Cross-border payments in the long run: structure and governance 1985-2025

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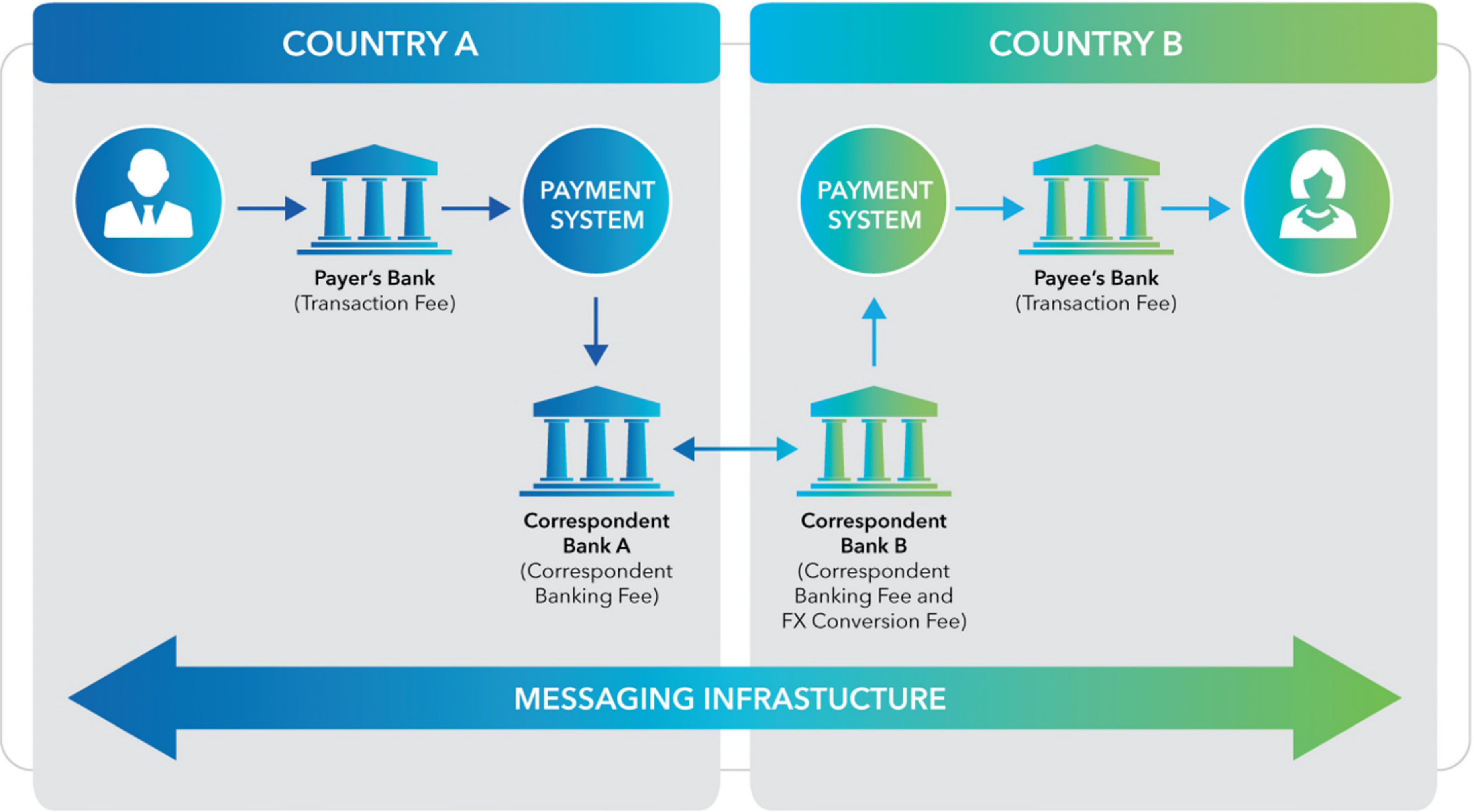
University of Oxford

Outline

- Correspondent Banking
- Current Policy Context
- Evolution of public interest in cross-border payments infrastructure
- Limitations of SWIFT data
- Longer run series
  - Earlier reversals
  - Sanctions: Iran, Russia (and China)
  - AML/CFT Compliance: OFCs, Nigeria
- Getting Granular – new dataset

THE CORRESPONDENT BANKING MODEL

Source: Aite Group

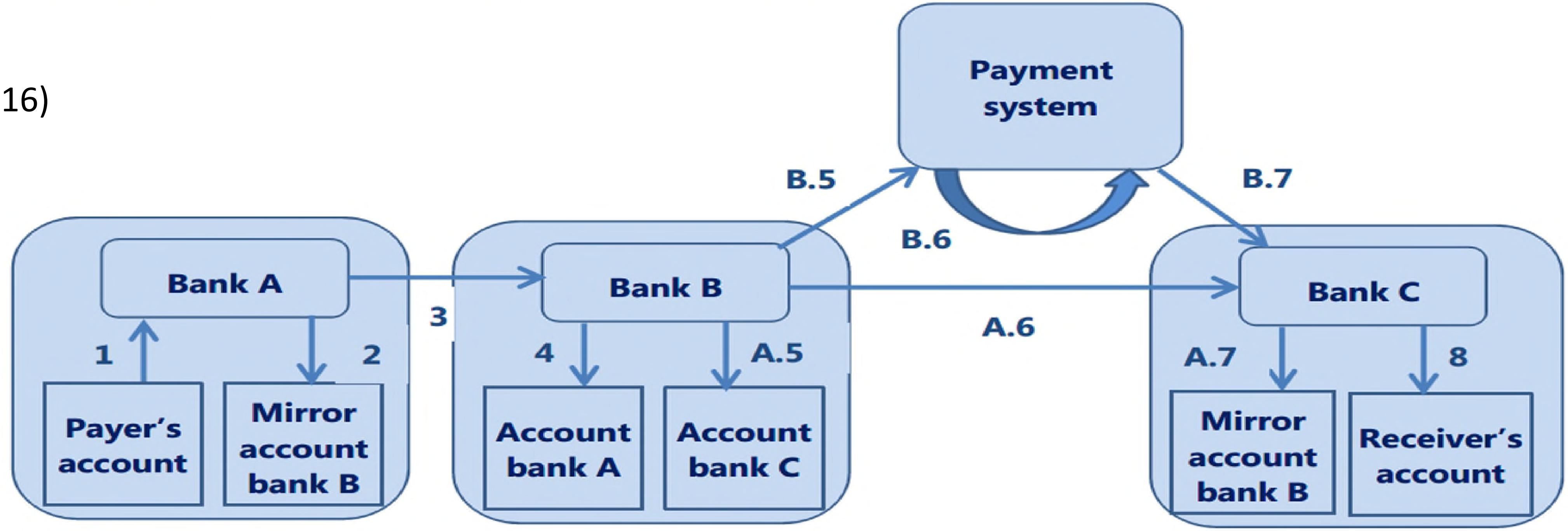


Source: Federal Reserve

Figure 1

Payments settled via correspondent banking

Source:
CPMI (2016)



1. Debiting of payer's account with bank A
2. Crediting of bank B's mirror account with bank A, which is kept for accounting purposes
3. Payment message from bank A to bank B via telecommunication network
4. Debiting of bank A's account with bank B (loro account)

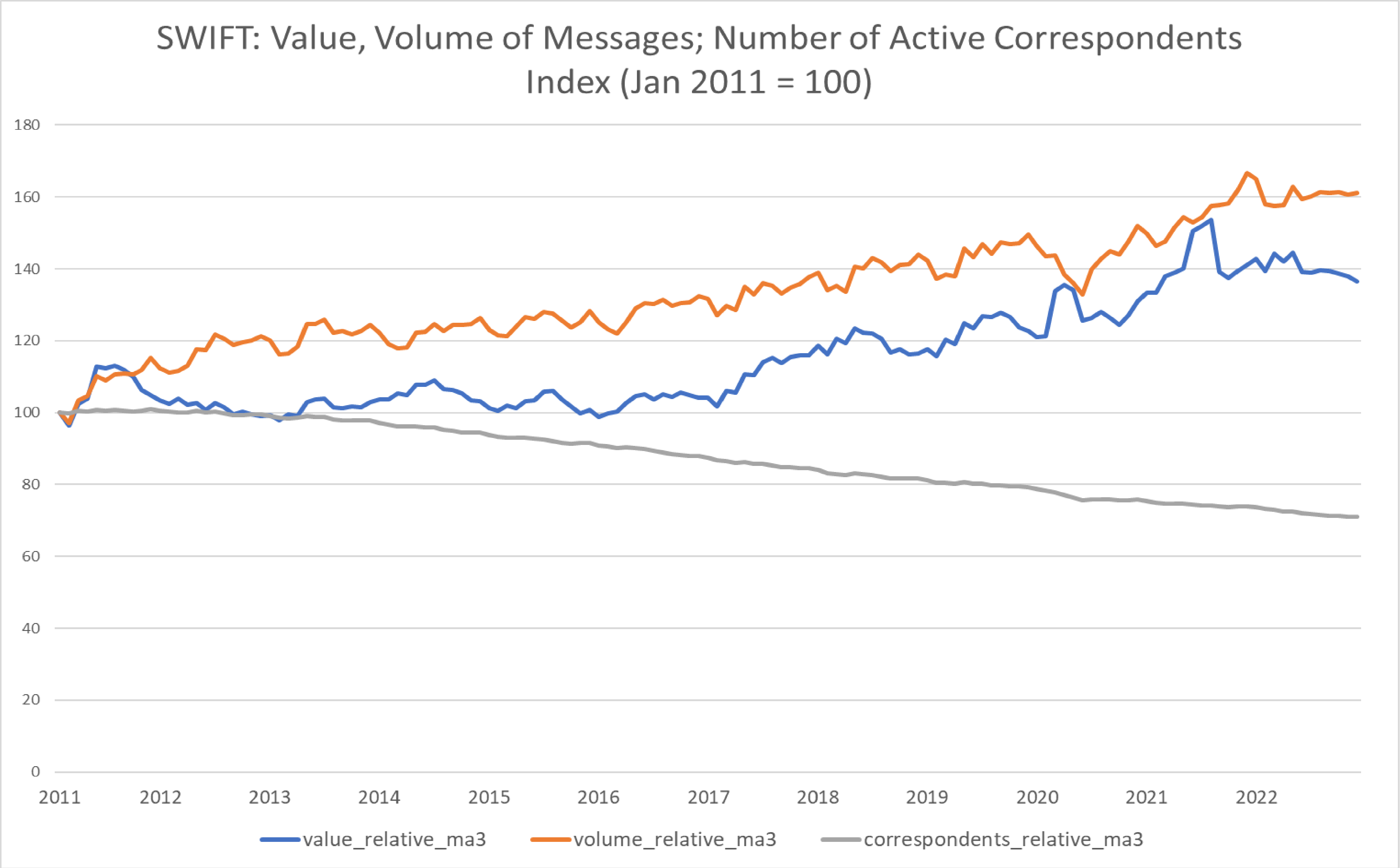
A. Use correspondent bank only

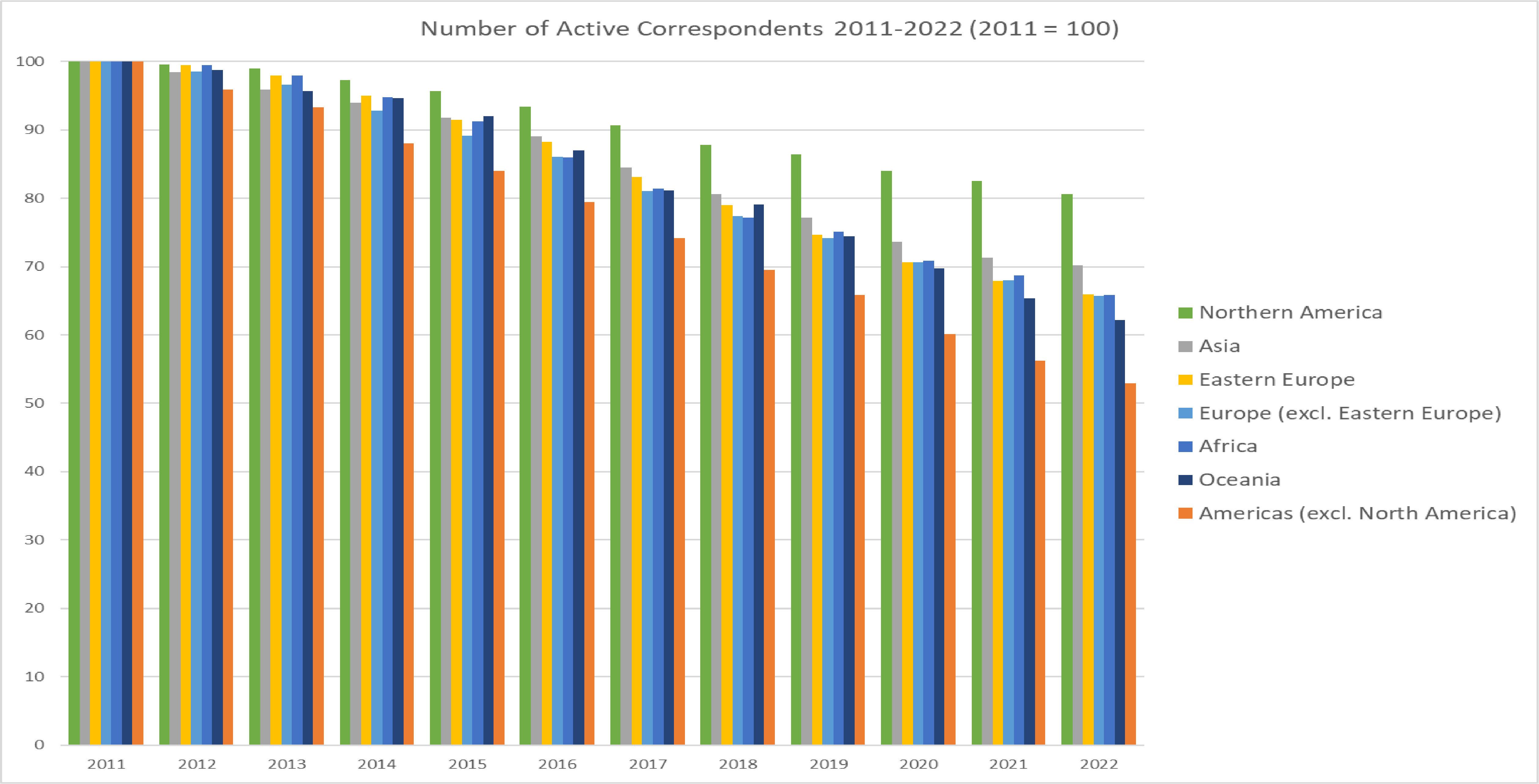
5. Crediting of bank C's account with bank B
6. Payment message from bank B to bank C via telecommunication network
7. Debiting of bank's B mirror account with bank C, which is kept for accounting purposes
8. Crediting of receiver's account with bank C

B. Involvement of payment system

5. Payment message from bank B to payment system
6. Settlement via payment system
7. Payment message from payment system to bank C
8. Crediting of receiver's account with bank C

