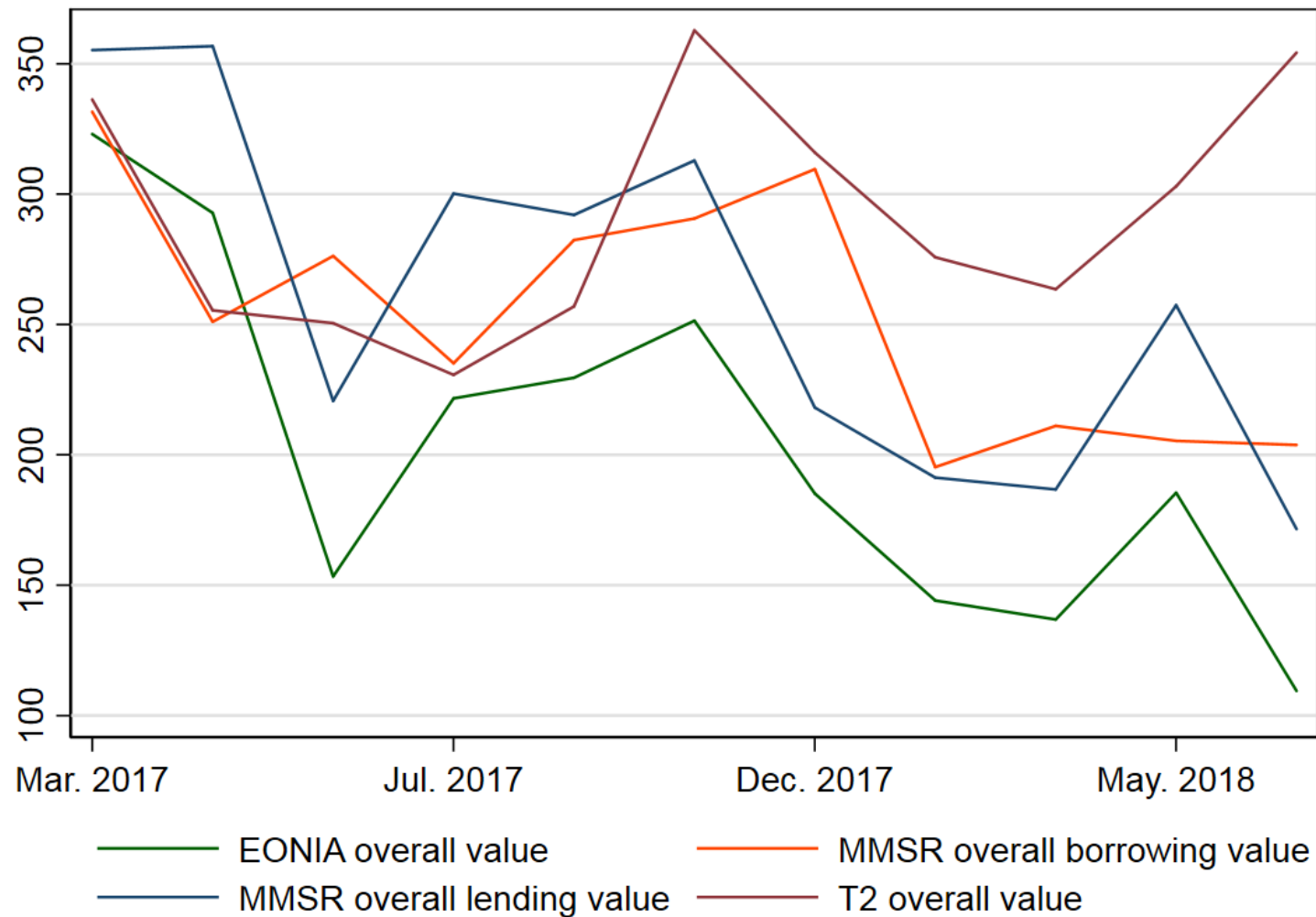
- TARGET2:
 - Transaction-level data on identified loans settled in euro

- MMSR:
 - Eurosystem aggregate rate and value (from ECB SDW); transaction level data for Germany, reported lending and borrowing transactions

