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**Seminário**  
**Uso Regional de Moedas do Mercosul, Impactos nos Mercados Financeiros, Consequências e Riscos**

São Paulo – 20 de maio de 2015

# O uso do Real nas exportações brasileiras e novas contribuições para o debate sobre a escolha da moeda de faturamento

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Realização | **SGT-4**



Apoio |



Embaixada Britânica  
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# Results Resultados (BCB, Depep, WPS 382)

- Invoicing Brazilian forex
  - The BRL is used
  - BRL use has grown
- General results
  - Financial services and currency invoicing choice link
  - Homogeneous products and bargaining power
  - Invoicing and payments currencies mismatch
- Moeda de faturamento do comex brasileiro
  - O BRL é utilizado
  - A utilização cresceu
- Resultados gerais
  - Associação entre provimento de serviço financeiro e escolha de moeda
  - Produtos homogêneos e poder de barganha
  - Não coincidência entre moeda de fat. e pagamento

# Why should we care? Por que nos interessa?

- The effectiveness of macroeconomic policies
  - Exchange rate volatility and inflation: price rigidities
  - Invoice currency (one rigidity)
  - Exchange rate pass-through to the local economy in Brazil
    - Brazil similar to G-7 but faster (6% in the same Q) (Belaisch, 2003)
    - ↑ pass-through: booming economy, low exchange rate volatility, high depreciation; pricing to market (Correa and Minella, 2010)
    - Reduction (Nogueira et al., 2013)
  - Invoice Currency in Brazil ?
- Efetividade das políticas macroeconômicas
  - Volatilidade da taxa de câmbio e inflação: rigidez de preços
  - Moeda de faturamento (uma rigidez)
  - Repasse da taxa de câmbio para a economia local no Brasil
    - Repasse similar ao G-7, mas mais rápido (Belaisch, 2003)
    - ↑ repasse: economia aquecida, baixa volatilidade, alta depreciação ; pricing to market (Correa e Minella, 2010)
    - Redução do efeito (Nogueira et al. 2013)
  - Mas qual a moeda usada no Brasil?

# Motivation Motivação

- Research project

Projeto de pesquisa

- “Should we go for currency internationalization policies?”

“Há espaço para políticas de internacionalização da moeda?”

- Does it make sense to talk about the BRL?

Faz sentido falar sobre o BRL?

# Usual view (I) Visão padrão (I)

- “There are *international currencies*, so agents naturally choose them as vehicle currencies.”

- “Há moedas internacionais, que são as escolhidas pelos agentes.”



# Usual view (II) Visão comum (II)

- “There is no role to the BRL in the monetary hierarchy. The BRL is at the Periphery.”
- “A hierarquia de moedas não deixa nenhum espaço para o Real, que não passa de periférico.”





# Usual view (II) Visão padrão (II)

- “There is no role to the BRL in the monetary hierarchy. The BRL is at the Periphery.”
- “A hierarquia de moedas não deixa nenhum espaço para o Real, que não passa de periférico.”



# But... Mas...

- The BRL **is** used as invoice currency in Brazilian foreign trade.

O BRL **é** usado como moeda de faturamento no comércio exterior brasileiro.

- BRL use has **grown** (2007-2011).

O uso do BRL cresceu (2007-2011).



# Milestones Marcos

- 2006-8  
Possibility to leave money abroad

- 2007  
Possibility to pay BRA exports in BRL

- 2008  
SML

- 2006-8  
Cai a exigência de internalização de receitas

- 2007  
Recebimentos de exportações em BRL

- 2008  
SML

# Data Dados

## Trade data

- MDIC
- 2007-2011 monthly data, annually
- By product: 8-digits NCM
- By country
- Data in USD (daily exchange rate)
- Imports data
  - Origin: production place vs. selling place
- Ship and aircraft provision

## Dados de comércio

- MDIC
- 2007-2011, mensais consolidados anualmente
- Produto: NCM, 8 dígitos
- Por país
- Registros efetuados pela conversão para USD na data
- Dados de importação
  - Origem: local de produção x local de venda
- Provisão de embarcações e aeronaves