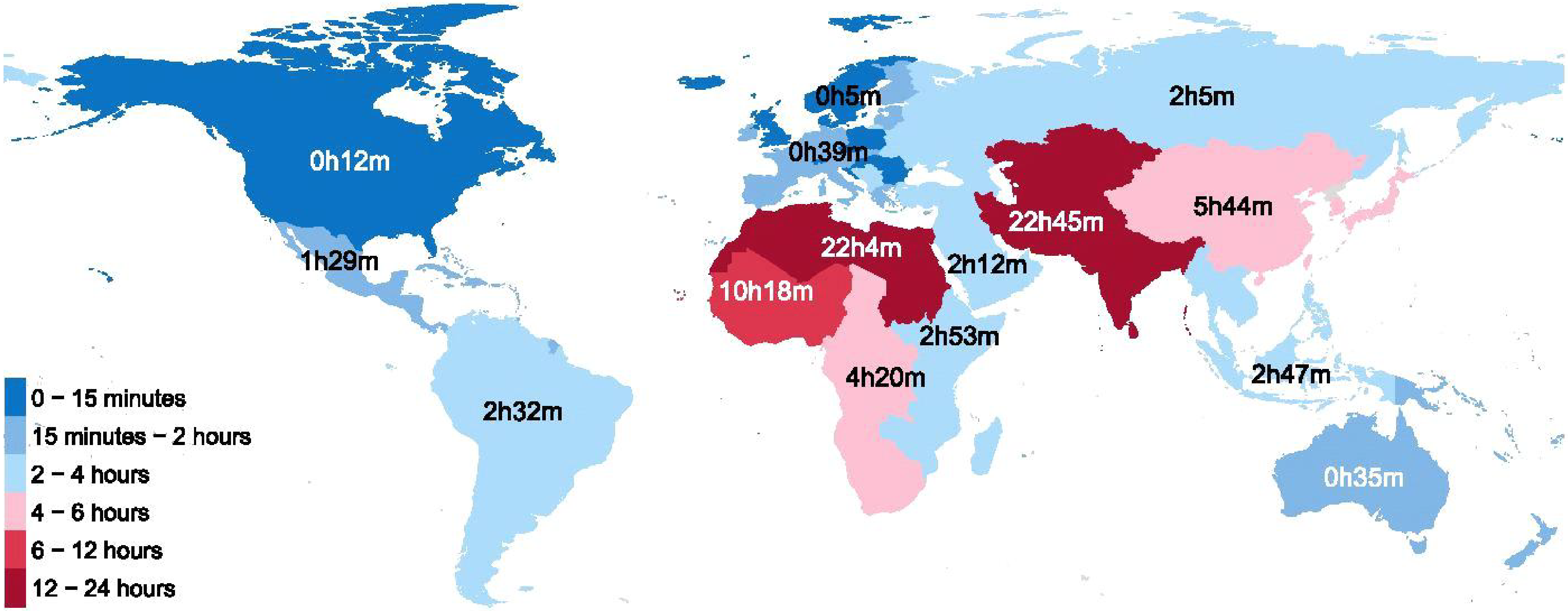
Source: ECB, *Ninth survey on correspondent banking in euro*, 2015, adapted from Danmarks Nationalbank, *Payment systems in Denmark*, 2005.


SWIFT: Value, Volume of Messages; Number of Active Correspondents
Index (Jan 2011 = 100)
180
160
140
120
100
80
60
40
20
0
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
value_relative_ma3
volume_relative_ma3
correspondents_relative_ma3


Number of Active Correspondents 2011-2022 (2011 = 100)
100
90
80
70
60
50
40
30
20
10
0
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Northern America
Asia
Eastern Europe
Europe (excl. Eastern Europe)
Africa
Oceania
Americas (excl. North America)

Median end-to-end processing time by beneficiary region (SWIFT gpi)

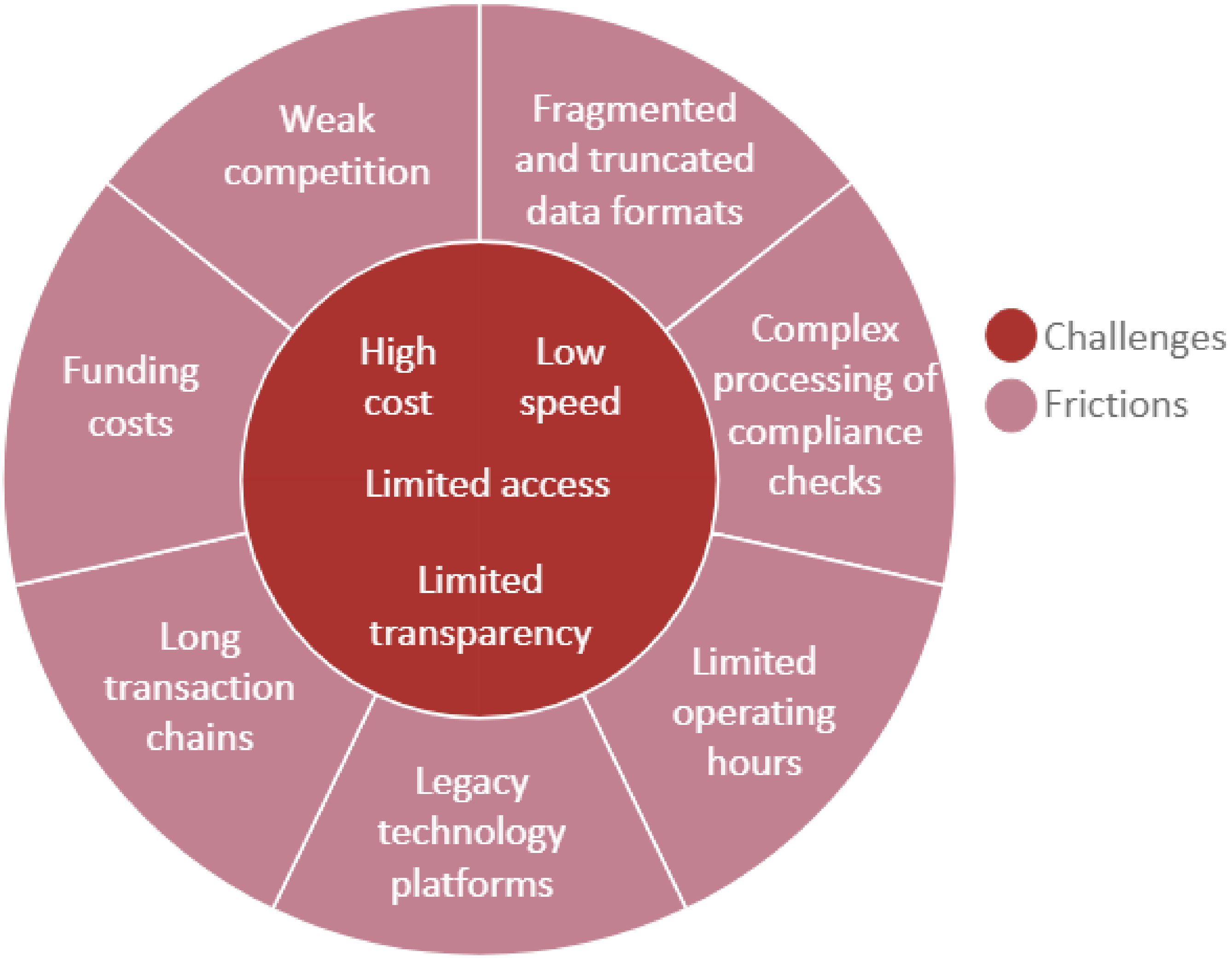
Inefficiency of Cross-border Payments



Sept-Oct 2020

Source: BIS, CPMI (2022) Nilsson, Bouther, van Acolezen, Cohen

Cross Border Payments – G20 Initiative



Source :CPMI (2020), 'Stage 2 Report to the G20 – Technical Background Report', July
https://www.rba.gov.au/publications/annual-reports/psb/2021/box-a-the-g20-roadmap-to-enhance-cross-border-payments.html

Explanations of Sclerosis

- Surveys
  - Cost of low volume partners
  - Cost of ALM/CFT compliance
- Sanctions Risks (2012 Iran, 2022 Russia/Belarus)
- Negative Real Interest Rates: Business Model

Contribution of a Longer View

- What are the underlying institutional features of the structure of the system? Why are we here?

- Have there been reversals before?

- Can we find better/alternative data?

- How did the role of public interest in the system evolve?

Literature on Correspondent Banking

- USA
  - Richardson (2007)
  - James and Weiman (2010)
  - Das, Mitchener & Vossmeyer (2018)
  - Mitchener & Richardson (2019)
  - Calomiris, Jaremski & Wheelock (2019)
- International:
  - London: Mollen (2012), Mollen & Michie (2012)
  - Australia: Merrett (1995) Panza & Merrett (2018) Chan (2001)
  - SWIFT: Scott & Zachariadis (2014)
- Contemporary
  - Meinster & Mohindru (1975)
  - Palmer (1990)
  - Lawrence & Lougee (1970)
  - Naughton & Chan (1998)
- Current issues:
  - Gustitus, Bean & Roach (2001)
  - Grollman & Jutsra (2017)
  - von Peter & Rice (2020)
  - CPMI @ BIS/FSB
  - Borchert et al (2023)