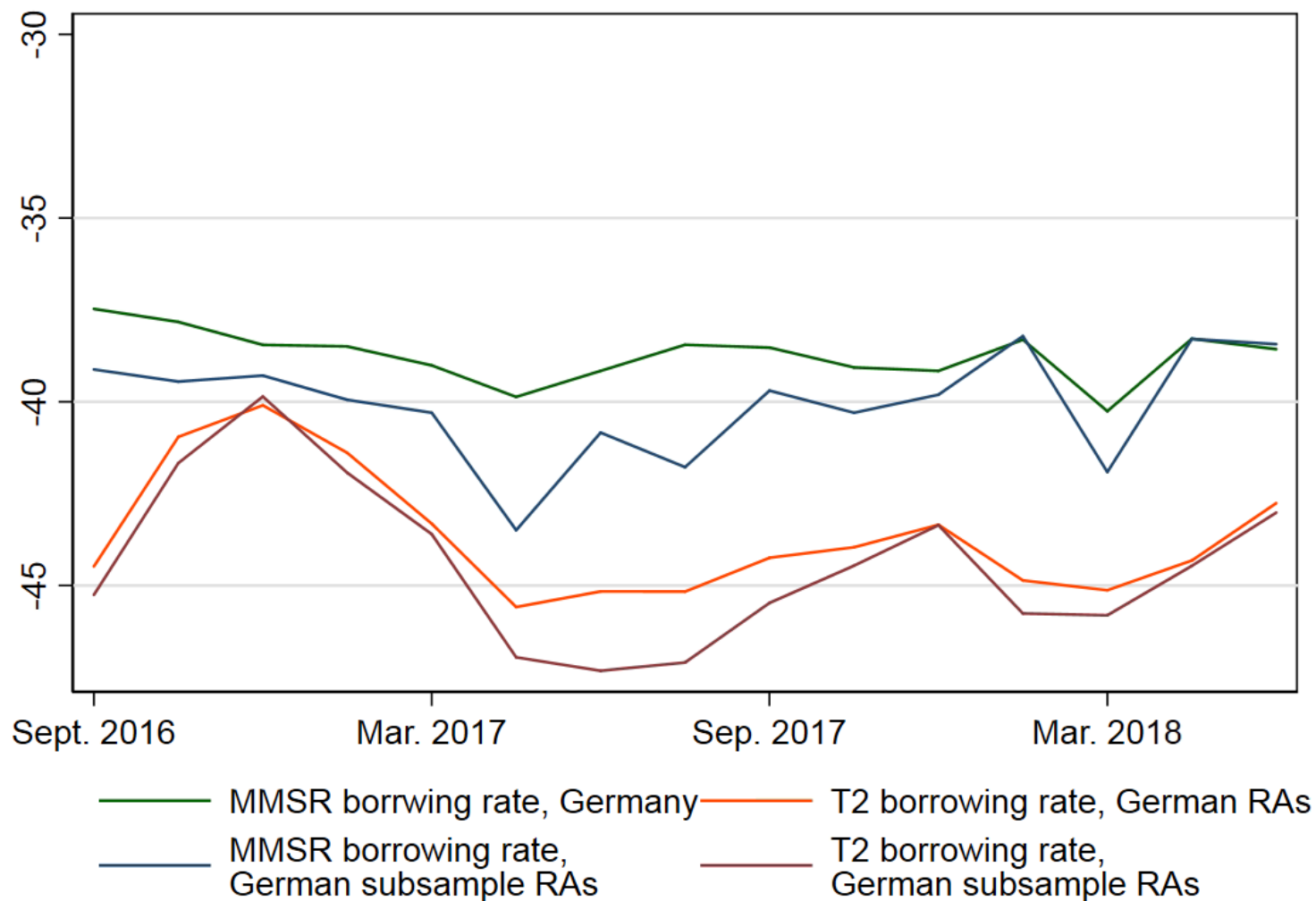
Aggregate rates (basis points)



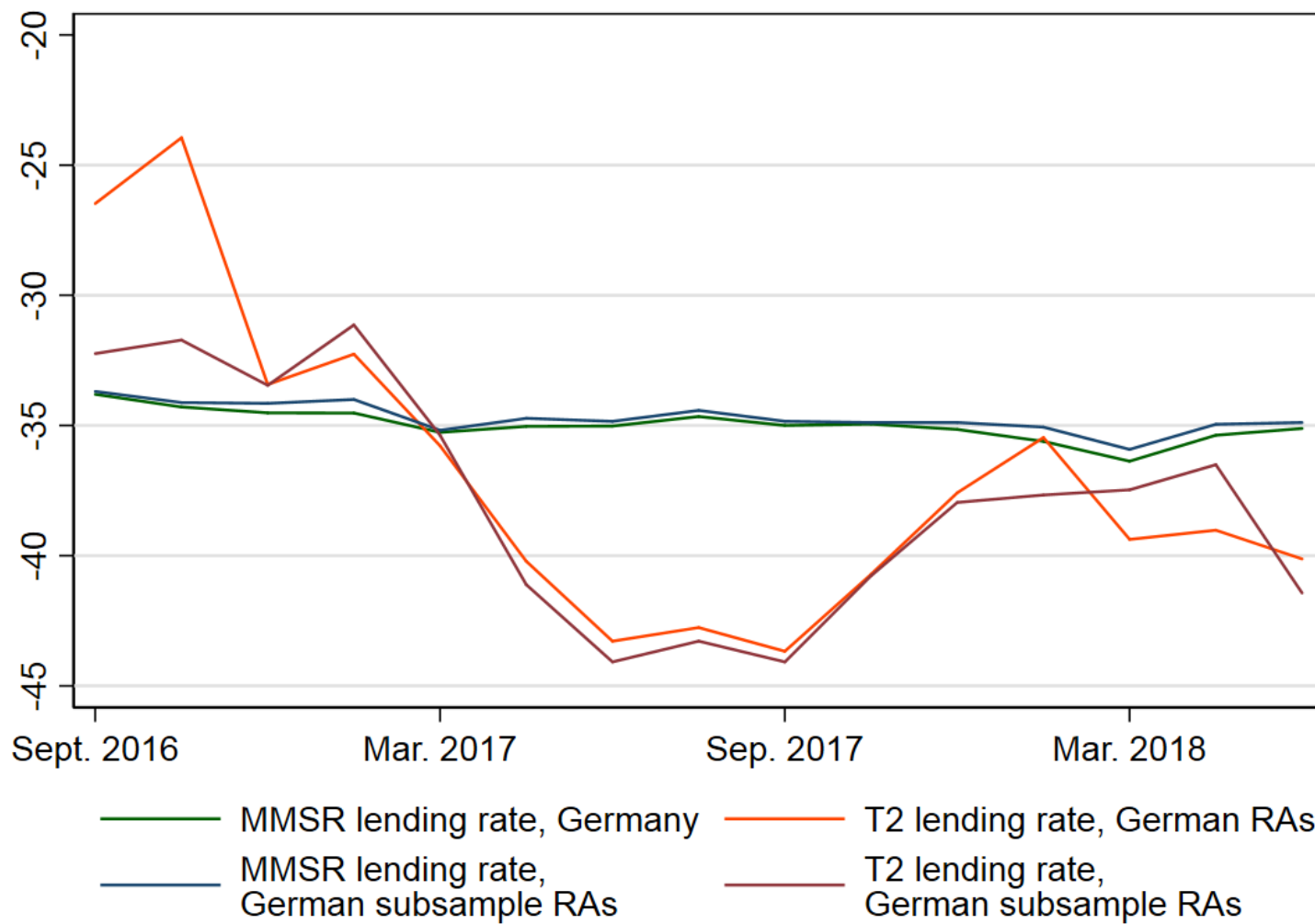
Aggregate values (in billion)