# Currencies in Exports (I)

## Moedas nas Exportações

USD share in total export invoicing in Brazil : 2007-2011 (%)

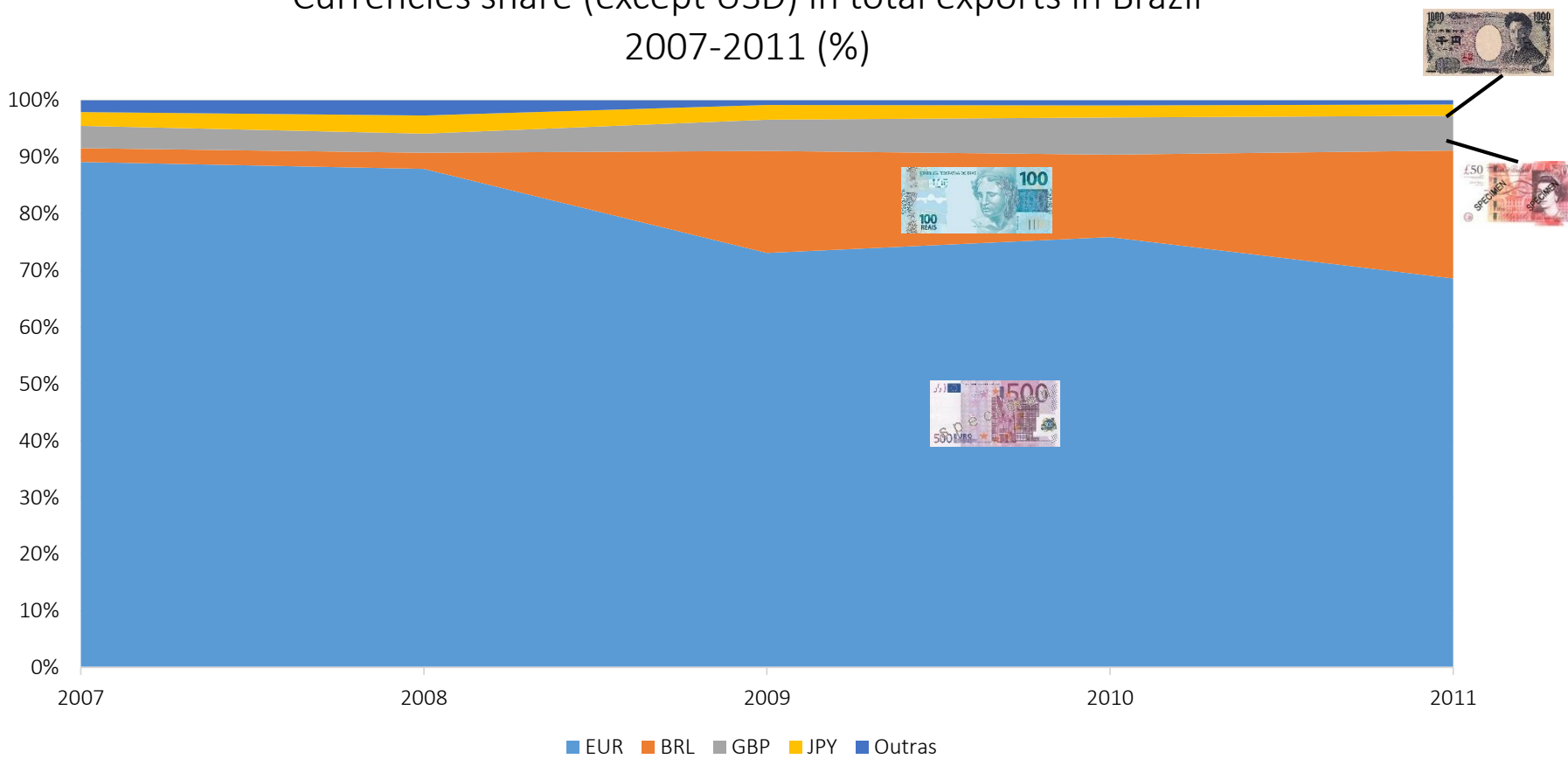


Source: MDIC

# Currencies in Exports (II)

## Moedas nas