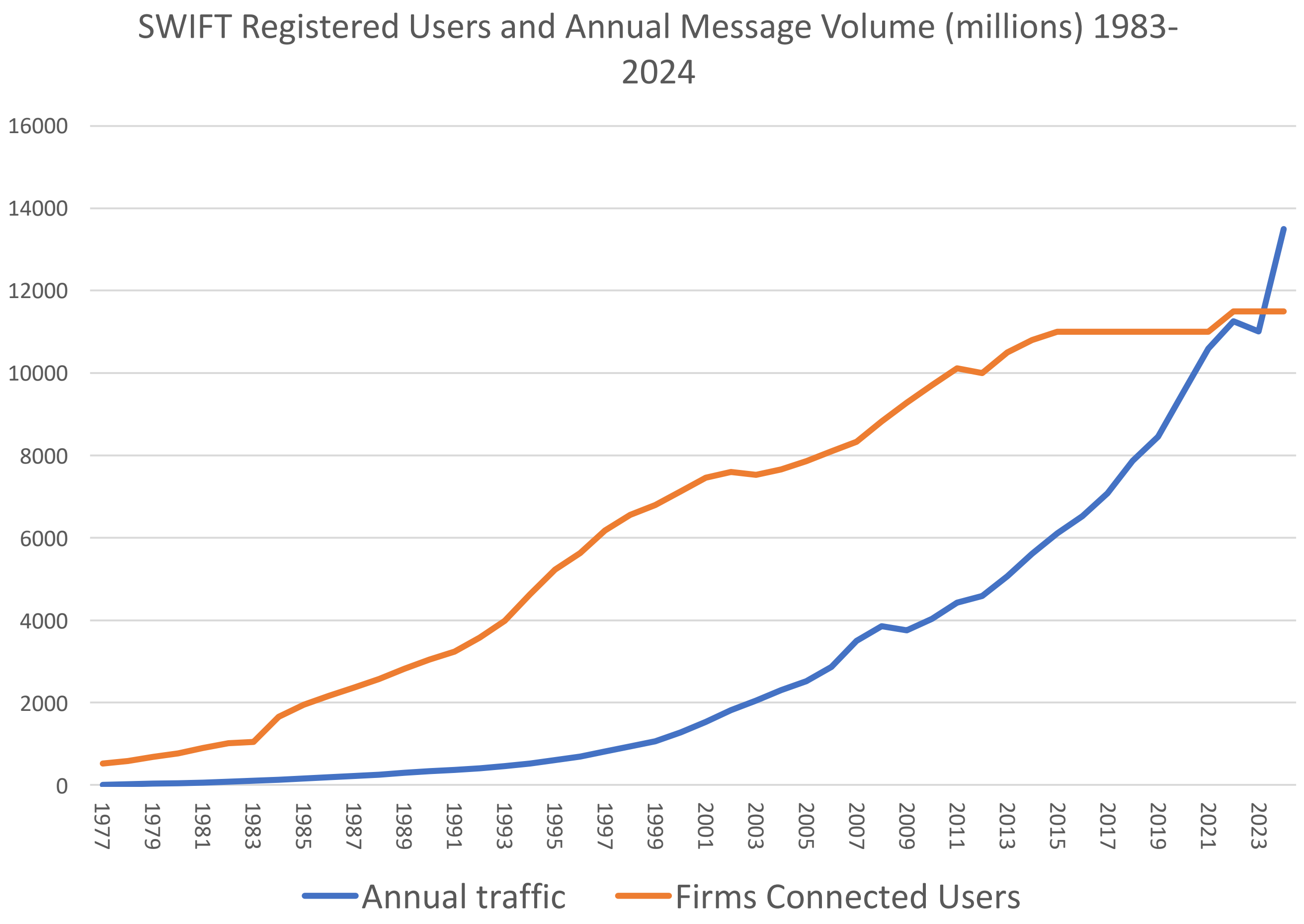
GloCoBank

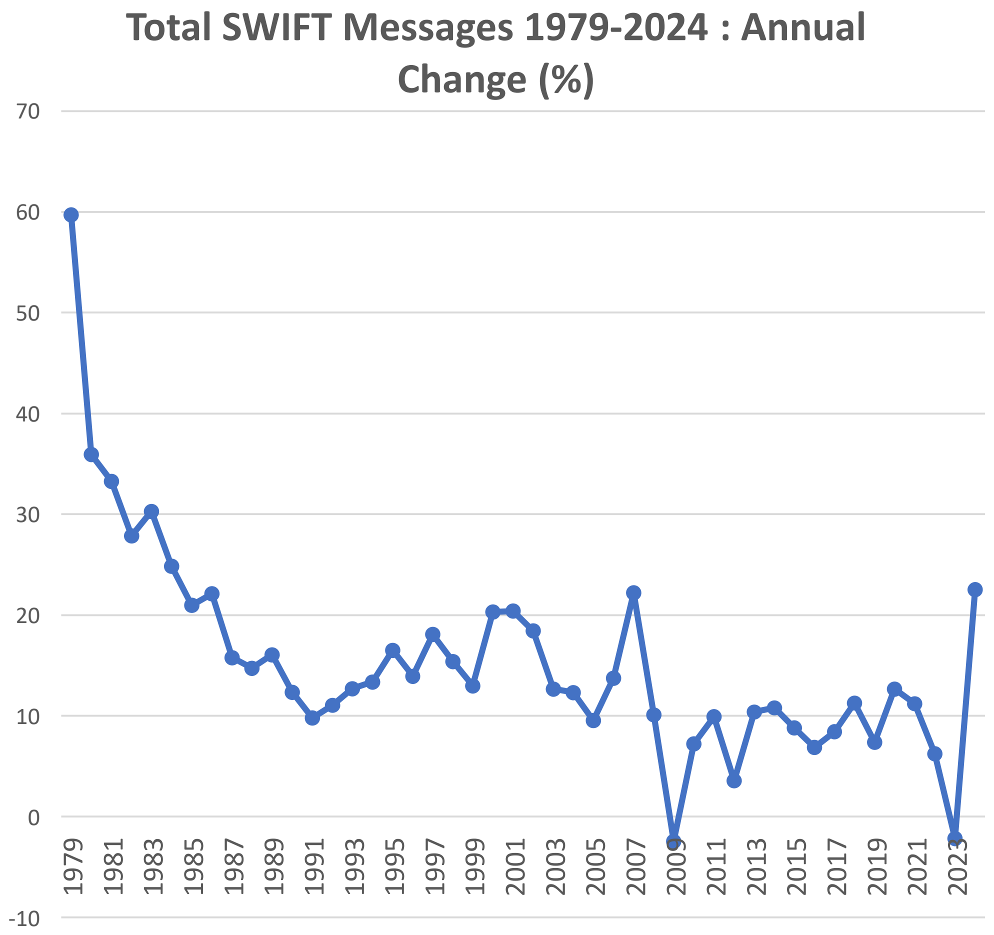
Evolution of Oversight of SWIFT

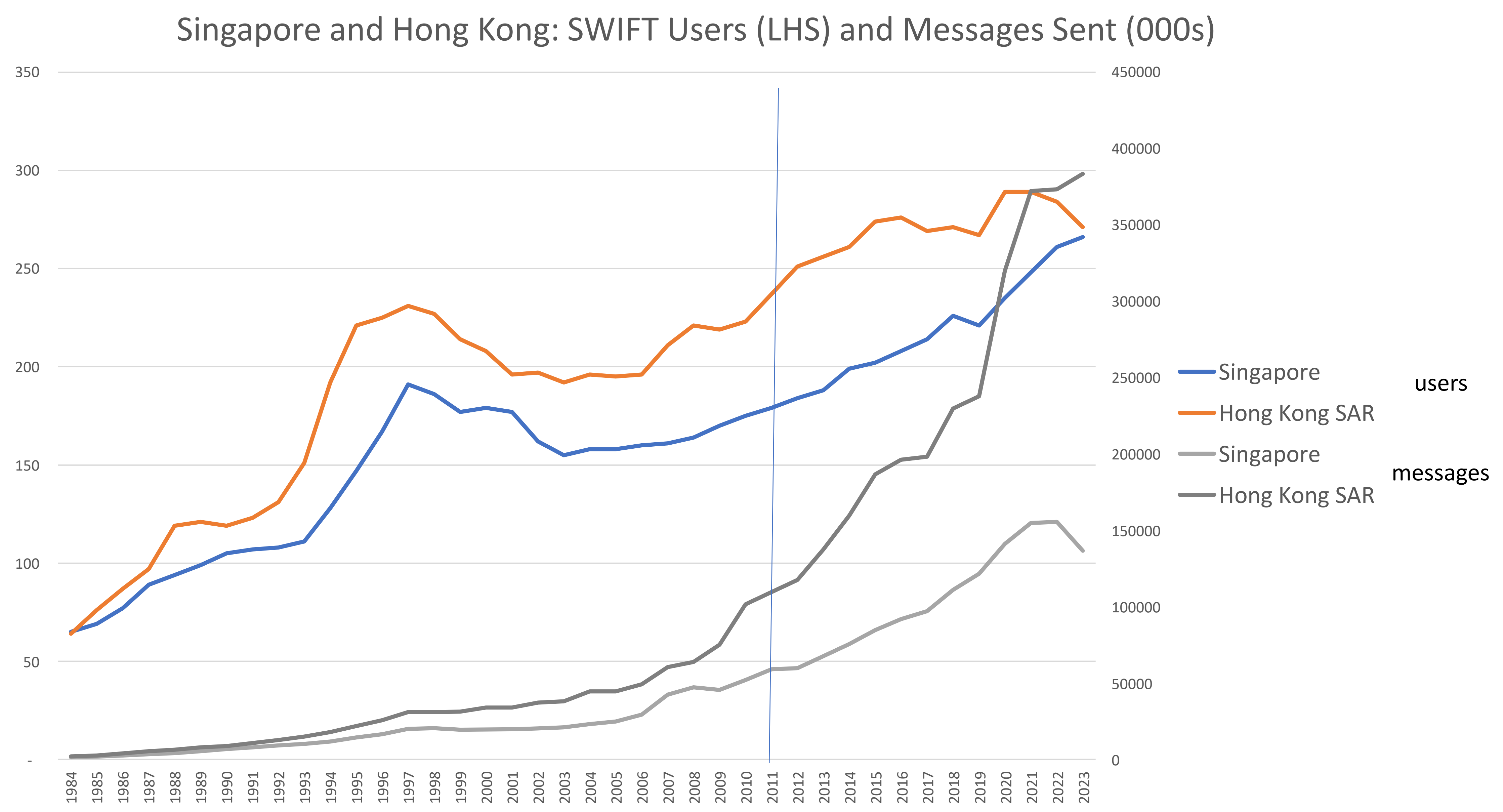
- Repeated reviews during the design (1969-77)
- 1980s: faltering governance -> increased concern
- 1981: Group of Experts on Payments Systems
  - 1982: challenge of harmonization ‘each central bank will need to assess its own position’
  - 1985: ‘neither feasible nor desirable’ (but regular meetings with Execs)
- 1990: USA General Accounting office
  - Experts Study Group on Oversight: reviews of technical audits
- 1998: formalised oversight, ‘moralsuasion’ (use in RTGS, Ecu)
- 2001: US secret subpeona

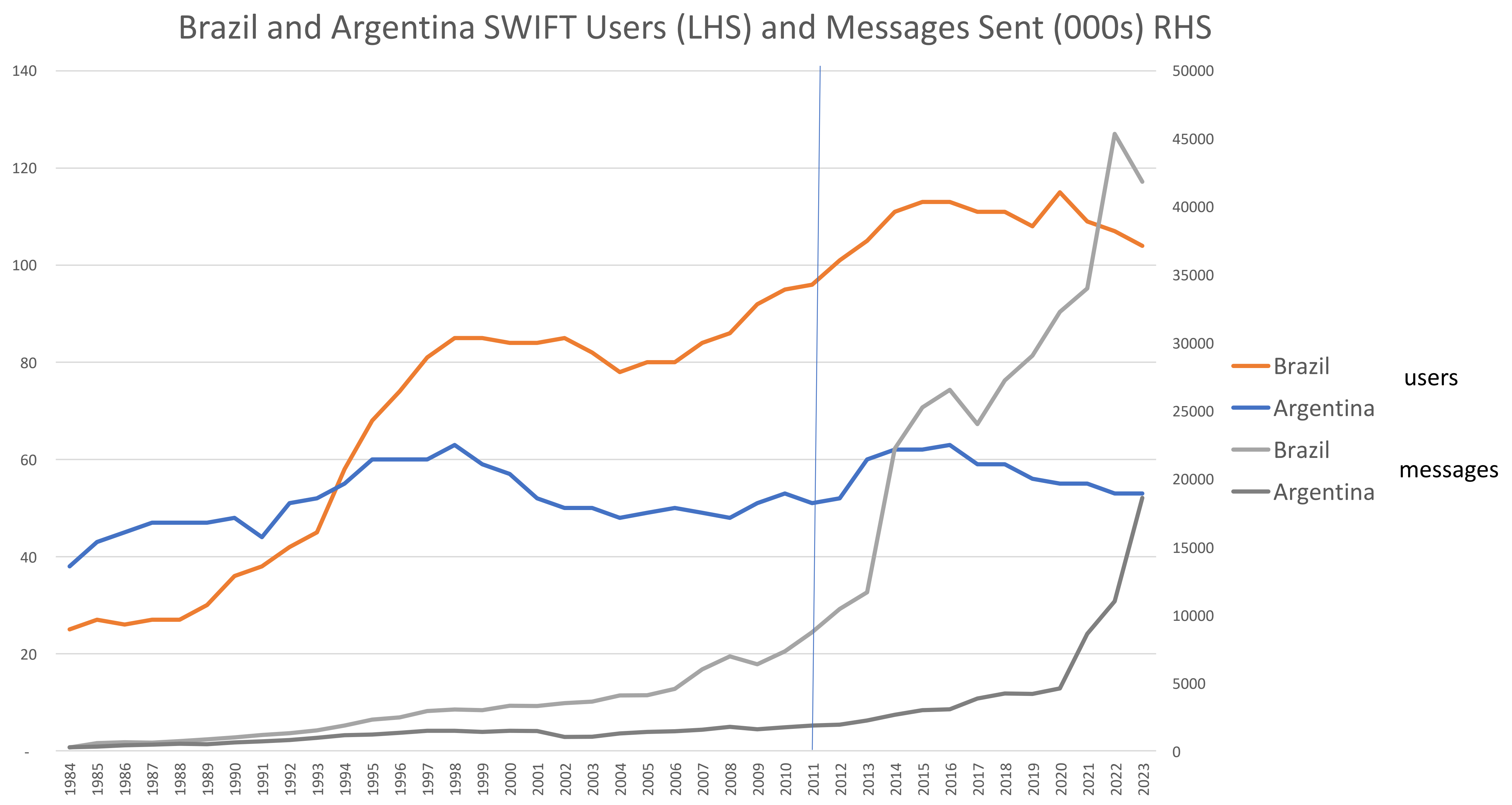
Limitations with the SWIFT Data

- Only from 2011
- Values: by currency or region only
- Volumes: Mainly Regional
- Country Level: limited range of CPMI reporters
- Multiple counting of individual payments across several partners (especially for smaller economies)
- Includes domestic messaging (SWIFT used in RTGS)
- Not all payments need to go through SWIFT
- Staged adoption of SWIFT around the world

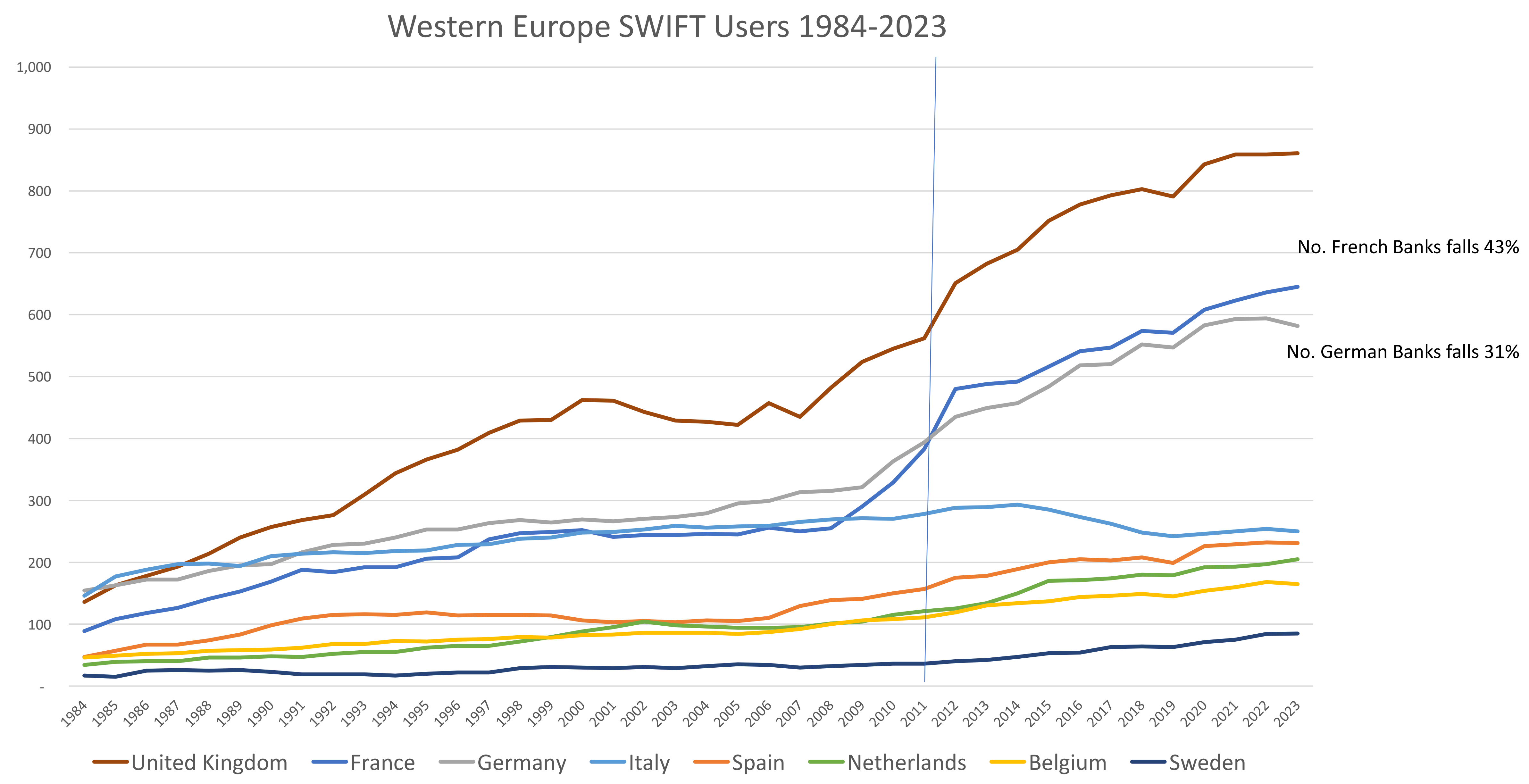

SWIFT Registered Users and Annual Message Volume (millions) 1983-2024
16000
14000
12000
10000
8000
6000
4000
2000
0
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
Annual traffic
Firms Connected Users

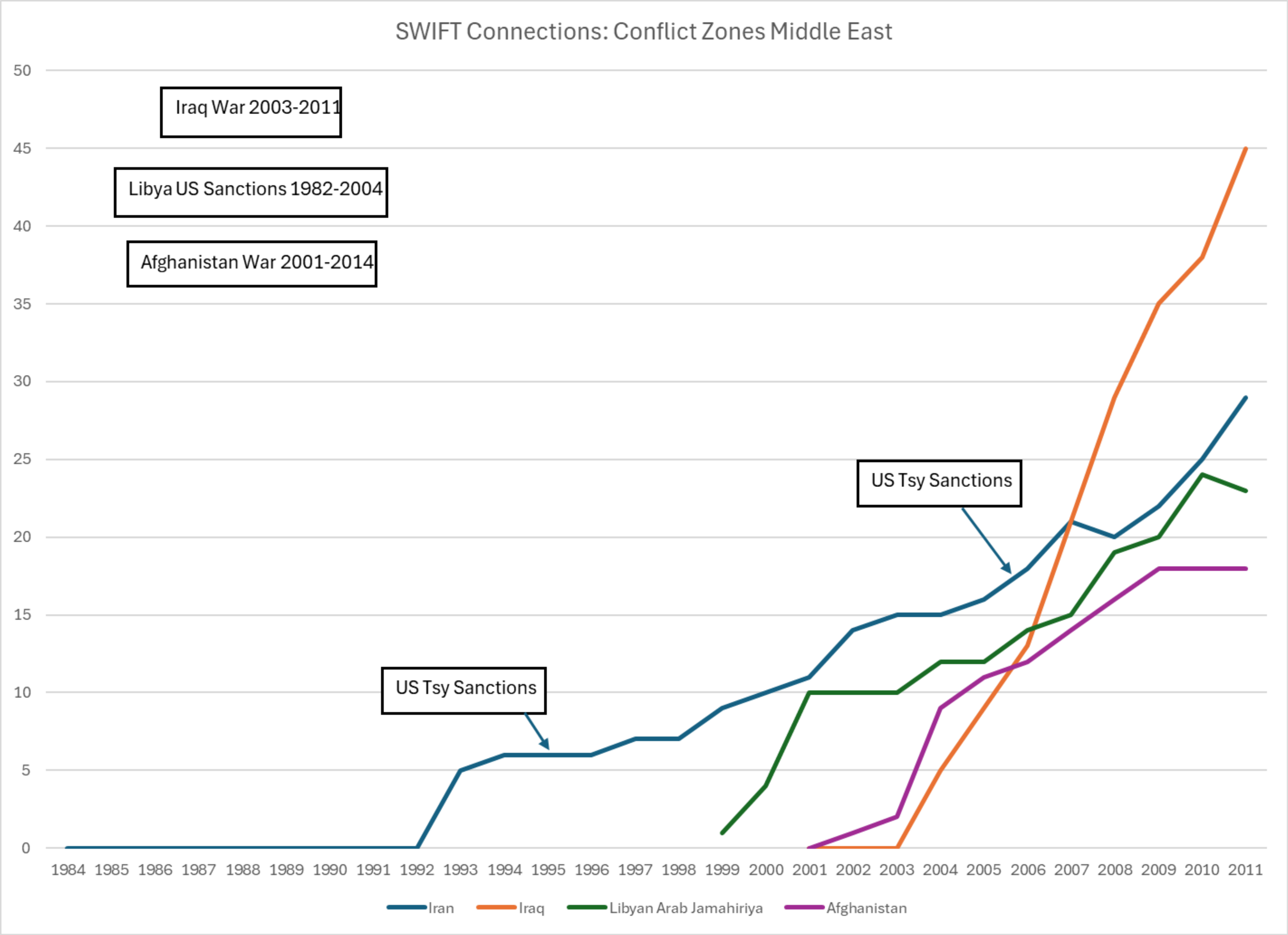

Total SWIFT Messages 1979-2024 : Annual Change (%)
70
60
50
40
30
20
10
0
-10
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023