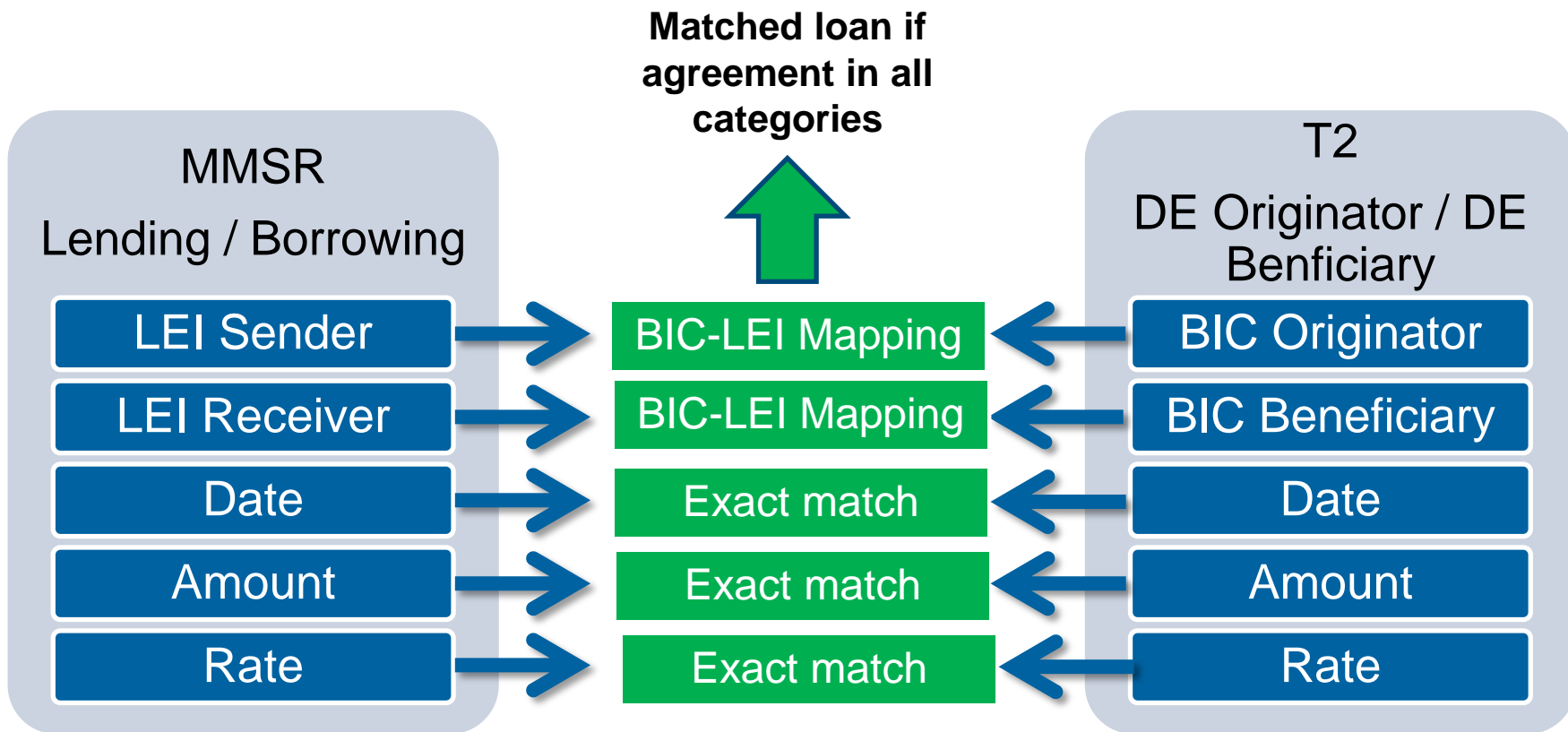
Aggregate rates, German Reporting agents and subsample of German Reporting Agents for Eurosystem (basis points)