Exportações

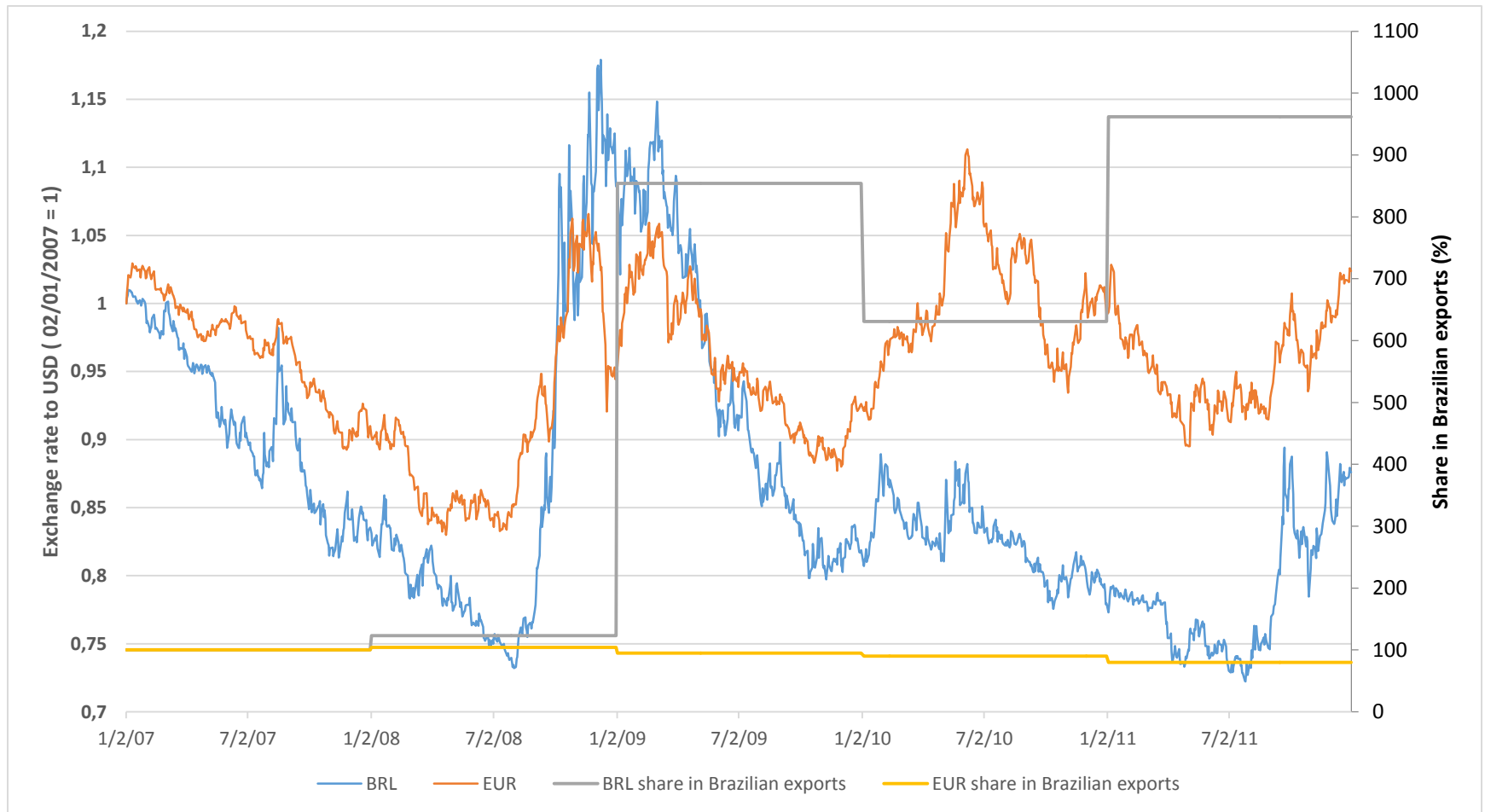
Currencies share (except USD) in total exports in Brazil  
2007-2011 (%)



Source: MDIC

# Nominal effect because of records in USD?

Efeito nominal de registro em USD?