Singapore and Hong Kong: SWIFT Users (LHS) and Messages Sent (000s)
350
300
250
200
150
100
50
-
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Singapore
Hong Kong SAR
users
Singapore
Hong Kong SAR
messages

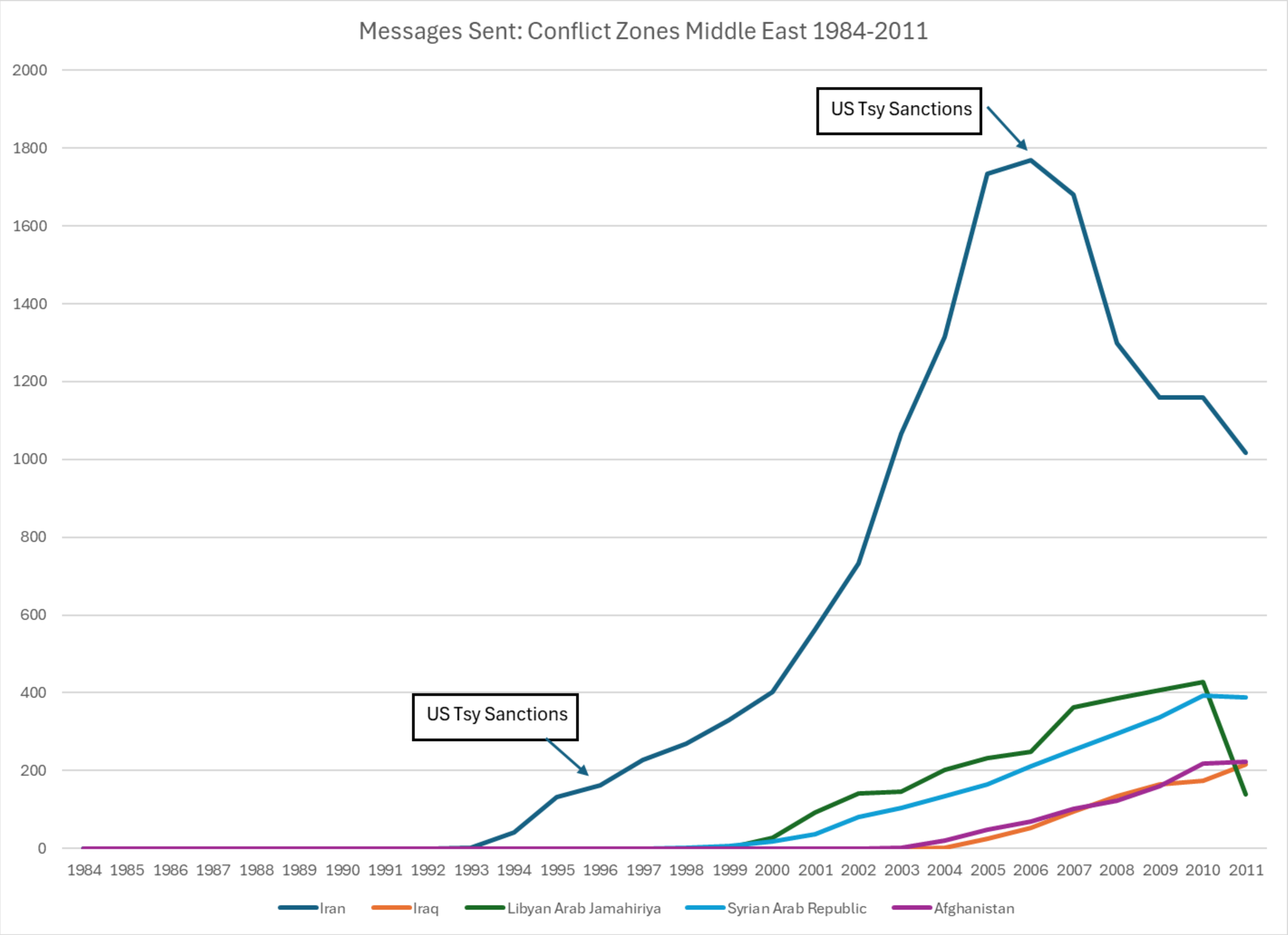


Brazil and Argentina SWIFT Users (LHS) and Messages Sent (000s) RHS
140
120
100
80
60
40
20
-
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Brazil
Argentina
users
Brazil
Argentina
messages

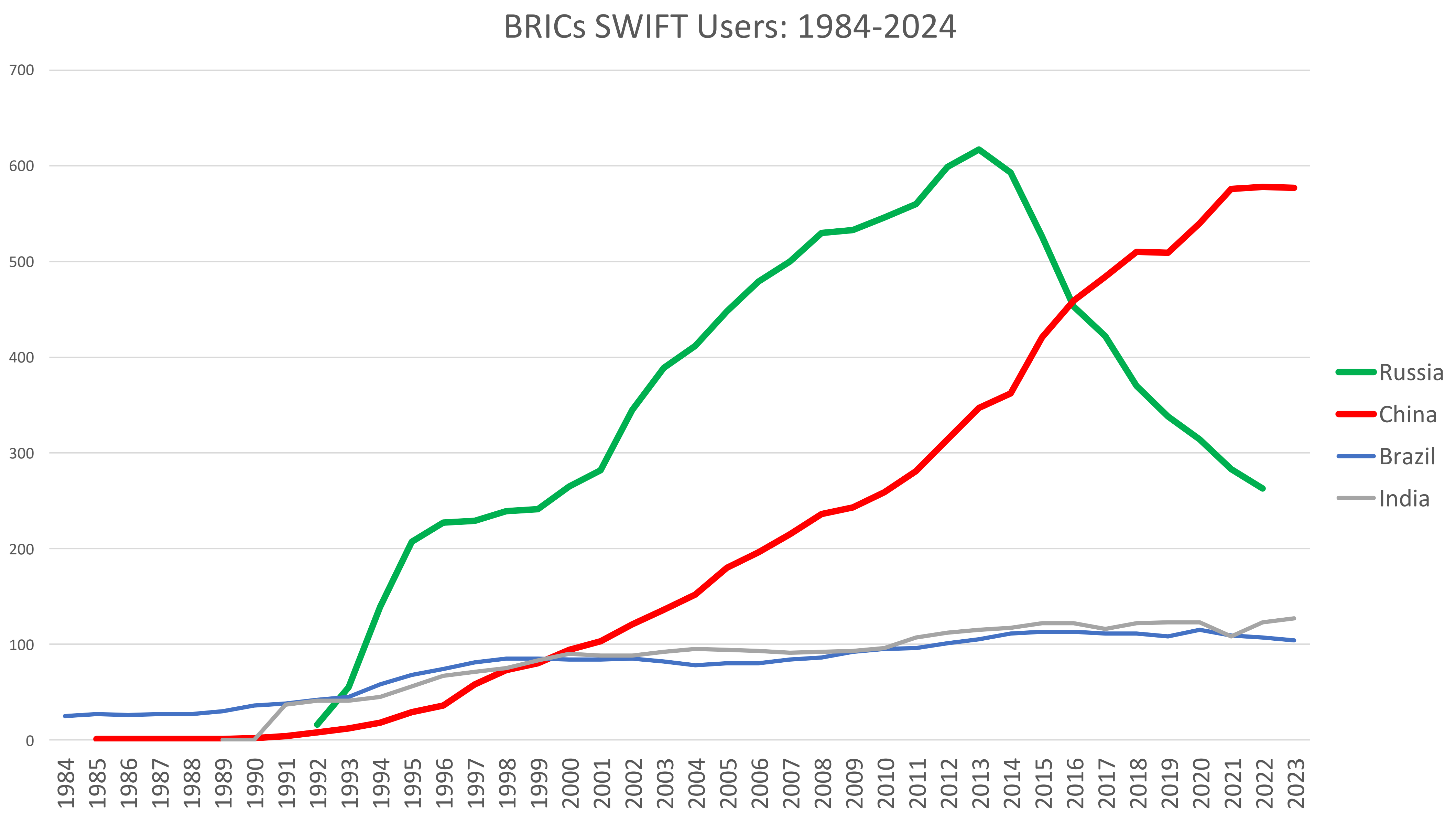

Western Europe SWIFT Users 1984-2023
1,000
900
800
700
600
500
400
300
200
100
-
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
No. French Banks falls 43%
No. German Banks falls 31%
United Kingdom
France
Germany
Italy
Spain
Netherlands
Belgium
Sweden



Rafidain Bank
Rasheed Bank



Messages Sent: Conflict Zones Middle East 1984-2011
2000
1800
1600
1400
1200
1000
800
600
400
200
0
US Tsy Sanctions
US Tsy Sanctions
1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Iran
Iraq
Libyan Arab Jamahiriya
Syrian Arab Republic
Afghanistan



BRICs SWIFT Users: 1984-2024
700
600
500
400
300
200
100
0
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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2009
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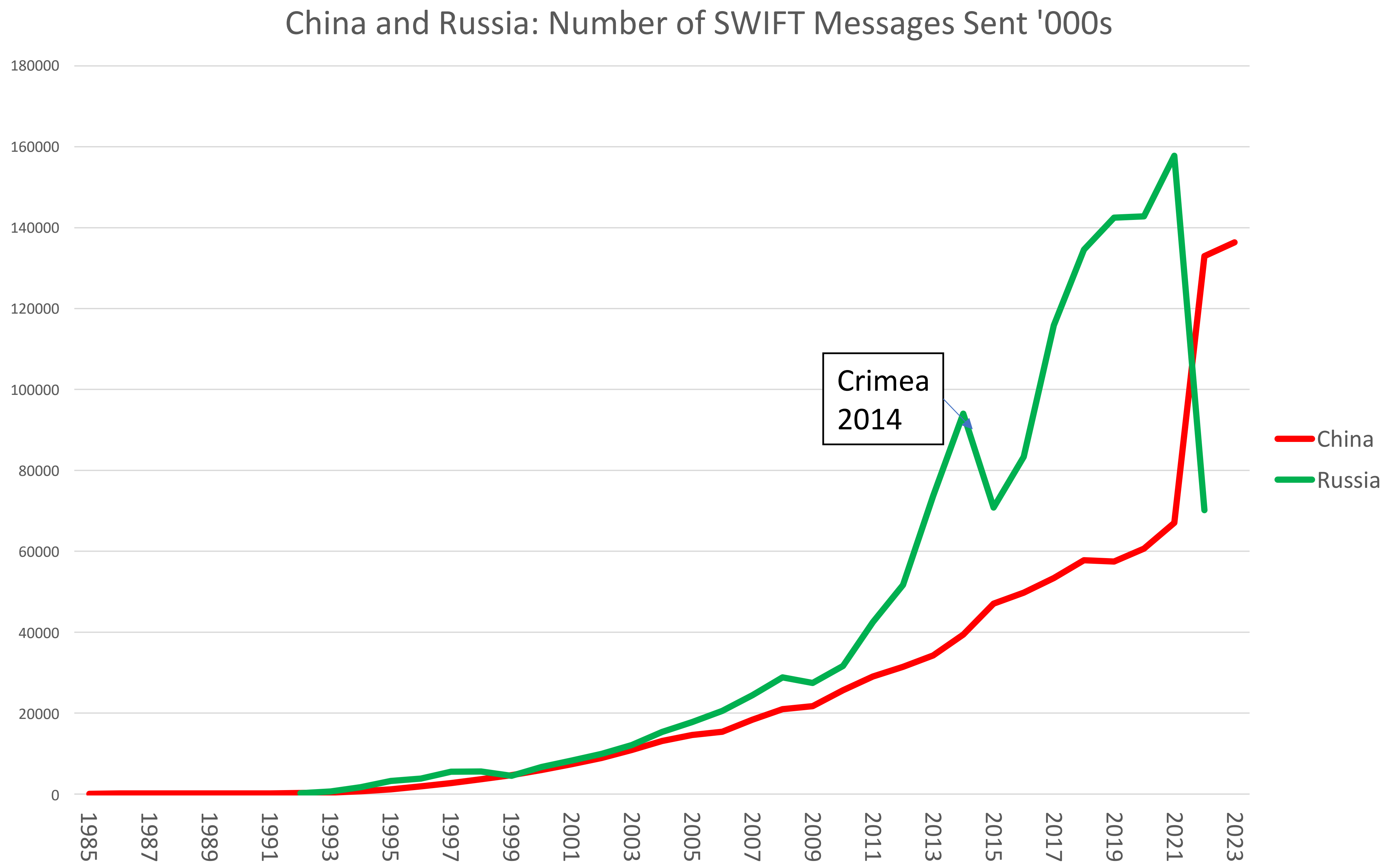
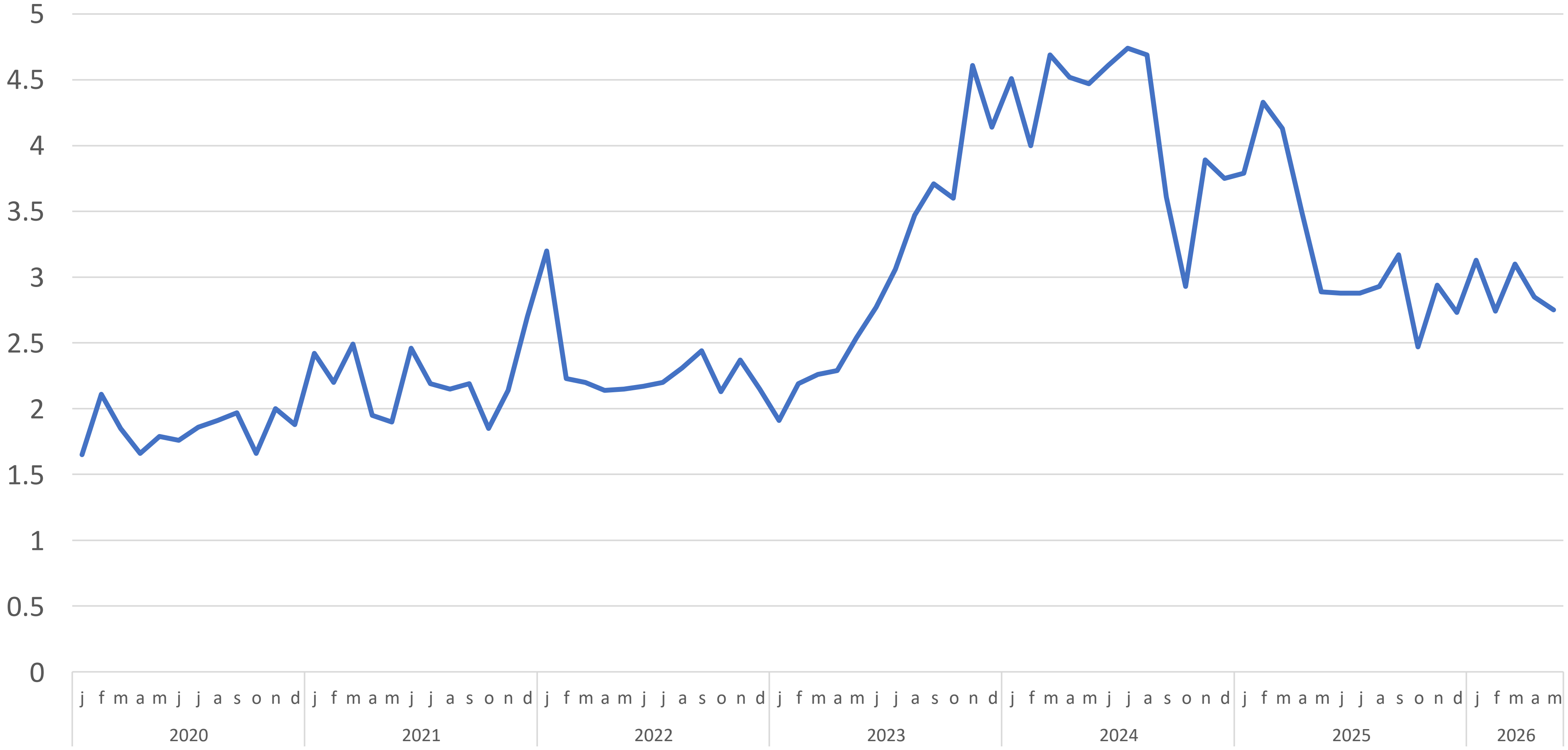
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Russia
China
Brazil
India



