Fintech Patents

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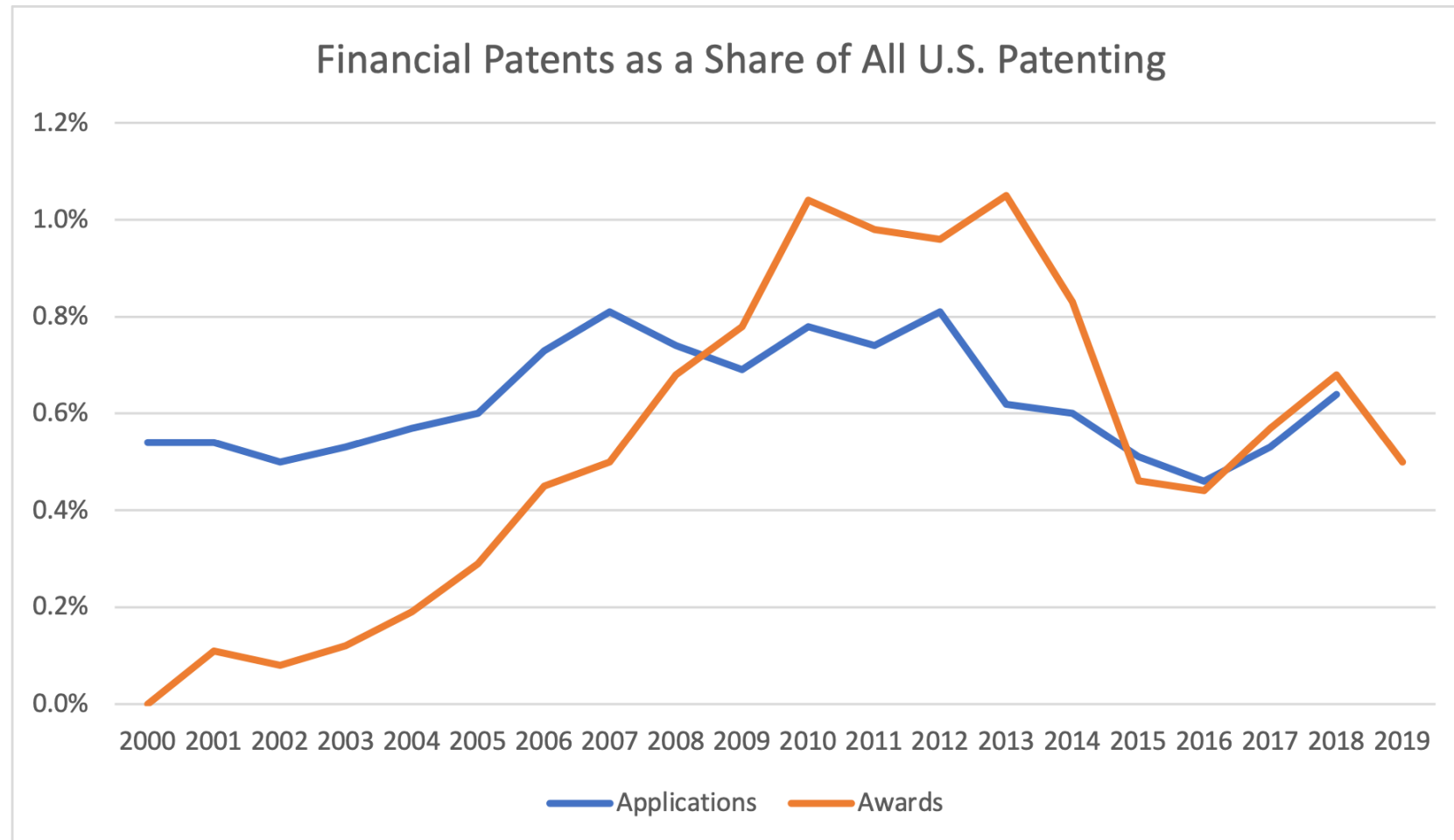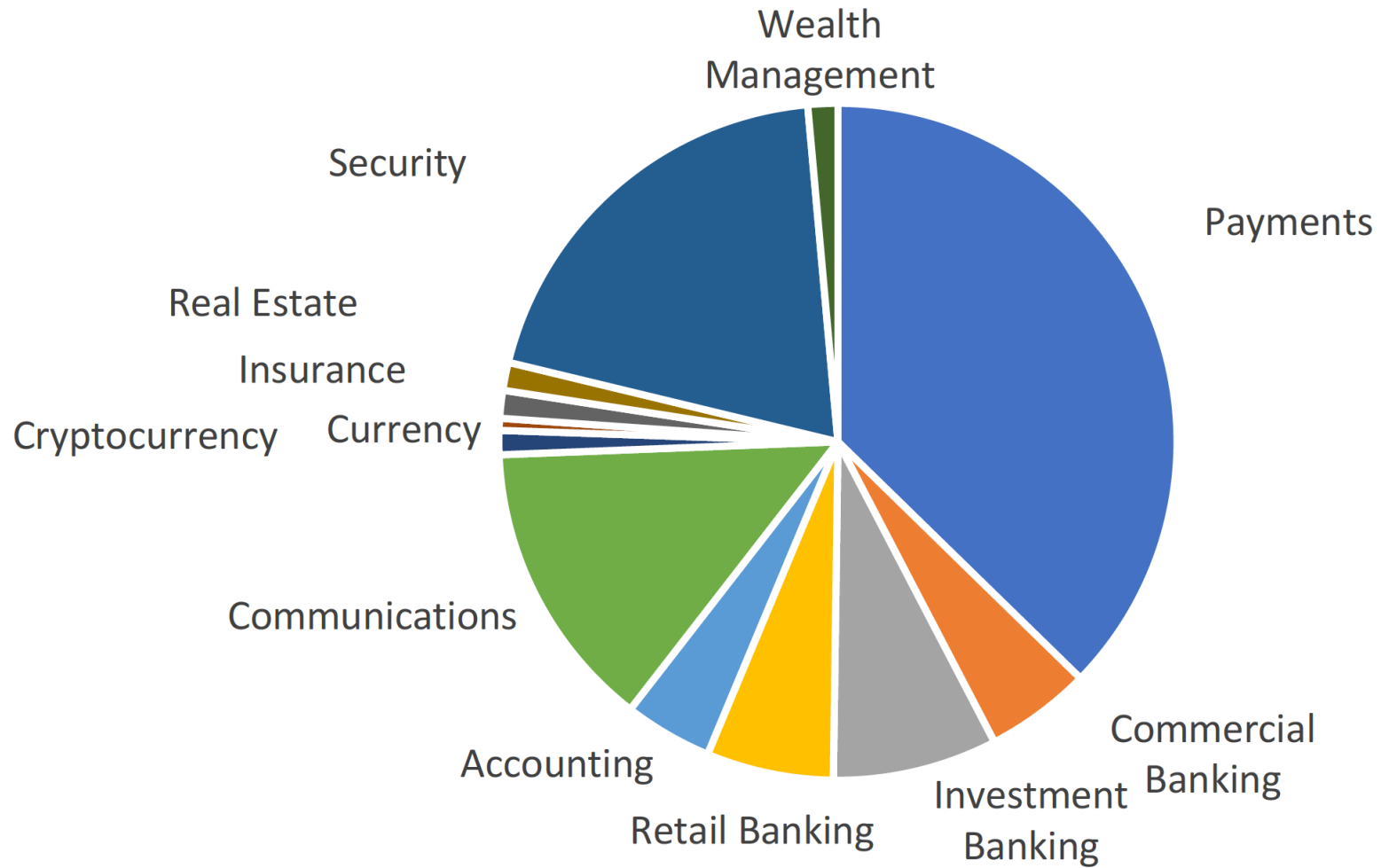
April 2024