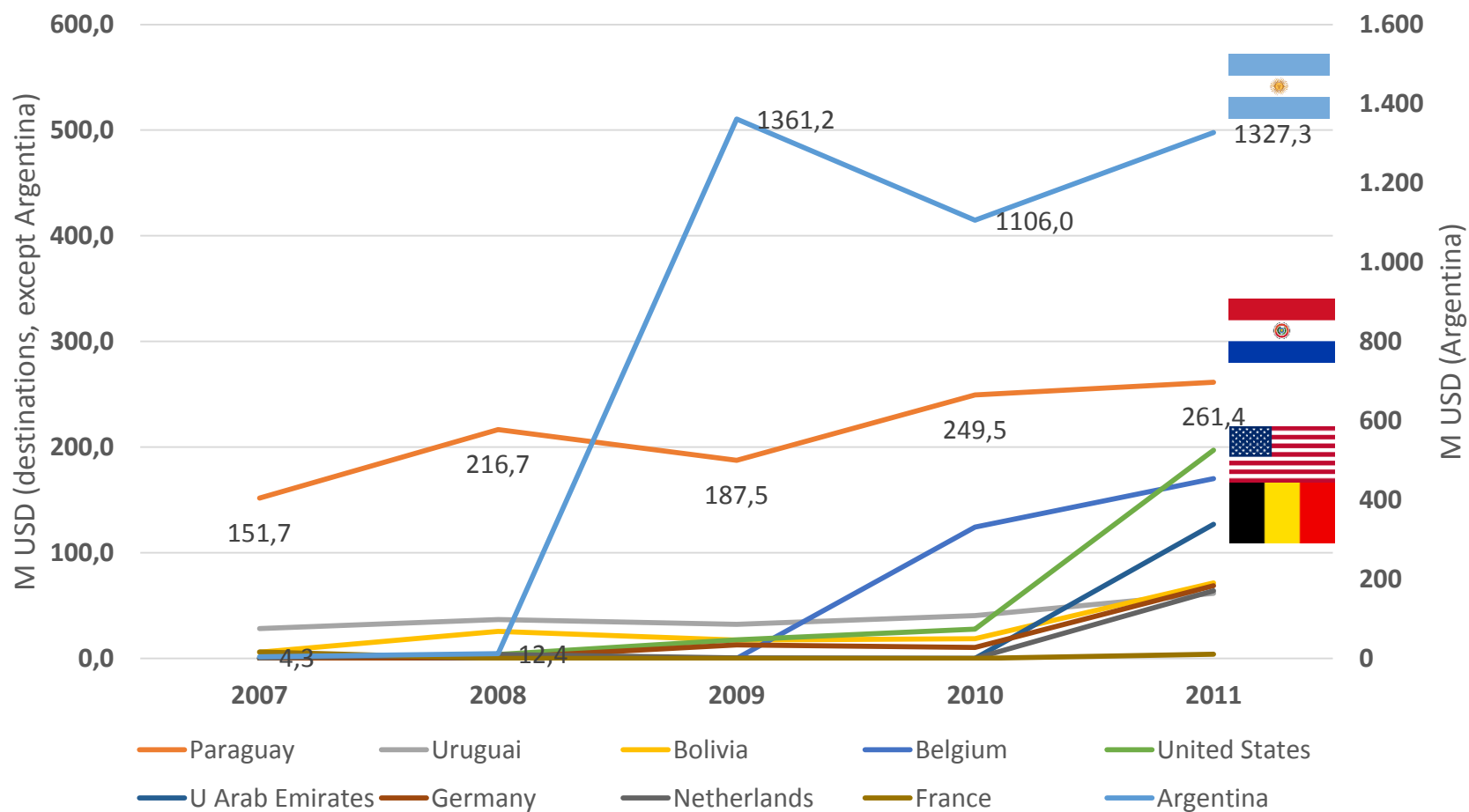
Source: Bacen, MDIC

# BRL USE HAS GROWN

O uso do real creceu

# Main destinations, by value

Principais destinos, por valor



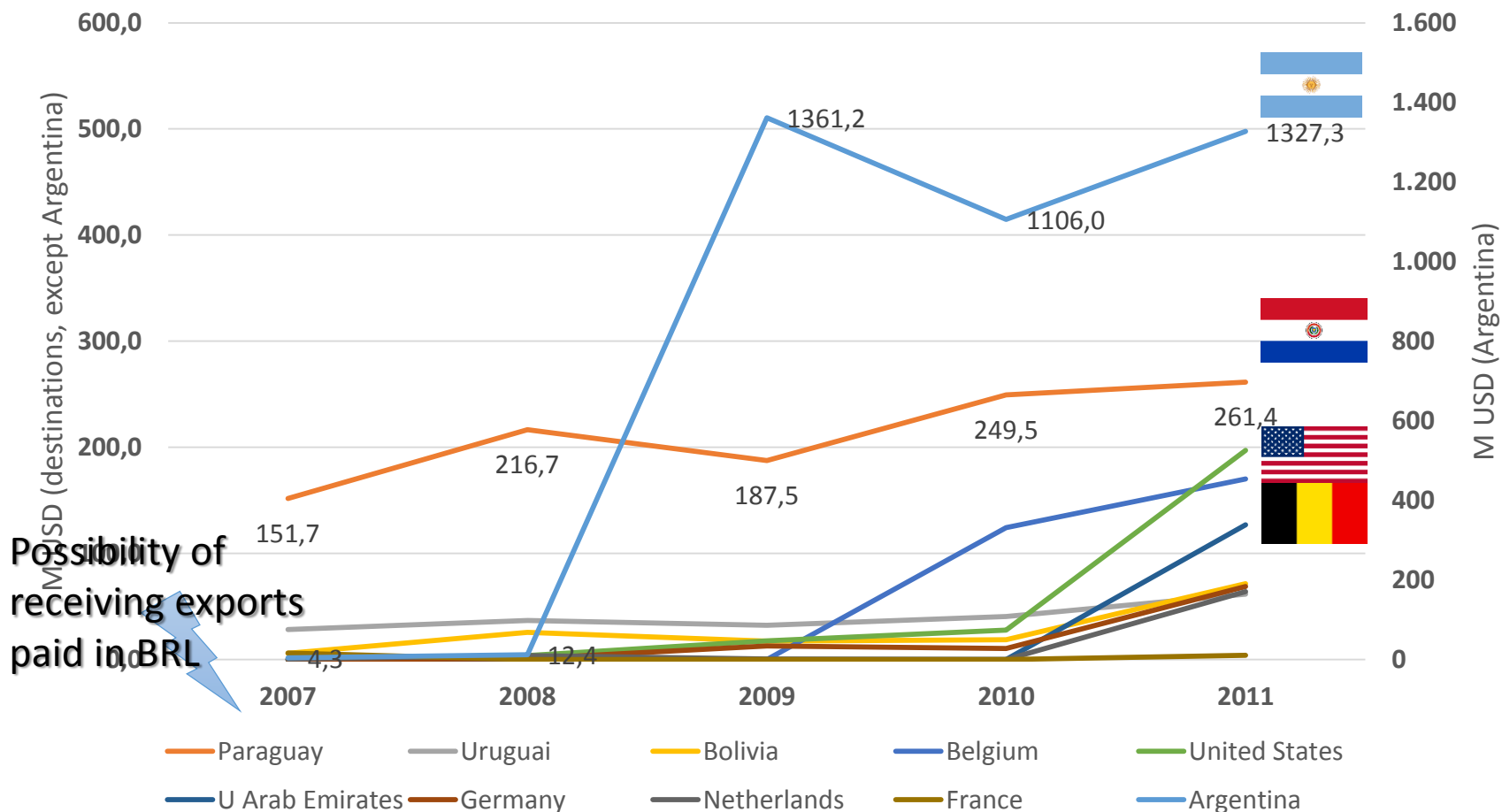
Source: MDIC