China and Russia: Number of SWIFT Messages Sent '000s
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
Crimea 2014
China
Russia

RMB Share of the Value of SWIFT Payments (%)
Jan 2020-May 2026

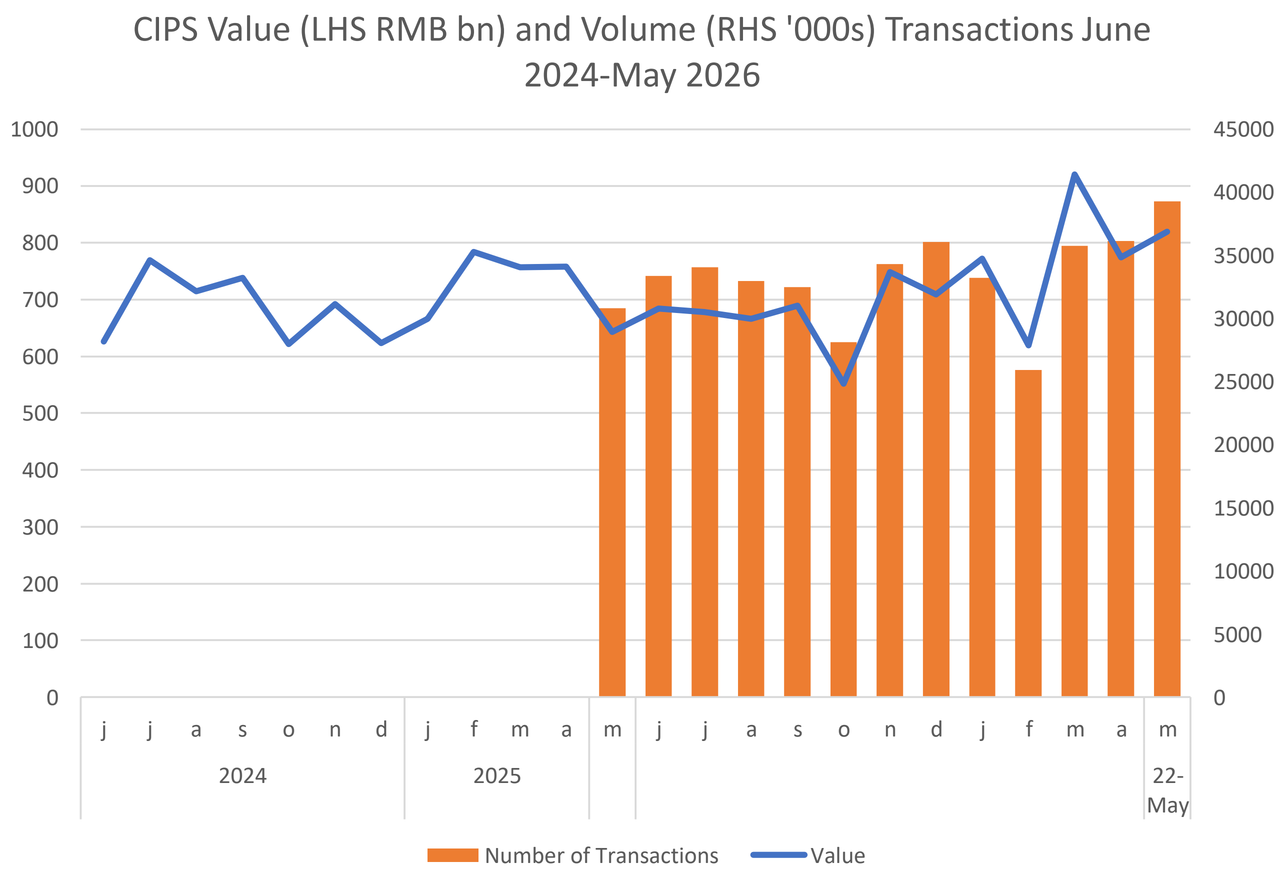


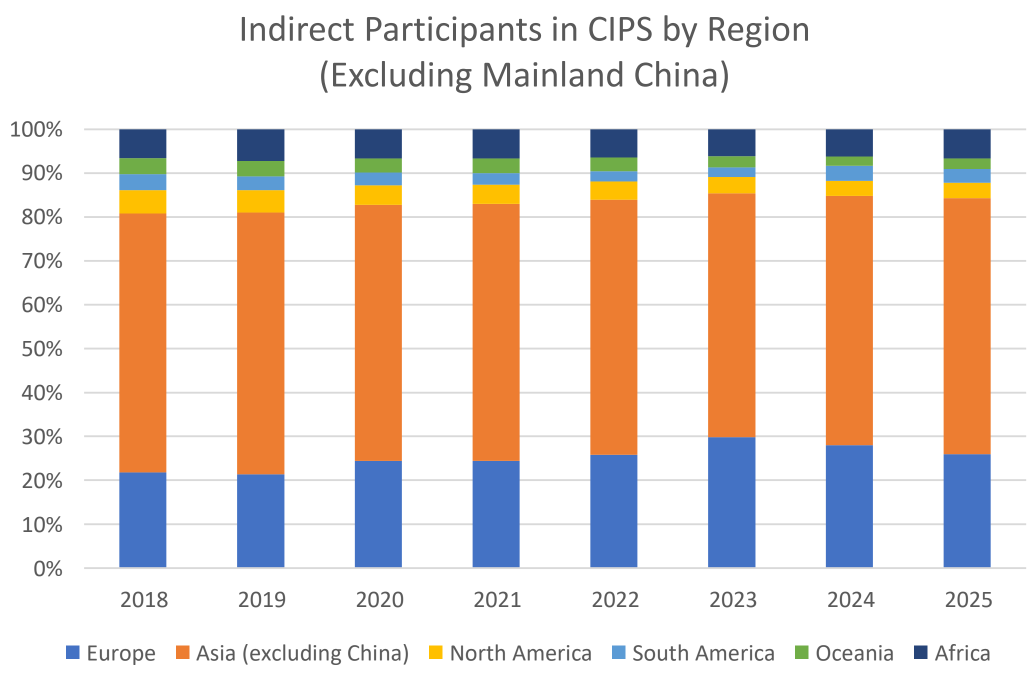
2024/25 EU and US threaten to sanction Chinese Banks for allegedly enabling trade with Russia

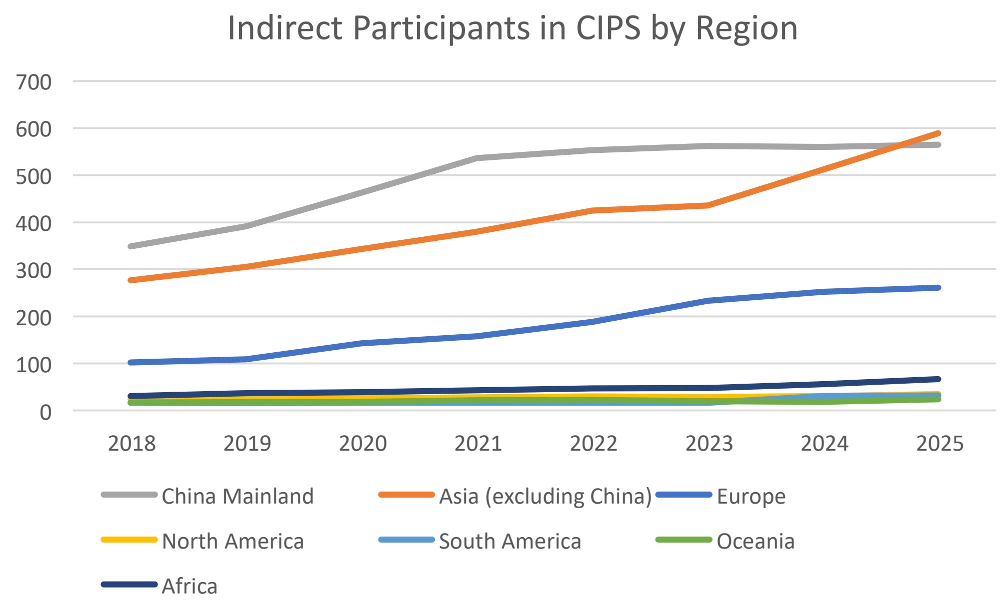
China – CIPS RMB payments

- Uses SWIFT messaging
- 194 direct participants (c. 10 non-Chinese)

	CIPS	London CNH Clearing	HK FX Market	CHIPS	CLS
2024 Daily Turnover (US$ Billion)	97	232	700	1900	7000