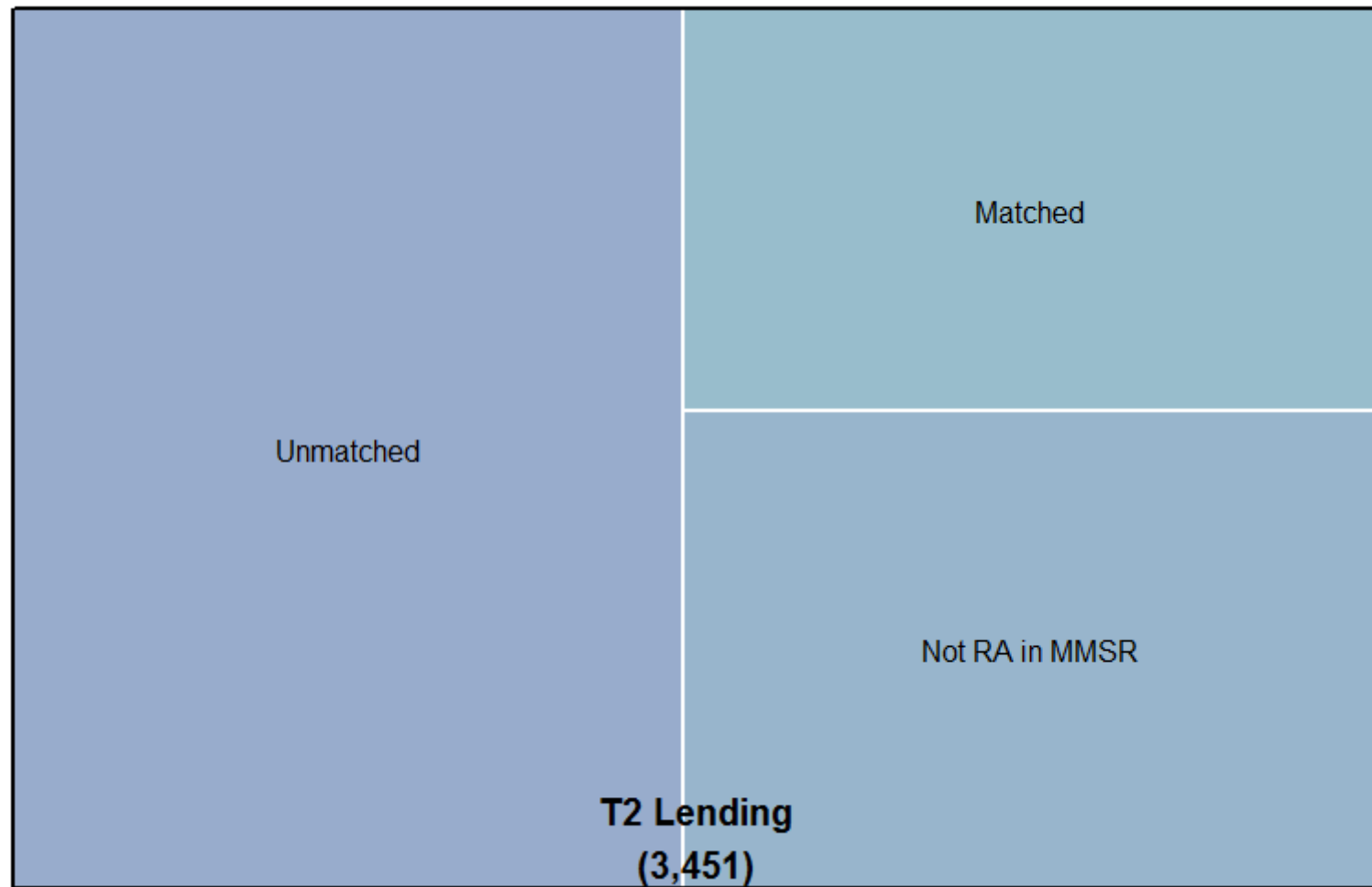
Aggregate rates, German Reporting agents and subsample of German Reporting Agents for Eurosystem (basis points)