# Main destinations, by value

Principais destinos, por valor

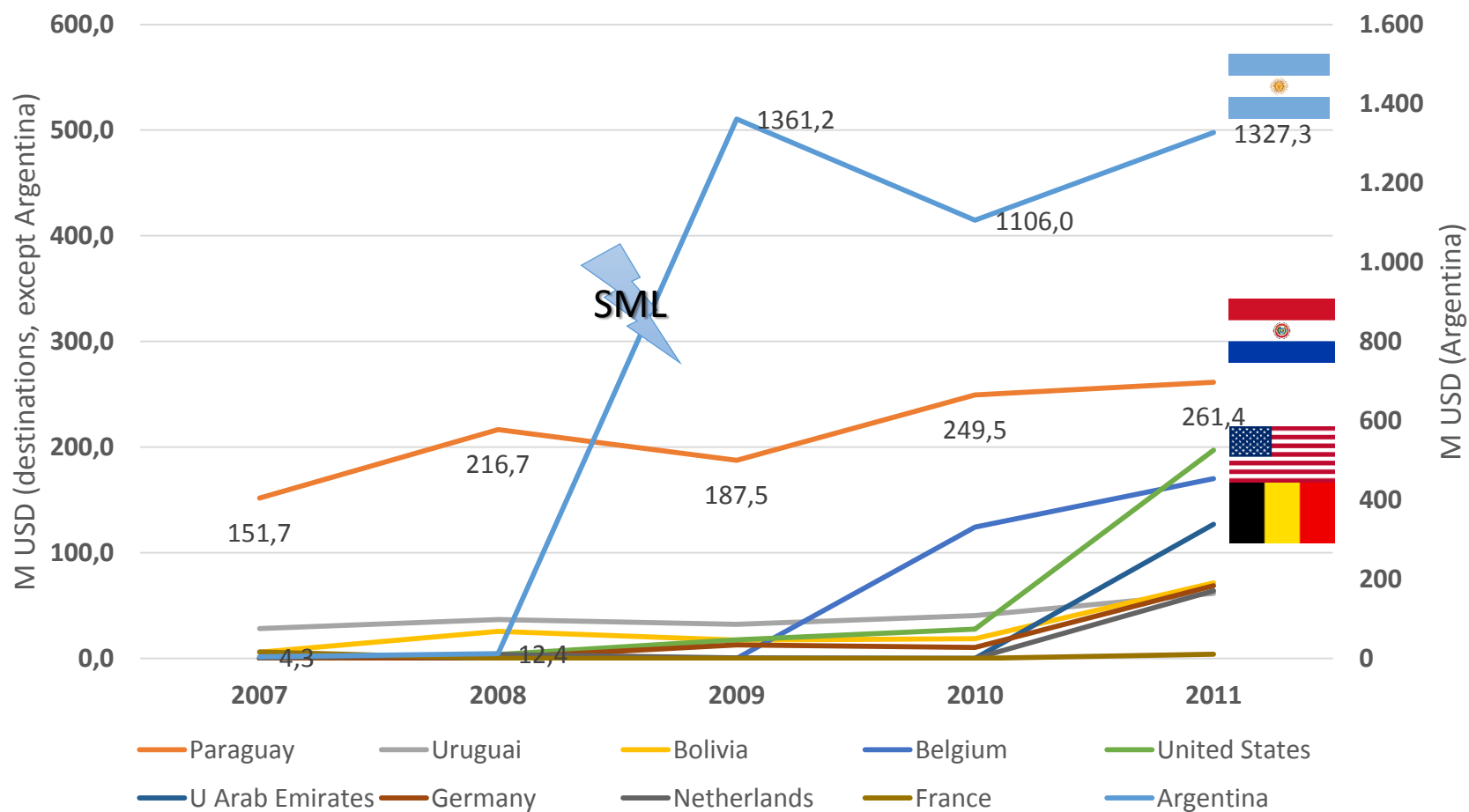


Source: MDIC



# Main destinations, by value

Principais destinos, por valor



Source: MDIC



# Financial instrument provision

## Provisão de instrumento financeiro

$$SHARE_{c,p,t} = \max \{ \beta \cdot SML_{c,t} + \alpha \cdot crisis_t + rel_{c,p,t} \delta_1 + tv_{c,p,t} \delta_2 + xrt_{c,t} \delta_3 + hsp \gamma_1 + cnt_c \gamma_2 + u_{c,p,t}, 0 \} \quad (1)$$