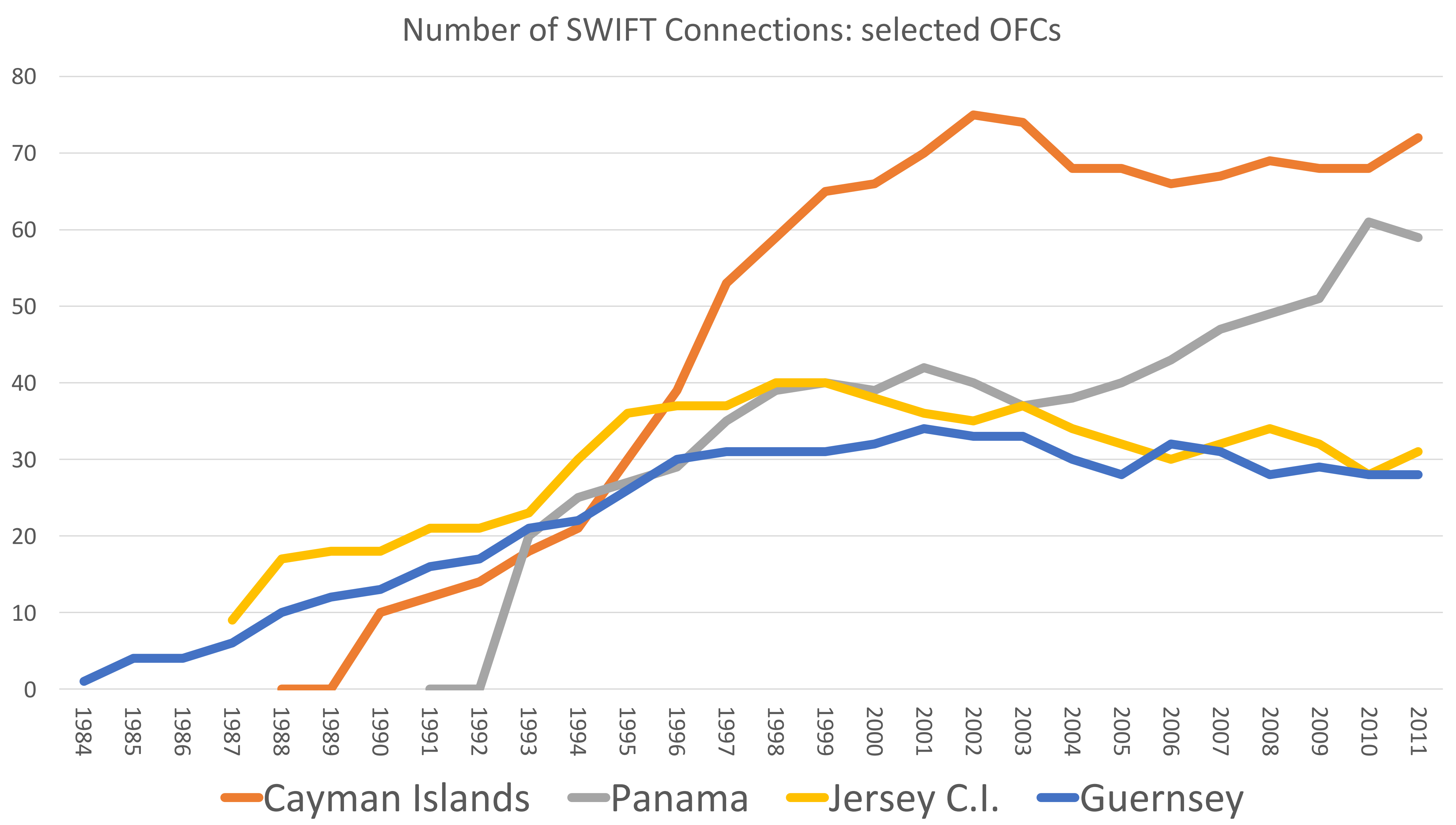


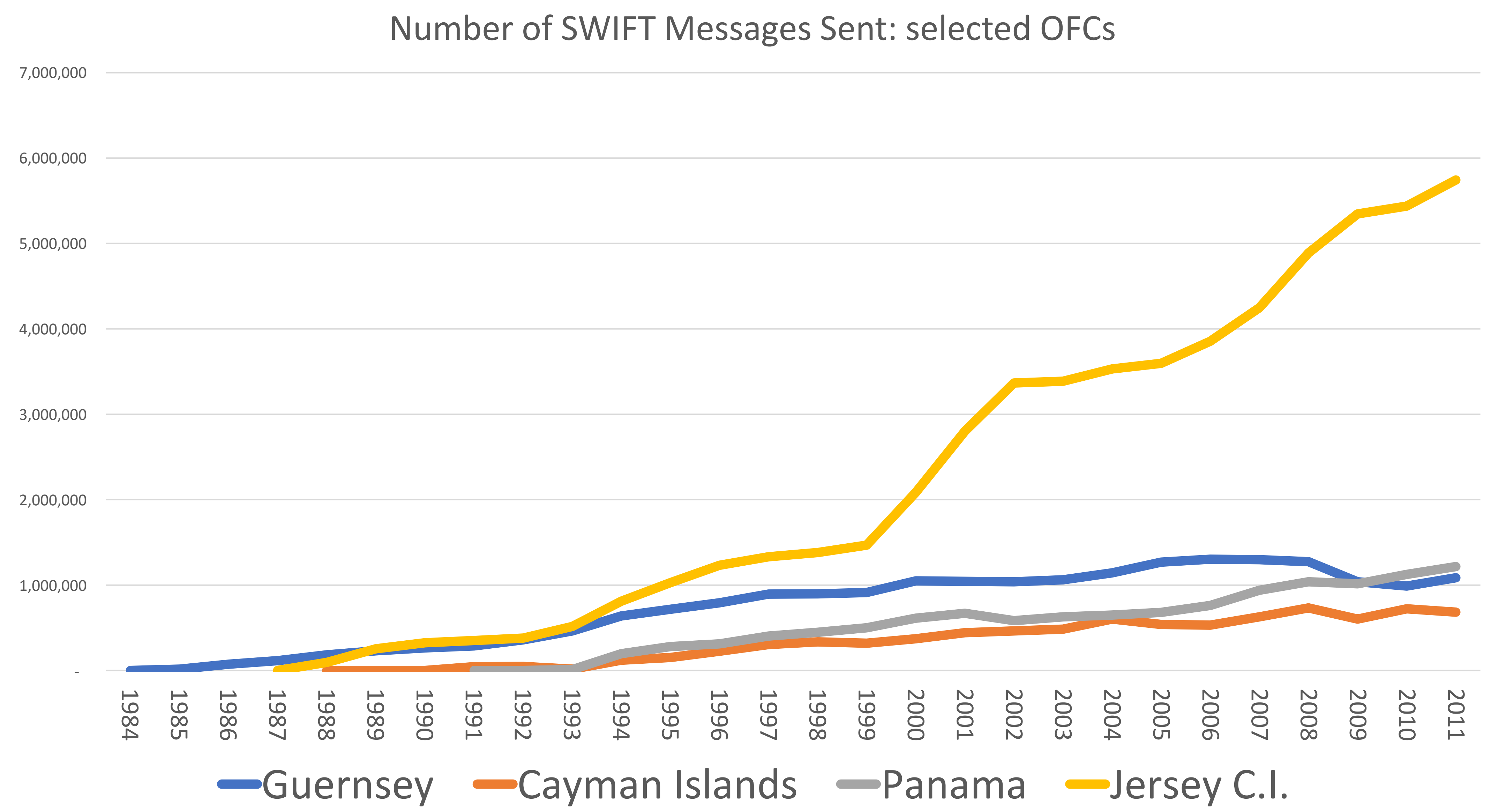
- Value and Volume of CIPS traffic increasing?

- Dominated by participants in China and Asia and by Chinese-controlled banks

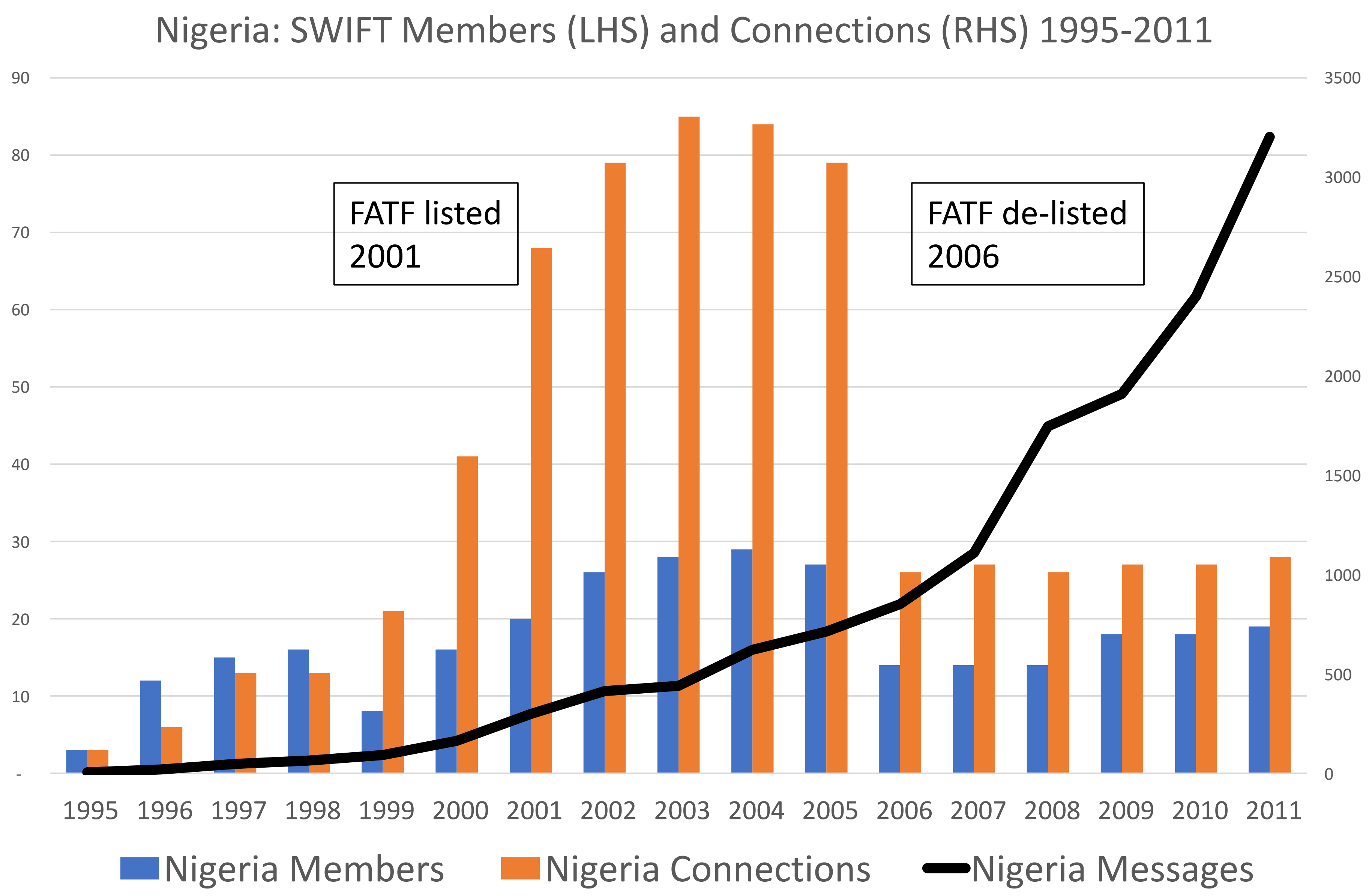
Correspondent Banking and AML/CFT Compliance

- FATF founded 1989, starts naming 2000
- Fine and scandal for Bank of New York 1999
- Congressional ‘Report on Correspondent Banking: a gateway for money laundering’ 2000
- 2001 financial war on terror

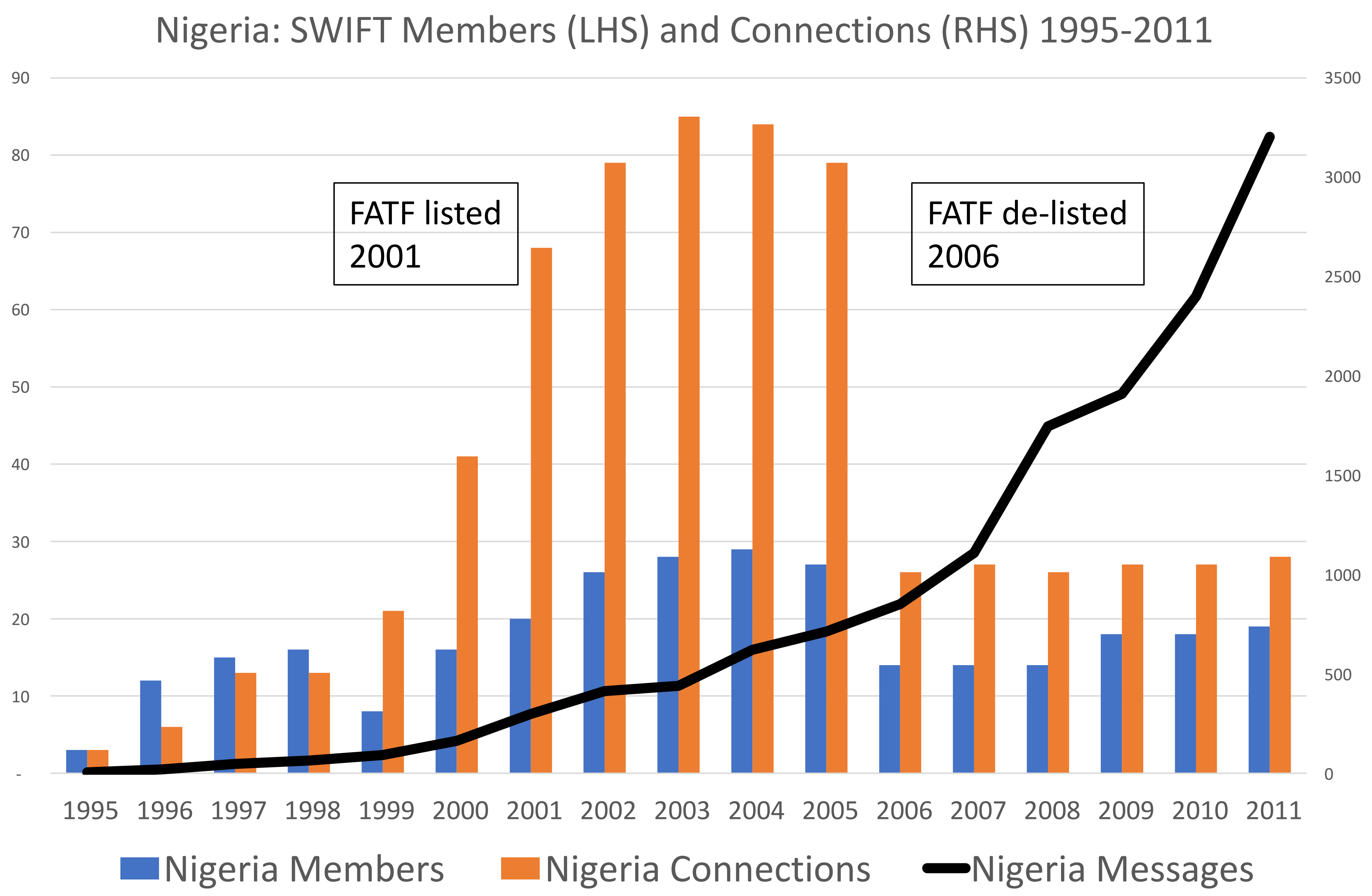

Number of SWIFT Connections: selected OFCs
80
70
60
50
40
30
20
10
0
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Cayman Islands
Panama
Jersey C.I.
Guernsey



Number of SWIFT Messages Sent: selected OFCs
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Guernsey
Cayman Islands
Panama
Jersey C.I.

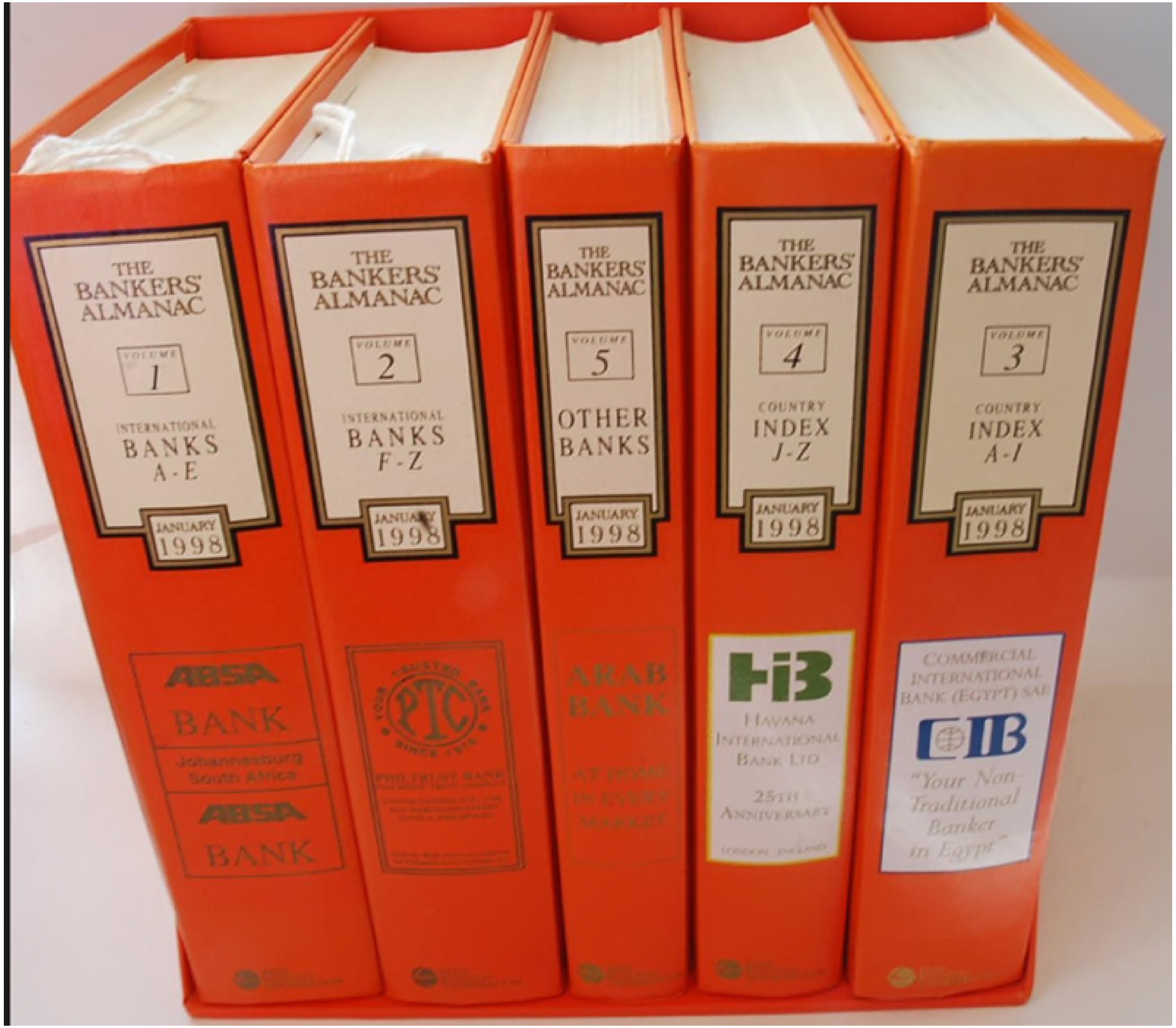


Nigeria: SWIFT Members (LHS) and Connections (RHS) 1995-2011
90
80
70
60
50
40
30
20
10
-
3500
3000
2500
2000
1500
1000
500
0
FATF listed 2001
FATF de-listed 2006
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Nigeria Members
Nigeria Connections
Nigeria Messages