USA

Figure 1: Financial patents and applications as a share of total U.S. patenting. The red line shows the number of financial patents granted annually by the total number of patents granted that, for patents applied from January 2000 to December 2018, and issued by February 2019. The blue line shows the number of financial patents applied for annually divided by the total number of patents applied for.

Financial Patents as a Share of All U.S. Patenting

A. Financial Patenting by Patent Type

Applications for U.S. Patents

Grant Rate for U.S. Patents

B. Financial Patenting by Assignee Industry

Applications for U.S. Patents

Distribution of Applicants' Countries Across All U.S. FinTech Apps (y-axis, 0% to 100%) vs. Filing Year (x-axis, 2009–2018)

Legend: United States, Europe, China, Japan, South Korea, Others

Table 10. Financing patenting by U.S. urban area over time. The table presents the share of patenting by CSA for the ten CSAs with the most financial patents overall. All analyses use patents applied for between 2000 and 2018 and awarded by February 2019. The table presents financial patents as a share of all patents, computed using patent counts, citation weights, and Kogan et al. (2017) weights. We assign patents based on the location of the first inventor.

	Patent Count				Citation Weighted			
	2000-04	2005-09	2010-14	2015-18	2000-04	2005-09	2010-14	2015-18
San Jose-San Francisco-Oakland	8.5%	10.7%	15.7%	18.3%	11.5%	16.2%	21.3%	21.5%
New York-Newark	13.4%	11.6%	9.5%	5.7%	14.6%	7.8%	6.4%	5.7%
Chicago-Naperville	3.4%	6.2%	7.5%	3.9%	5.6%	5.8%	7.3%	3.0%
Washington-Baltimore-Arlington	4.0%	3.4%	3.2%	4.0%	4.7%	6.0%	3.3%	2.2%
Los Angeles-Long Beach	2.4%	2.1%	2.8%	1.8%	3.1%	2.8%	5.0%	3.7%
Cleveland-Akron-Canton	2.4%	2.8%	2.7%	1.7%	1.3%	1.8%	2.3%	0.7%
Atlanta-Athens-Clarke County	2.0%	2.6%	2.0%	2.8%	2.5%	3.7%	1.8%	1.3%
Seattle-Tacoma	1.9%	2.5%	2.3%	1.8%	2.0%	2.5%	2.5%	1.7%
Charlotte-Concord	0.3%	1.7%	2.3%	4.2%	0.4%	1.5%	3.2%	1.6%
Denver-Aurora	2.2%	2.0%	2.1%	1.3%	1.9%	1.4%	1.2%	0.5%

Source: Josh Lerner et al., "Financial Innovation in the 21st Century: Evidence from U.S. Patenting (2020),
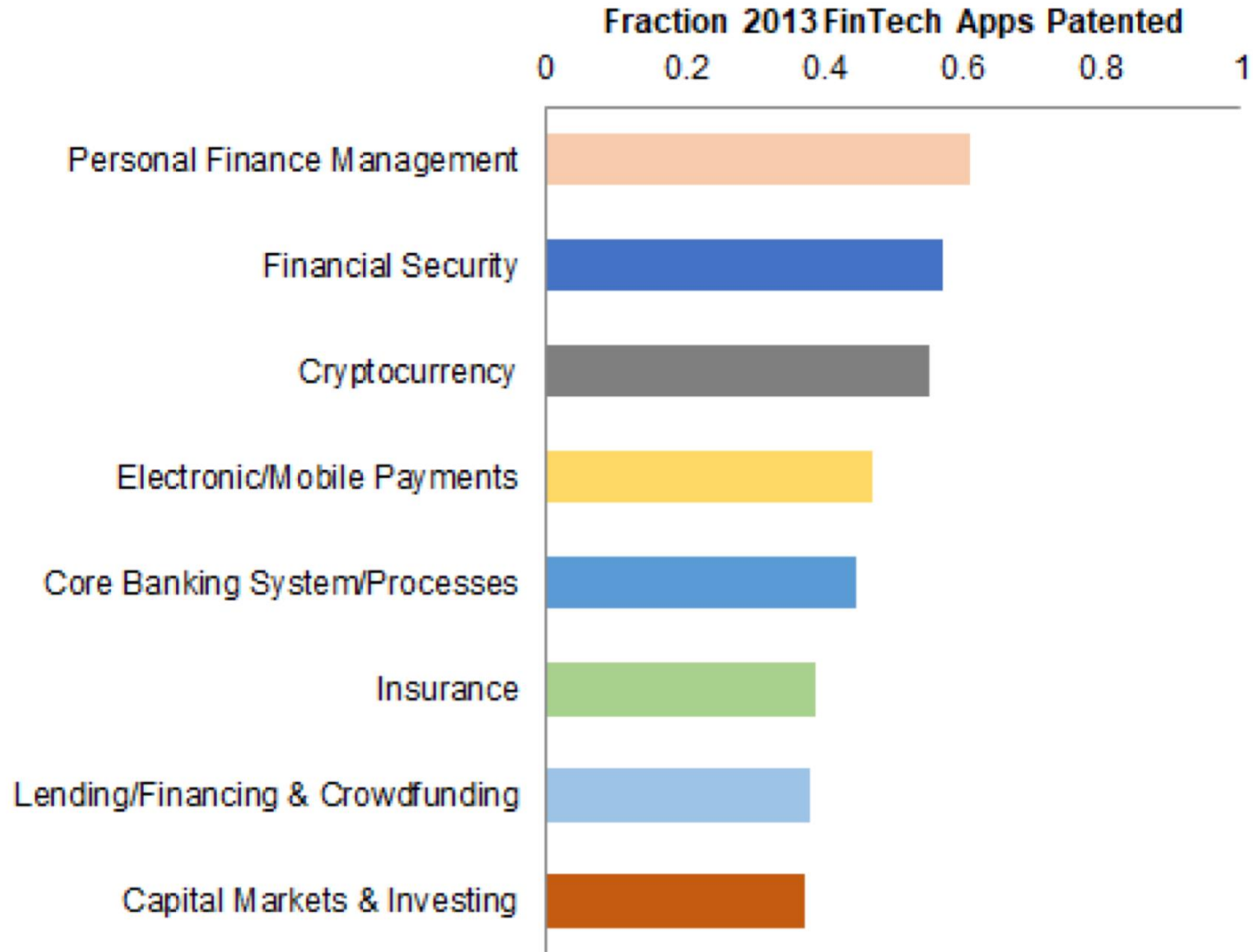https://scholar.harvard.edu/files/nickshort/files/financialinnovation21stcentury.20200730.pdf