Dependent variable: share of exports invoiced in BRL, by country						
	(1)	(2)	(3)	(4)	(5)	(6)
SML	0.208***	0.209***	0.206***	0.204***	0.250***	0.282***
Crisis	0.0809***	0.0801***	0.0944***	0.0929***	0.0924***	0.0866***
Relevance as. . .						
..supplier	-0.0102	0.0157				
..destination	-0.0116	0.0390	0.0302	-0.0304	0.582***	0.434***
..trade partner	0.0924					
Trade volume						
..total exports	0.0171***	0.0170***	0.0182***	0.0228***	0.0416***	0.0291***
..total imports	0.000811*					
Exchange rate volatility	0.000772*	0.000798*	0.00105**	0.00102**	0.0000603	0.000153
Product specific effects	yes	yes	yes		yes	
Country specific effects	yes	yes	yes	yes		
Constant	-1.520	-1.539	-1.901	-1.837	-1.340***	-1.054***
$\sigma_u$	0.141***	0.141***	0.151***	0.184***	0.248***	0.276***
$\sigma_e$	0.149***	0.149***	0.165***	0.164***	0.163***	0.161***
Log likelihood	-615.77	-619.45	-892.48	-1146.2	-1561.6	-1773.7
N	14487	14487	24556	24556	24556	24556
N (uncensored)	1102	1102	1453	1453	1453	1453

# Which products?

Quais produtos

# BRL-invoiced exports



## Exportações faturadas em reais

Products	2007		2008		2009		2010		2011	
	USD M	%	USD M	%	USD M	%	USD M	%	USD M	%
Electrical energy	-	-	-	-	1066.0	64.8	343.2	21.3	274.3	8.9
Tobacco	-	-	-	-	-	-	135.8	8.4	495.5	16.1
Sugar	0.2	0.1	2.7	0.9	2.5	0.2	5.8	0.4	515.5	16.8
Motor vehicle parts	3.9	2.0	7.5	2.6	18.5	1.1	128.7	8.0	291.4	9.5
Footwear (end product)	4.5	2.3	4.8	1.6	71.8	4.4	142.1	8.8	158.4	5.2
Alcoholic beverages	11.3	5.7	13.8	4.7	15.2	0.9	16.2	1.0	295.5	9.6
Iron/nonalloy rolled steel products	5.4	2.8	11.2	3.8	42.6	2.6	121.5	7.5	122.1	4.0
White goods	6.0	3.1	8.0	2.7	48.6	3.0	116.0	7.2	65.9	2.1
Gelatin and derivatives	0.0	0.0	0.0	0.0	44.3	2.7	43.0	2.7	42.5	1.4
Shampoo and other hair preparations	0.7	0.4	0.6	0.2	29.6	1.8	39.2	2.4	41.8	1.4
Ceramic building products	13.5	6.8	21.0	7.1	17.3	1.0	26.1	1.6	30.2	1.0

Source: MDIC

# BRL-invoiced exports


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Source: MDIC

# BRL-invoiced imports

Importações faturadas em reais

Products	2007		2008		2009		2010		2011	
	USD M	%	USD M	%	USD M	%	USD M	%	USD M	%
Pharmaceuticals 	349.3	61.4	429.0	49.8	643.6	46.6	1,306	39.3	1,601	36.3
Electrical equipment	25.4	4.5	163.0	18.9	364.6	26.4	756.6	22.8	924.5	21.0
Railway vehicles and materials	-	-	-	-	-	-	570.9	17.2	369.9	8.4
Machinery and appliances	48.2	8.5	67.5	7.8	82.2	5.9	154.5	4.6	284.6	6.5
Land vehicles other than railway	0.0	0.0	0.0	0.0	0.4	0.0	0.9	0.0	221.0	5.0
Organic chemicals	8.7	1.5	3.9	0.4	11.2	0.8	28.8	0.9	209.6	4.8
Miscellaneous chemical products	51.6	9.1	81.5	9.5	76.2	5.5	91.4	2.7	177.4	4.0
Optical and medical instruments	42.3	7.4	54.2	6.3	78.4	5.7	149.5	4.5	171.6	3.9
Beverages and spirits	-	-	0.0	0.0	31.0	2.2	55.2	1.7	128.3	2.9