Number of banks:
89 in 2004
25 in 2006

2006 RTGS
(uses SWIFT)


THE BANKERS' ALMANAC
VOLUME 1
INTERNATIONAL BANKS A-E
JANUARY 1998
ABSA BANK
Johannesburg South Africa
ABSA BANK
THE BANKERS' ALMANAC
VOLUME 2
INTERNATIONAL BANKS F-Z
JANUARY 1998
PTC
THE BANKERS' ALMANAC
VOLUME 5
OTHER BANKS
JANUARY 1998
ARAB BANK
THE BANKERS' ALMANAC
VOLUME 4
COUNTRY INDEX J-Z
JANUARY 1998
HIB
HAVANA INTERNATIONAL BANK LTD
25TH ANNIVERSARY
THE BANKERS' ALMANAC
VOLUME 3
COUNTRY INDEX A-I
JANUARY 1998
COMMERCIAL INTERNATIONAL BANK (EGYPT) SAE
CIB
"Your Non-Traditional Banker in Egypt"

— Data Change —

Head Office: Imam Khomeini Square, 1136953412 Tehran, Iran
Tel: +98 21 667400001, 21 66740019,
21 66741091, 21 66741099
Fax: +98 21 88647189
Email: int@banksepah.ir (International Affairs Directorate)
Website: www.banksepah.ir

Bankers Almanac July 2008

Bank Sepah

Head Office: Imam Khomeini Square, 1136953412 Tehran, Iran TEL: +98 21 66740001, 21 66740019, 21 66741091, 21 66741099. FAX: +98 21 88647189. TGMS: sepahbank. E-MAIL: int@banksepah.ir (International Affairs Directorate). SWIFT/BIC: International Affairs Directorate SEPB IR TH. BANK CODE: SEPB (use Swift). REG NO: 4293. WEBSITE: http://www.banksepah.ir

Correspondent Banking Relations: Tel: +98 21 88647097 Fax: +98 21 88647191, 21 88647108 E-mail: cbr@ebanksepah.ir **Foreign Exchange Accounting and Treasury:** Tel: +98 21 88647079 Fax: +98 21 88647071/2 E-mail: int@banksepah.ir **Foreign Exchange Operations and Intl Relations:** Tel: +98 21 88647096 Fax: +98 21 88647108, 21 88647191 E-mail: int@banksepah.ir **Guarantees:** Tel: +98 21 88647110-11 Fax: +98 21 88647191, 21 88647108 **International Affairs Directorate:** Tel: +98 21 88647090/1 Fax: +98 21 88647189 E-mail: int@banksepah.ir **Money Transfers:** Tel: +98 21 88647073 Fax: +98 21 88647071/2 **Treasury & Reconciliation:** Tel: +98 21 88647086/7 Fax: +98 21 88647071/2

World Rank [452] Country Rank [5]

State Bank. Commercial and Retail Banking. Member of Fédération Bancaire Française & Système Interbancaire de Télécompensation.

Regulator: Bank Markazi Jomhouri Islami Iran.

History: Established 1925. Private joint stock company; nationalised in June 1979.

Ownership: Government of the Islamic Republic of Iran.

BOARD OF DIRECTORS: Chairman of the Board & Managing Director: Mr Ahmad Derakhshandeh. **Deputy Chairman & Member of the Board:** Mr Seyyed Javad Mirzadeh Tabatabai. **Members of the Board:** Mr Mohammadkazem Chaghazardi; Mr Mohammad Reza Khorsandi; Mr Alireza Heydarabadipour; Mr Mozaffareddin Taghavi.

MANAGEMENT: International Affairs Directorate: Ms F Zolfaghari *(Director-General)*. **Compliance: Inspection & Auditing:** Mr Shooran *(Director)*.

CORRESPONDENTS: Amsterdam: ING Bank NV. **Ankara:** †Türkiye Halk Bankasi AS. **Athens:** Bank Saderat Iran. **Baghdad:** Bank of the Middle East Iraqi Investment; Trade Bank of Iraq. **Brussels:** KBC Bank NV. **Colombo:** Bank of Ceylon. **Copenhagen:** †Danske Bank A/S. **Dhaka:** The Hongkong and Shanghai Banking Corporation Limited; Sonali Bank Limited. **Dubai City:** Bank Melli Iran; Bank Saderat Iran; Dubai Islamic Bank PJSC; Emirates NBD PJSC. **Frankfurt am Main:** Bank Sepah; BHF-BANK Aktiengesellschaft; Commerzbank AG; Deutsche Bank AG. **Hamburg:** Bank Melli Iran; Europäisch-Iranische Handelsbank AG. **Istanbul:** Bank Mellat; †TÜRKiYE İŞ BANKASI AŞ. **Karachi:** Habib Bank Limited; United Bank Ltd. **London:** Bank Saderat PLC; †Bank Sepah International Plc; HSBC Bank plc. **Madrid:** Banco Santander SA. **Manama:** Future Bank BSC. **Melbourne:** Australia and New Zealand Banking Group Limited. **Milan:** Intesa Sanpaolo SpA. **Mumbai:** State Bank of India. **Munich:** Bayerische Hypo-und Vereinsbank AG. **Oslo:** Nordea Bank Norge ASA. **Paris:** Bank Sepah; Société Générale. **Rome:** Bank Sepah. **Seoul:** †Bank Mellat. **Stockholm:** Skandinaviska Enskilda Banken AB (Publ). **Tehran:** Bank Mellat; †Bank Melli Iran; †Bank Saderat Iran; †Bank Tejarat; †Export Development Bank of Iran. **Tokyo:** The Bank of Tokyo-Mitsubishi UFJ Ltd; Mizuho Corporate Bank Ltd; Sumitomo Mitsui Banking Corporation. **Vienna:** Bank Austria Creditanstalt AG; Raiffeisen Zentralbank Österreich AG. **Yerevan:** †Mellat Bank S/B CJSC. **Zürich:** †Zürcher Kantonalbank.

† *Also EURO account.*

Correspondents: Bank Sepah, Tehran as published in July 2008
(designated by OFAC Jan 2007, UN March 2007, EU Apr 2007)
Delisted 2016, Relisted US 2018, UN Sept 2025

CORRESPONDENTS: Amsterdam: ING Bank NV. **Ankara:** †Türkiye Halk Bankasi AS. **Athens:** Bank Saderat Iran. **Baghdad:** Bank of the Middle East Iraqi Investment; Trade Bank of Iraq. **Brussels:** KBC Bank NV. **Colombo:** Bank of Ceylon. **Copenhagen:** †Danske Bank A/S. **Dhaka:** The Hongkong and Shanghai Banking Corporation Limited; Sonali Bank Limited. **Dubai City:** Bank Melli Iran; Bank Saderat Iran; Dubai Islamic Bank PJSC; Emirates NBD PJSC. **Frankfurt am Main:** Bank Sepah; BHF-BANK Aktiengesellschaft; Commerzbank AG; Deutsche Bank AG. **Hamburg:** Bank Melli Iran; Europäisch-Iranische Handelsbank AG. **Istanbul:** Bank Mellat; †TÜRKiYE İŞ BANKASI AŞ. **Karachi:** Habib Bank Limited; United Bank Ltd. **London:** Bank Saderat PLC; †Bank Sepah International Plc; HSBC Bank plc. **Madrid:** Banco Santander SA. **Manama:** Future Bank BSC. **Melbourne:** Australia and New Zealand Banking Group Limited. **Milan:** Intesa Sanpaolo SpA. **Mumbai:** State Bank of India. **Munich:** Bayerische Hypo-und Vereinsbank AG. **Oslo:** Nordea Bank Norge ASA. **Paris:** Bank Sepah; Société Générale. **Rome:** Bank Sepah. **Seoul:** †Bank Mellat. **Stockholm:** Skandinaviska Enskilda Banken AB (Publ). **Tehran:** Bank Mellat; †Bank Melli Iran; †Bank Saderat Iran; †Bank Tejarat; †Export Development Bank of Iran. **Tokyo:** The Bank of Tokyo-Mitsubishi UFJ Ltd; Mizuho Corporate Bank Ltd; Sumitomo Mitsui Banking Corporation. **Vienna:** Bank Austria Creditanstalt AG; Raiffeisen Zentralbank Österreich AG. **Yerevan:** †Mellat Bank S/B CJSC. **Zürich:** †Zürcher Kantonalbank.

† *Also EURO account.*

Global Correspondent Banking Data
c. 3500-4200 banks per year

	Number of Correspondent Links
1990-2007	317,971
1990	47154
1995	85535
2000	71280
2005	54953
2007	59049

Source: *Bankers Almanac*, Glocobank Project

Country	Number of Links	Number of Banks		Country	Number of Links	Number of Banks
Egypt	99	29		Mauritania	7	5
South Africa*	60	21		Botswana	6	3
Nigeria	48	24		Malawi	6	3
Sudan	30	10		Somalia	6	2
Kenya	21	10		Angola	5	1
Zaire	20	9		Cameroon	5	5
Algeria	18	5		Guinea-Bissau	5	2
Zimbabwe	16	8		Rwanda	5	4
Ghana	15	5		Benin	4	1
Uganda	15	10		Burkina Faso	4	2
Zambia	14	5		Djibouti	4	2
Tanzania	13	4		Mozambique	4	1
Sierra Leone	12	4		Gabon	3	3
Gambia	9	4		Namibia	3	3
Burundi	8	4		Togo	3	2
Liberia	8	3		Central African Republic	2	1
Senegal	8	7		Mali	2	2
Ethiopia	7	3		Niger	1	1

***Bankers Almanac*: Correspondent Banking Links for Africa in 1985**

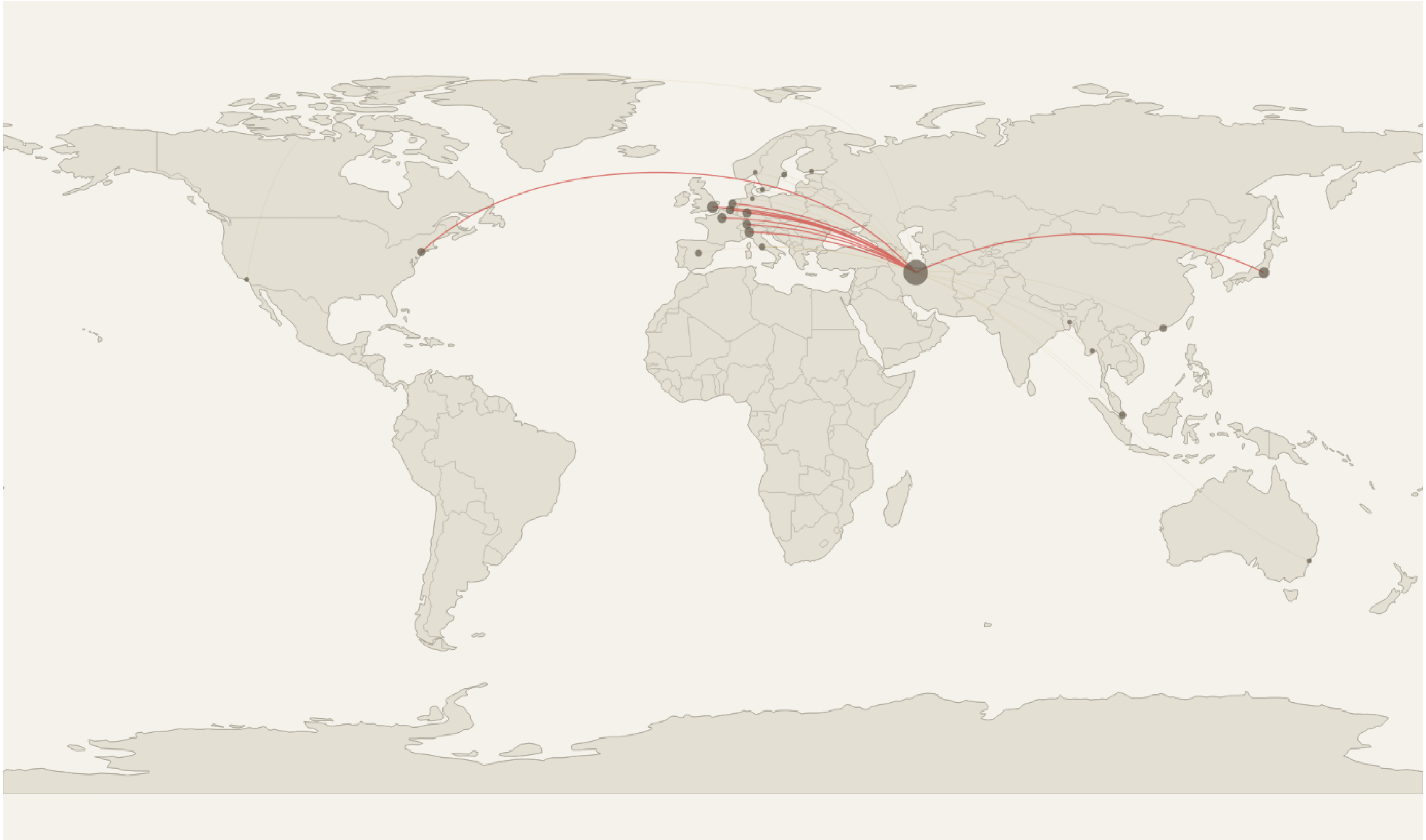
Memo: SWIFT data = South Africa only (18)