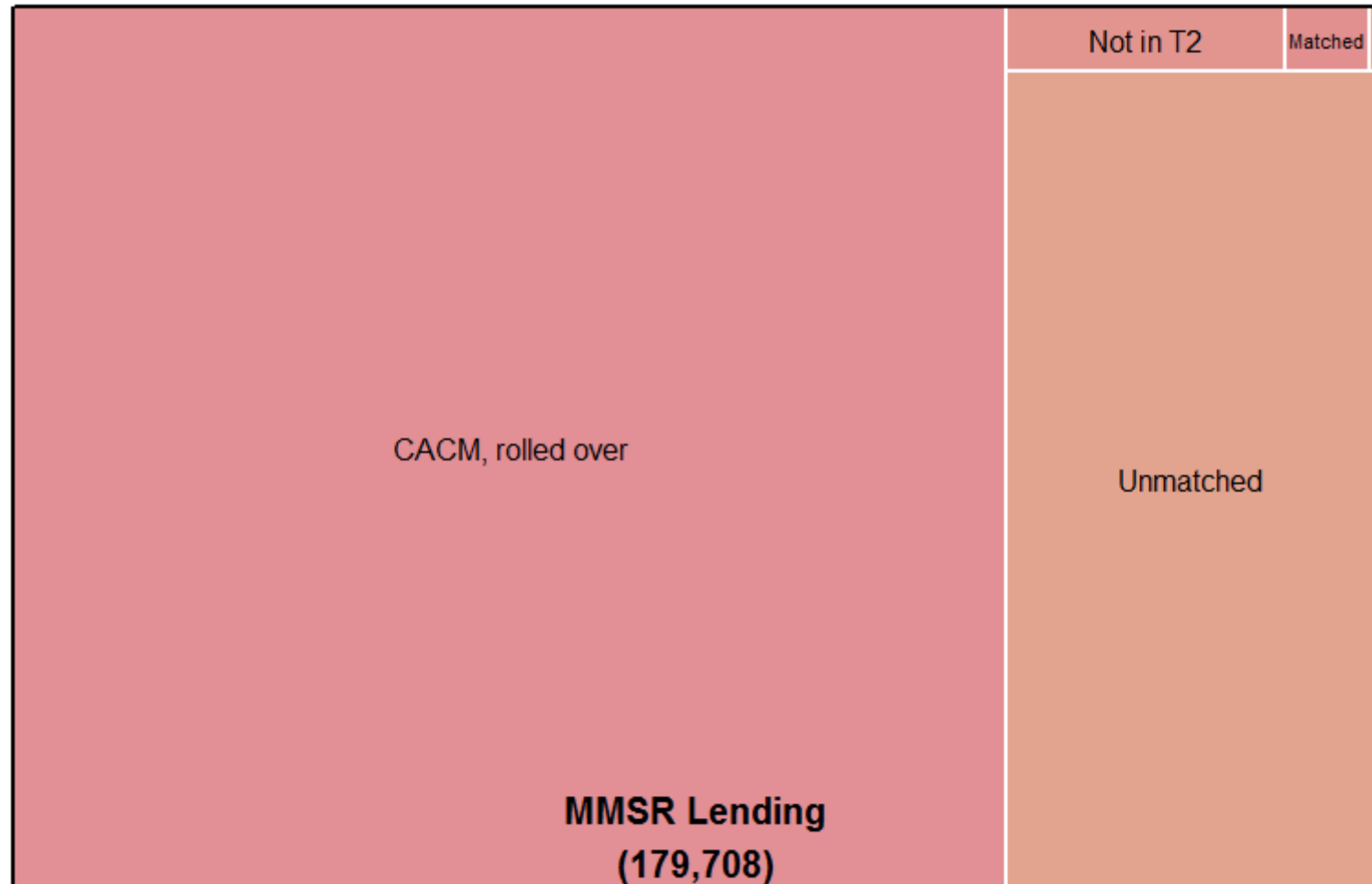
Comparison MMSR and T2



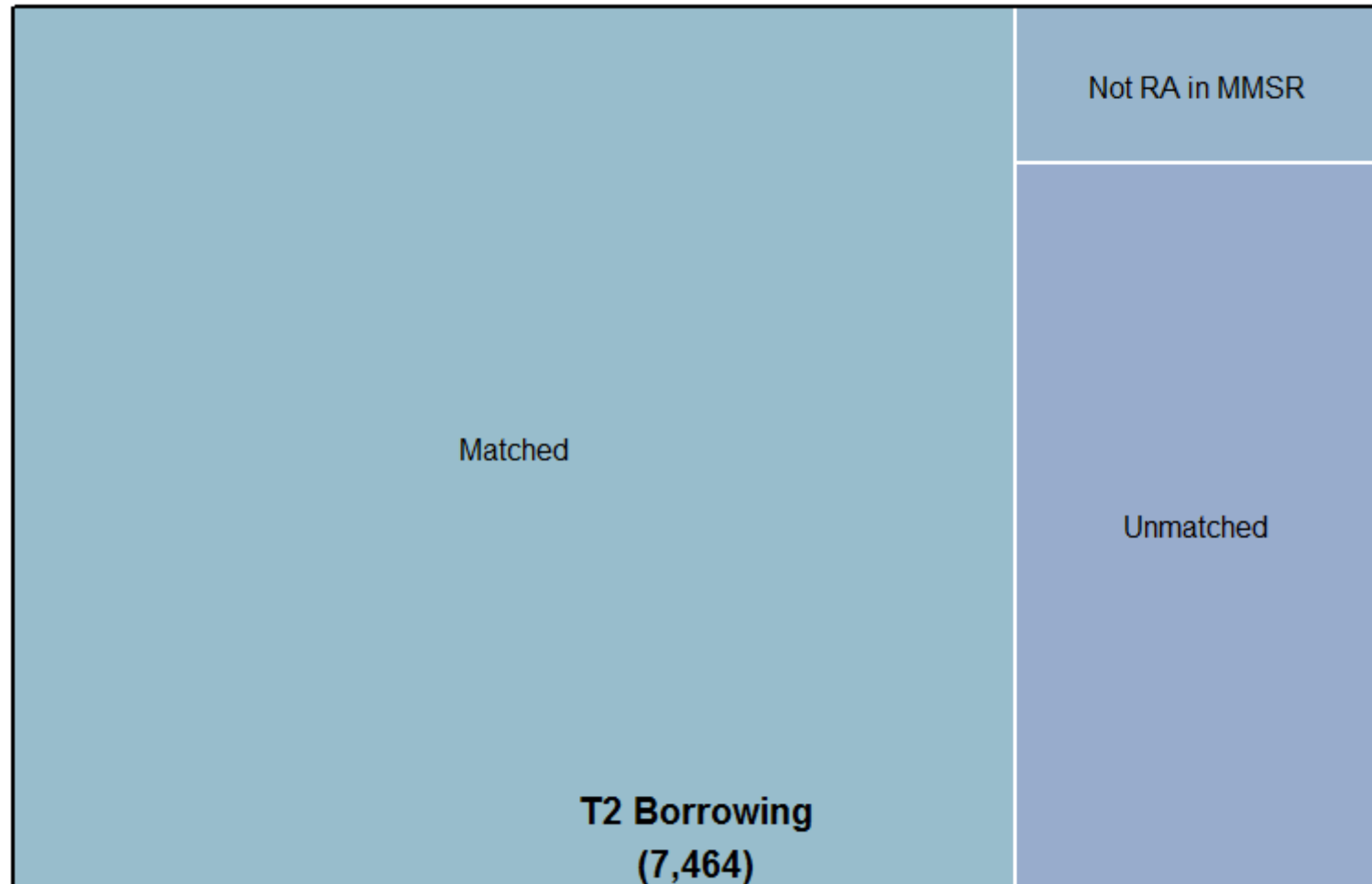
Match results (German lender in T2)