Source: MDIC





# Main BRL-invoiced products (share)

Maiores faturamentos em reais (participação)

BRL-invoiced exports			BRL-invoiced imports		
Product (destination)	USD M	%	Product (origin)	USD M	%
Fiber-cement articles (Paraguay)	42.4	91	Chemicals, phenols (Germany)	11.2	92
Tomato preparations (Paraguay)	28.3	90	New pneumatic tires (Slovakia)	11.8	87
Iron flat-rolled products (Paraguay)	18.8	89	Antisera and other blood fractions (Switzerland)	916.9	85
Electrical energy (Argentina)	1,938.5	87	Electronic hardware (Ireland)	24.6	81
Poultry meat (Bolivia)	13.2	83	Composite diagnostic or laboratory reagents (Germany)	368.6	78
Brazil nuts (Bolivia)	17.5	77			
Soya-bean oil (Paraguay)	27.1	77			
Candles and the like (Paraguay)	17.4	76			

Different motivation for invoicing in BRL?

# Main BRL-invoiced products

## Maiores faturamentos em reais

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Different motivation for invoicing in BRL?

# invoicing currency vs. payment currency

Moedas de faturamento x pagamento

# Invoicing vs Payment (I)

Faturamento x Pagamento (I)

- Friberg and Wilander (2008)

- Swedish krona



- Ito et al. (2013)

- Yen



- Zhang (2014)

- Theoretical model



- Our finding

- Brazilian real



# Data Dados

- Trade-related financial data

Dados financeiros relacionados ao comércio

- Central Bank (BCB)

Banco Central (BCB)

- TIR

- 2007-2011, daily data
- Data in USD (daily exchange rate) & in BRL

- SML

- 2008-2011, monthly data
- Data in BRL (converted into USD by average rate)

# Invoicing vs Payment (II)

Faturamento x Pagamento (II)

## Our finding (Brazil: BRL)

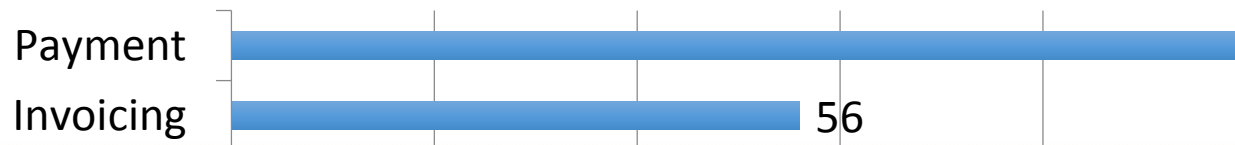


## Robustness (Brazil: total trade)



- PBC news article: Li (2013): opposite effect

## China



# Financial operations and trade

## Operações financeiras e comércio

Country	Payments share on trade (%)		Trade-related financial current (USD million)
	Incoming transfers / Exports	Outgoing transfers / Imports	
World	28.6	0.1	1,967.0
... TIR	0.2	0.1	17.6
Argentina	51.3	-	1,949.8
... TIR	0.0	-	0.3
... SML *	51.4	n/a	1,949.4
Italy	11.6	-	0.4
Japan	3.3	-	0.4
Paraguay	0.8	-	8.3
United States	0.5	-	1.0
Angola	-	863.0	0.2
Germany	-	0.4	6.8
China	-	0.0	0.0

Source: MDIC, BCB





# Conclusion

- Fact

- The BRL invoices trade
  - Small role
  - Big growth

- Novel results

- Financial instruments matter for invoicing choice
- Bargaining power (homogeneous good topping the list)
- Payment and invoice currency mismatch

- Fato

- O real é usado para faturar
  - Pequeno papel
  - Grande crescimento

- Novas contribuições

- Instrumentos financeiros importam na escolha da moeda de faturamento
- Poder de barganha (produtos homogêneos)
- Faturamento e pagamento não coincidem

Thank you! Obrigado!

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