Global, Granular

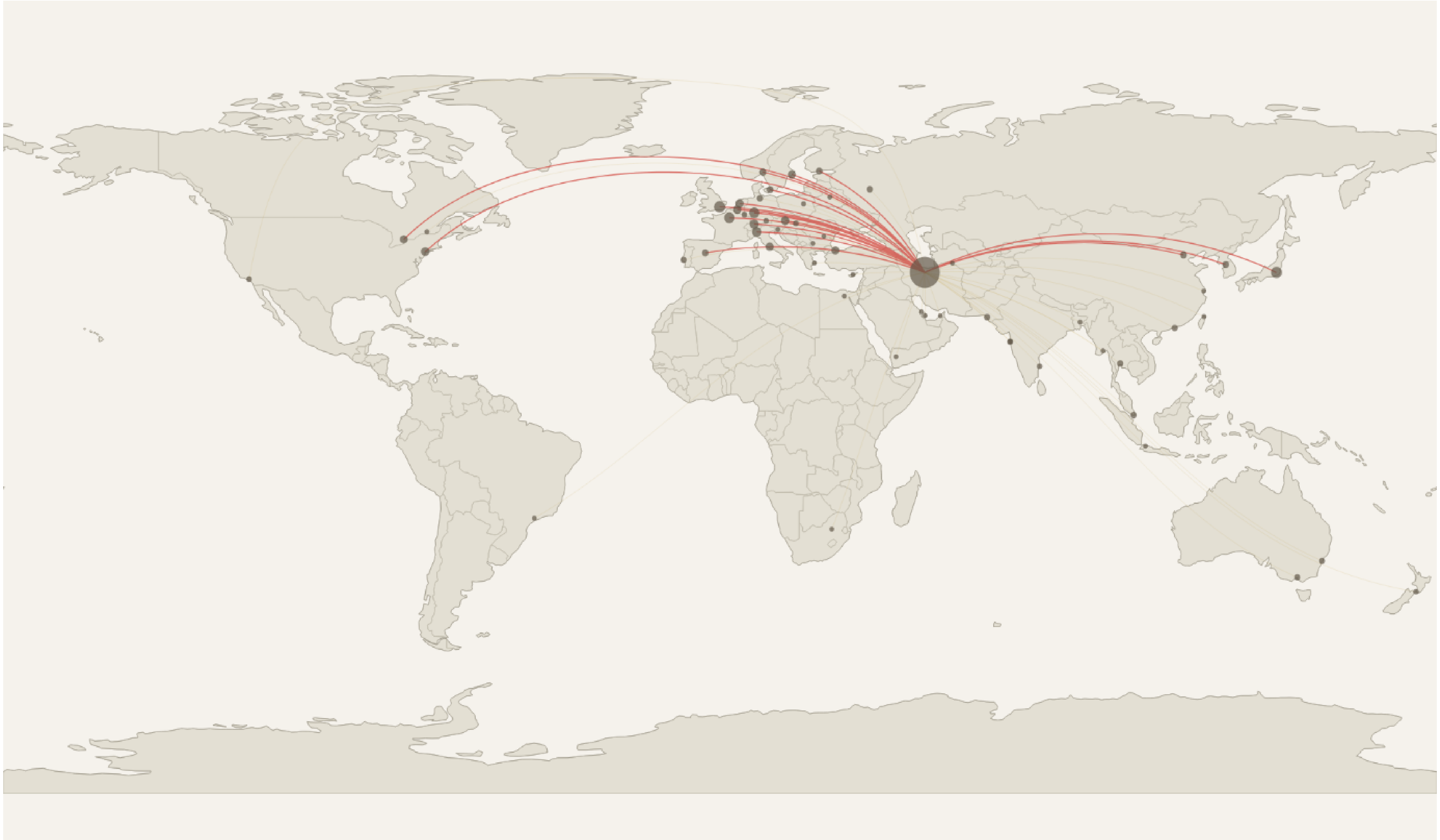
Iran – Top Reported Correspondent Banking Links

	1990	1995	2000	2005	2007
Total Reported Links	168	288	320	390	337
Dubai				27	33
London	26	23	20	32	26
Hamburg					21
Tokyo	20	22	23	27	19
Zurich	12	13	12	20	13
Dhaka					11
Frankfurt	15	19	21	29	
Hamburg				18	
Paris	15	19	15		
Brussels			14		
Rome			12		
Milan	17	15			
Top 7 Share of Total (%)	63	39	33	39	36

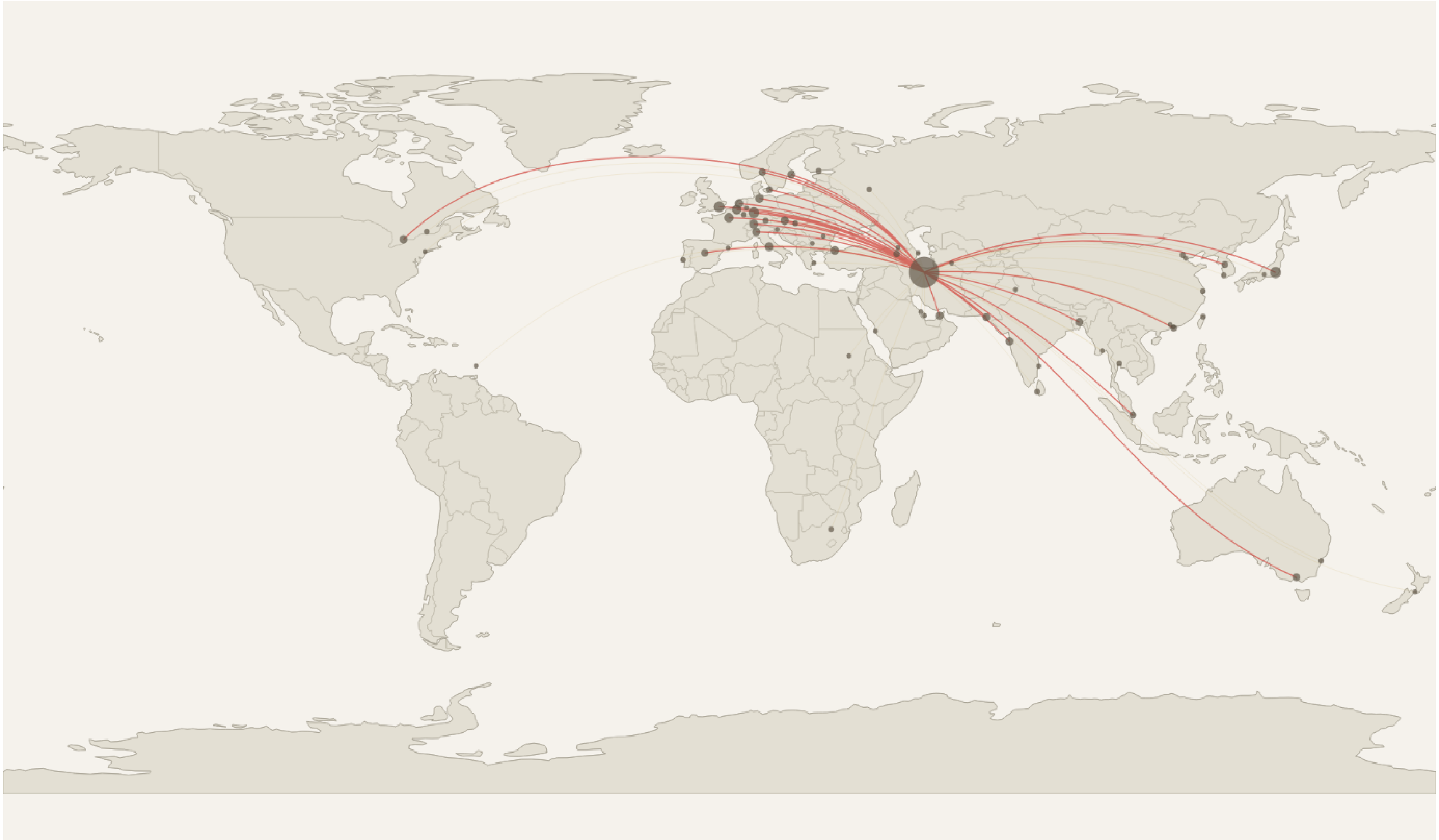
1990 Location of correspondent banking links of banks in Iran



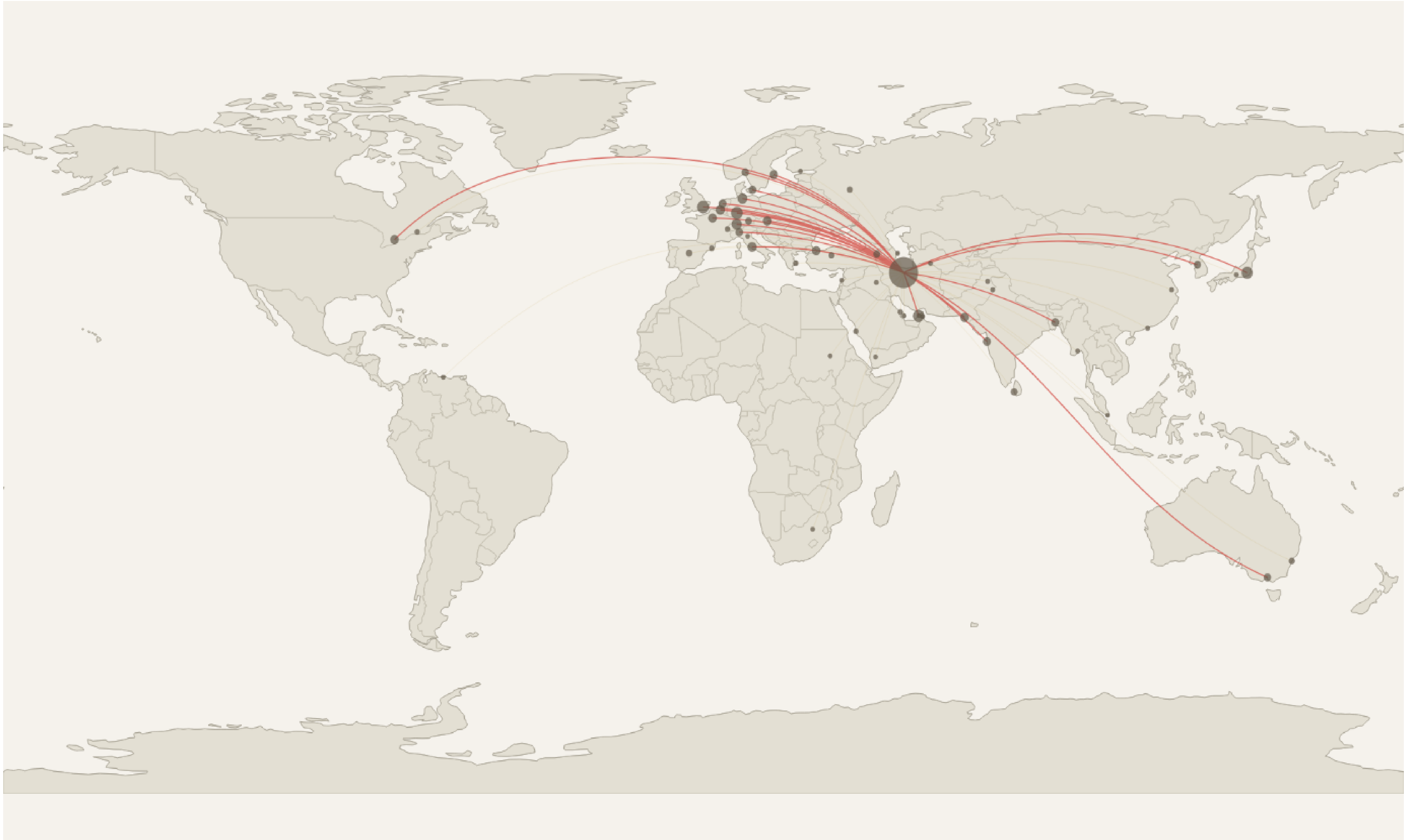
1995 Location of correspondent banking links of banks in Iran



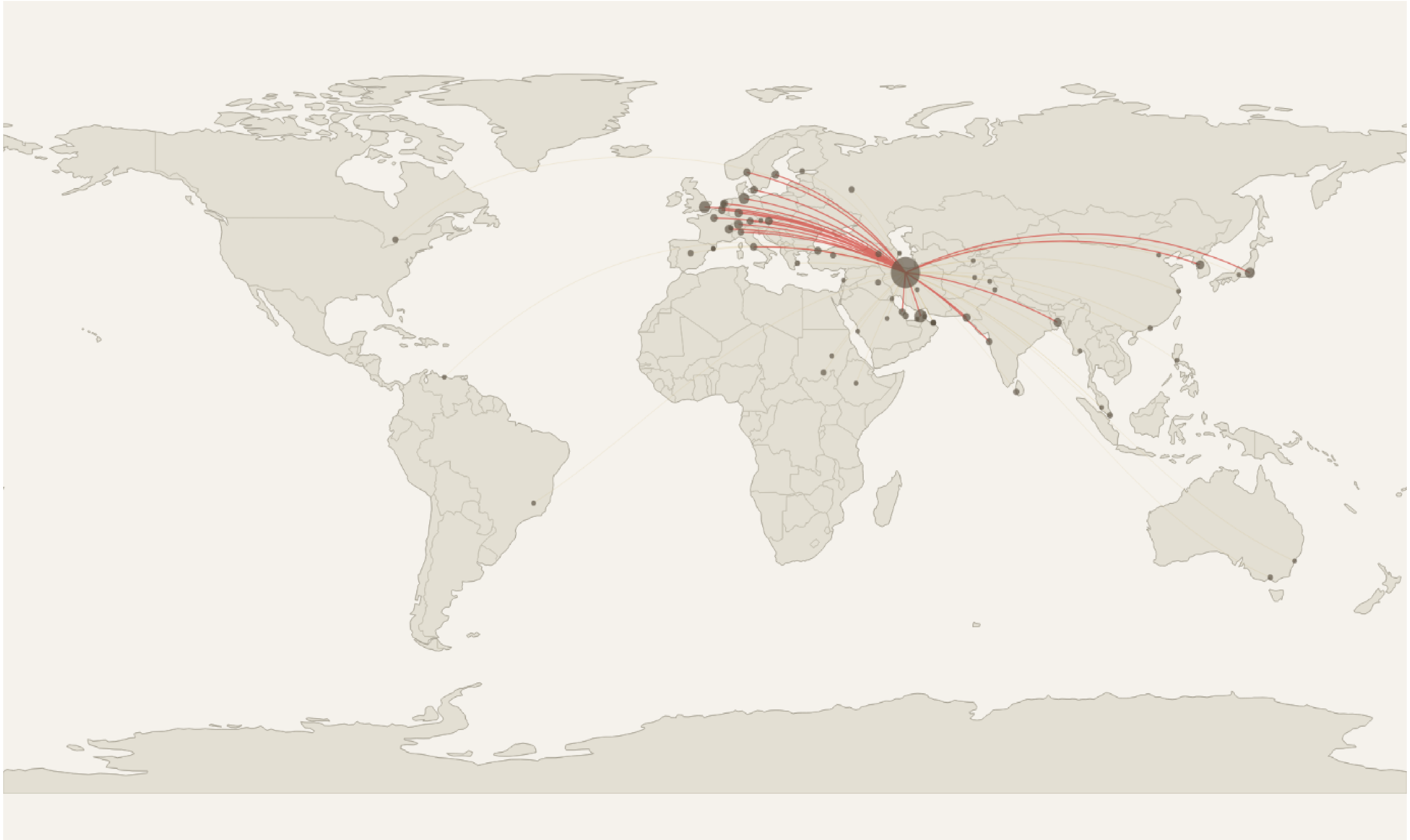
2000 Location of correspondent banking links of banks in Iran



2005 Location of correspondent banking links of banks in Iran



2007 Location of correspondent banking links of banks in Iran



Summary and Conclusions

- Central Bank role in SWIFT was contested from 1960 onward
- There have been reversals before
- Impact of earlier AML/CFT compliance intensity

- SWIFT data inadequate measure of correspondent banking networks
  - Longer run
  - Peripheral economies

- Fragmentation of payments systems: limited so far? biased against smaller economies?