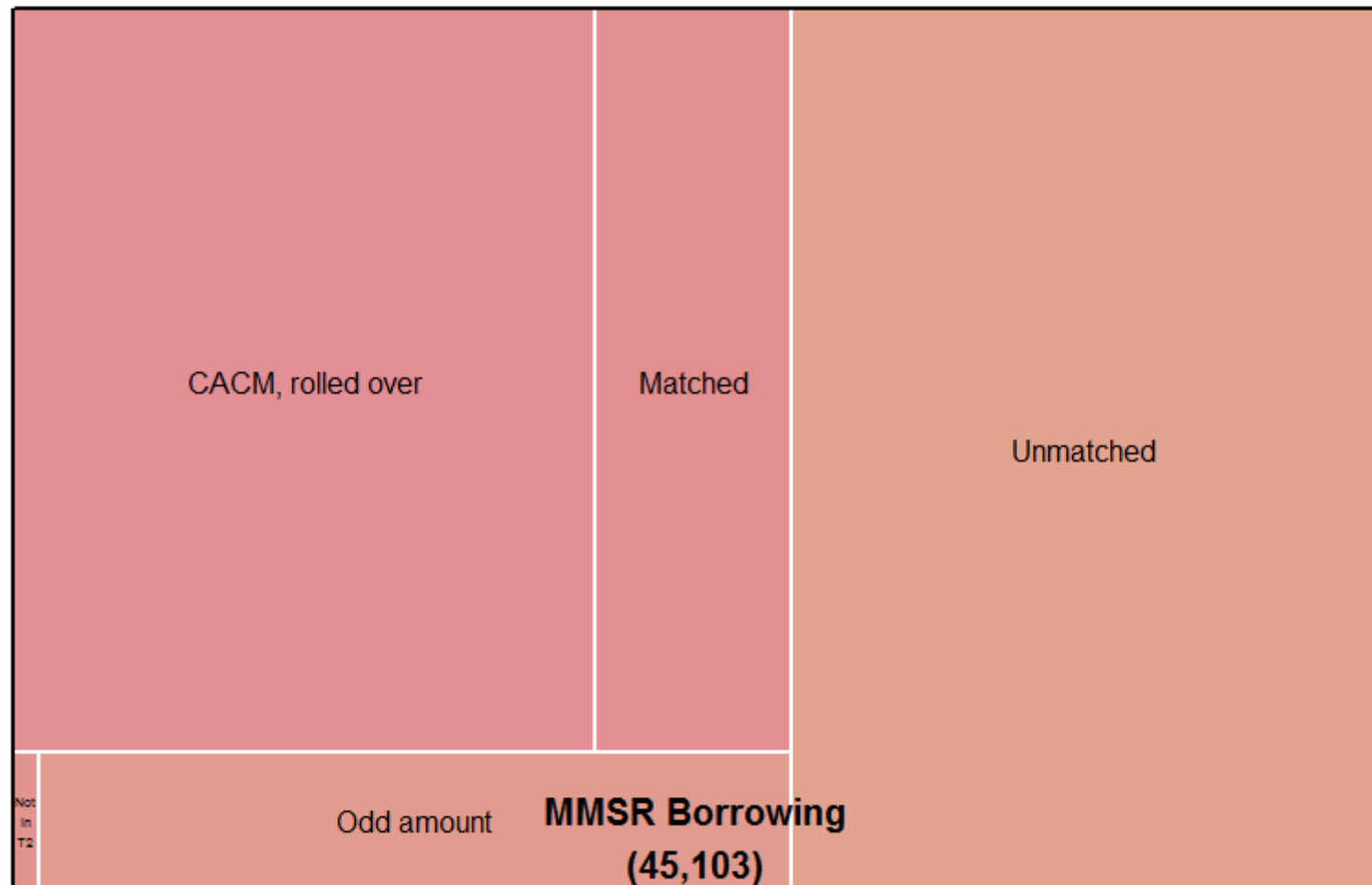
Match results (MMSR Germany)



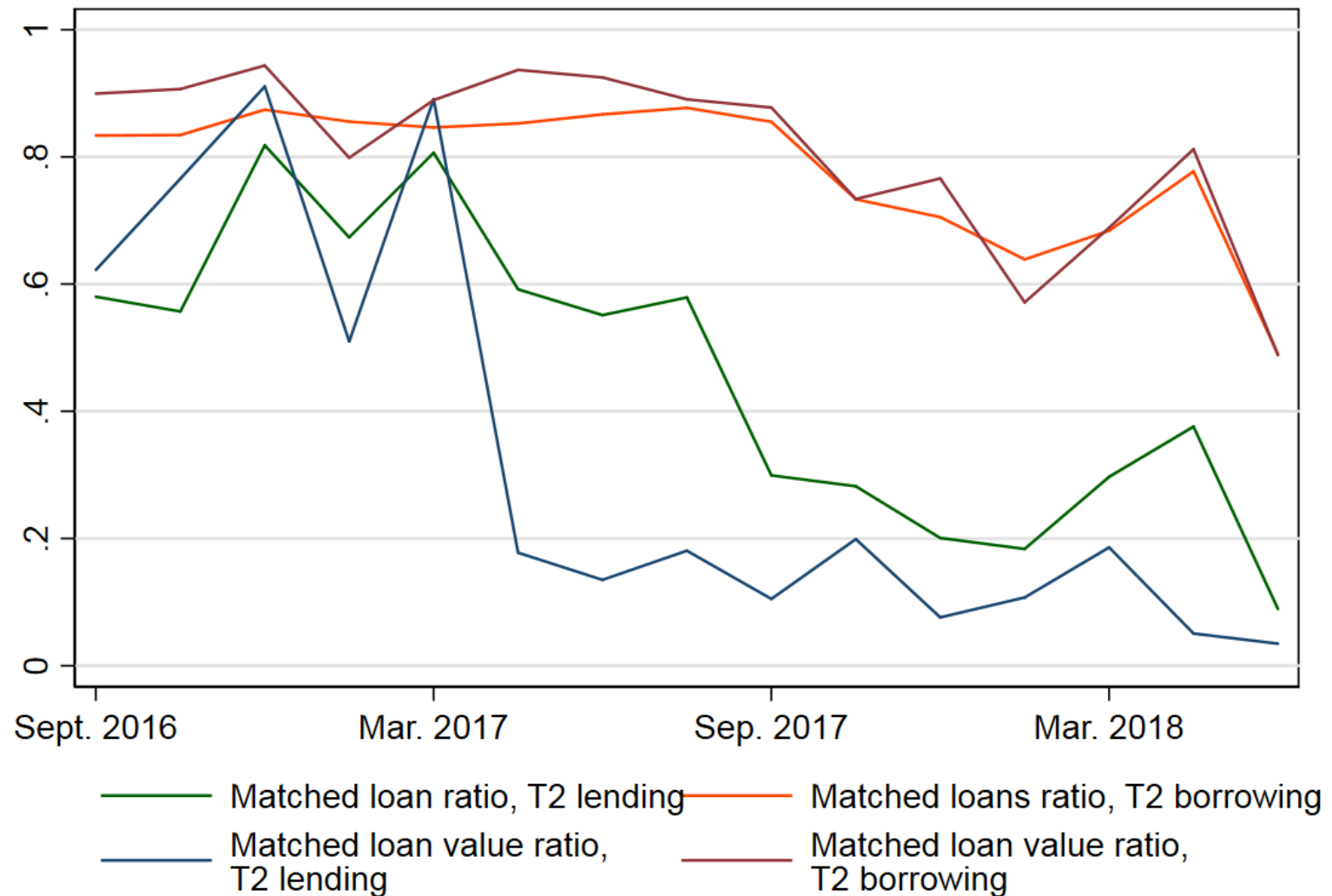
Match results (German borrower in T2)



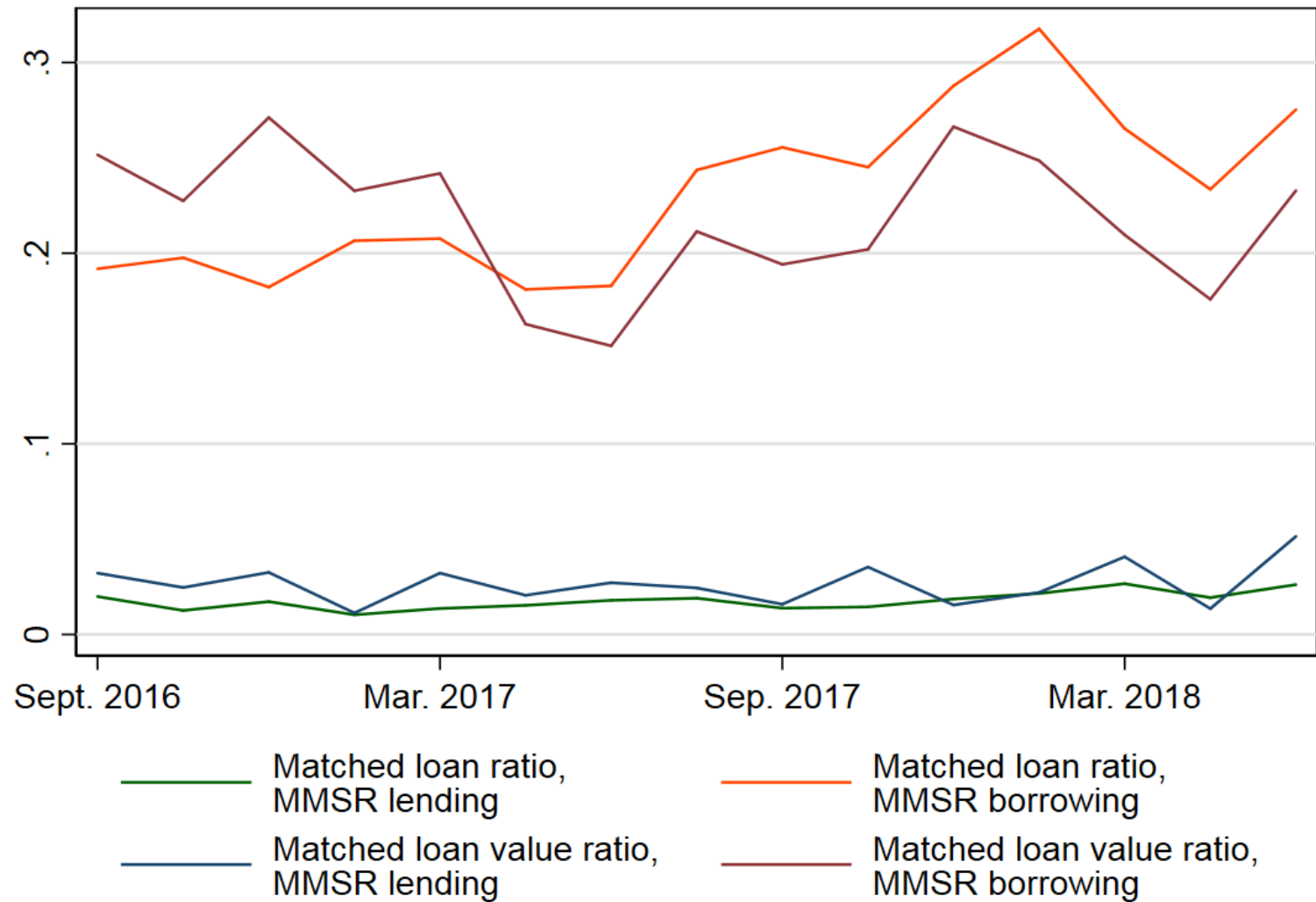
Match results (MMSR Germany)



Matched T2 loans to overall T2 loans (ratio)



Matched MMSR loans to overall MMSR loans (excl. rollovers)



What explains differences in matching? Probit model

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Match result lending				
Reporting agent banking group					
Regional banks and other commercial banks	-0.678*** (0.139)	-0.692*** (0.136)	-0.186* (0.107)		
Landesbanken	-0.149 (0.137)	-0.208 (0.132)	0.230** (0.102)		
Savings banks	-0.995*** (0.158)	-1.068*** (0.153)	-0.398*** (0.129)		
Credit cooperatives	-0.530*** (0.161)	-0.592*** (0.157)	-0.464*** (0.127)		
Mortgage banks	-0.826*** (0.192)	-0.879*** (0.186)	-0.214 (0.165)		
Banks with special tasks	-0.554*** (0.203)	-0.580*** (0.198)	0.104 (0.178)		
Foreign banks and others	-	-	1.536*** (0.276)		
Big banks	-	-	-		
Loan characteristics					
Loan amount (mio)	0.001*** (0.000)			0.001*** (0.000)	
Rate of loan (bp)	-0.002 (0.002)			0.000 (0.002)	
Rate below deposit facility	-	-		-0.638*** (0.180)	-0.620*** (0.164)
Zero rate loan	-	-		-	-
Instrument type CACM	-0.703*** (0.049)	-0.741*** (0.048)		-0.670*** (0.045)	-0.706*** (0.044)
Within giro system					
	-0.962*** (0.043)	-0.952*** (0.041)	-0.828*** (0.038)	-0.714*** (0.035)	-0.734*** (0.034)
Constant					
	-1.204*** (0.140)	-1.020*** (0.127)	-1.746*** (0.097)	-1.582*** (0.061)	-1.513*** (0.025)
Observations	44,958	44,958	45,748	45,342	45,342
Pseudo R2	0.162	0.159	0.110	0.131	0.129

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

What explains differences in matching? Probit model

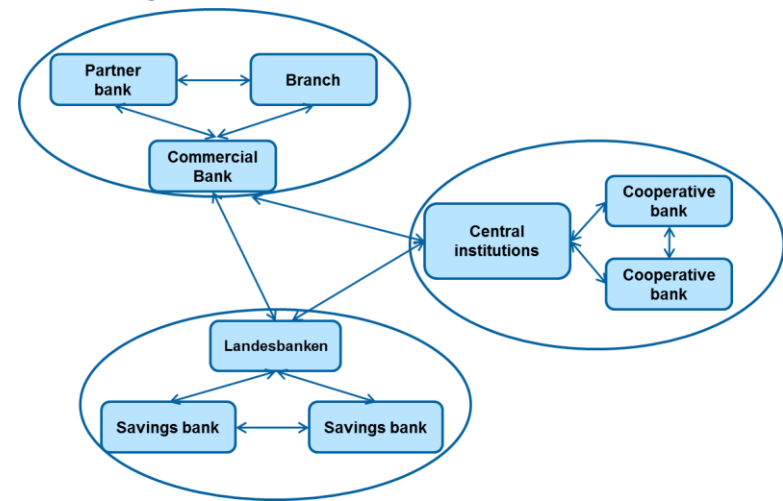
VARIABLES	(1)	(2)	(3)	(4)	(5)
	Match result borrowing				
Reporting agent banking group					
Regional banks and other commercial banks	0.389*** (0.074)	0.571*** (0.072)	-0.690*** (0.055)		
Landesbanken	0.338*** (0.039)	0.461*** (0.038)	0.390*** (0.033)		
Savings banks	-0.964*** (0.066)	-0.733*** (0.064)	-1.160*** (0.060)		
Credit cooperatives	-0.341*** (0.076)	-0.103 (0.073)	-0.483*** (0.063)		
Mortgage banks	-0.880*** (0.093)	-0.572*** (0.090)	-1.219*** (0.082)		
Banks with special tasks	-0.037 (0.048)	0.074 (0.047)	-0.064 (0.044)		
Foreign banks and others	1.512*** (0.132)	1.690*** (0.129)	1.234*** (0.125)		
Big banks	-	-	-		
Loan characteristics					
Loan amount (mio)	-0.001*** (0.000)			-0.001*** (0.000)	
Rate of loan (bp)	-0.017*** (0.002)			-0.014*** (0.002)	
Rate below deposit facility	0.478*** (0.043)	0.793*** (0.036)		0.945*** (0.035)	1.169*** (0.026)
Zero rate loan	-1.796*** (0.247)	-2.274*** (0.240)		-1.246*** (0.240)	-1.637*** (0.233)
Instrument type CACM	-1.931*** (0.054)	-1.786*** (0.053)		-1.736*** (0.054)	-1.627*** (0.054)
Within giro system					
	-1.506*** (0.055)	-1.399*** (0.055)	-1.583*** (0.050)	-1.519*** (0.051)	-1.444*** (0.051)
Constant					
	-1.331*** (0.075)	-1.049*** (0.036)	-0.623*** (0.030)	-1.485*** (0.063)	-1.104*** (0.022)
Observations	23,586	23,586	23,586	23,586	23,586
Pseudo R2	0.413	0.402	0.254	0.371	0.363

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Conclusion

- In general, indication for well-functioning of identification in T2, but not a validation
- MMSR is heavily influenced by:
 - Rollovers
 - Lending of cooperatives and savings banks (with central institutions)
- Significant mismatch between reported lending and borrowing loans:
 - Loans below deposit facility
 - Reporting depends on booking location
- *Where is it settled vs. What is reported*
- Important to be aware of differences when interpreting aggregates!



Thank you for your attention!



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