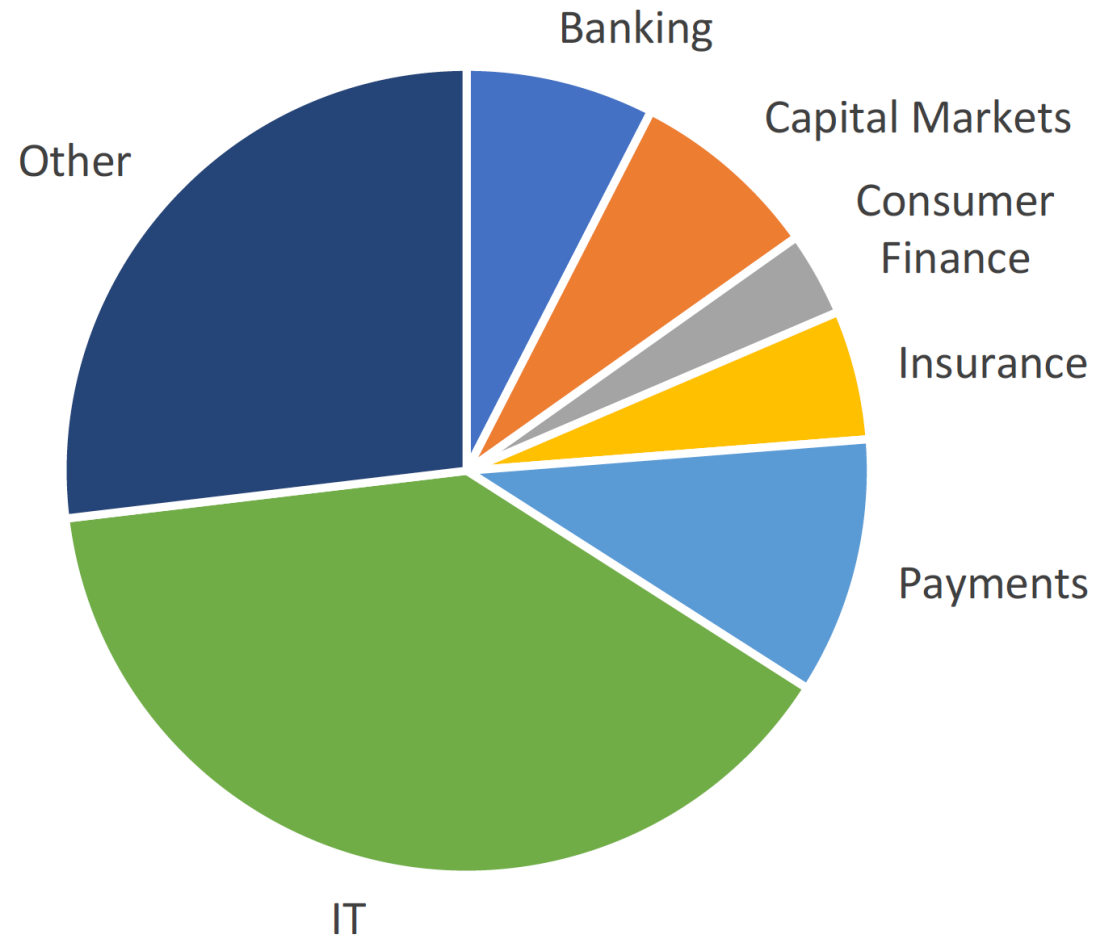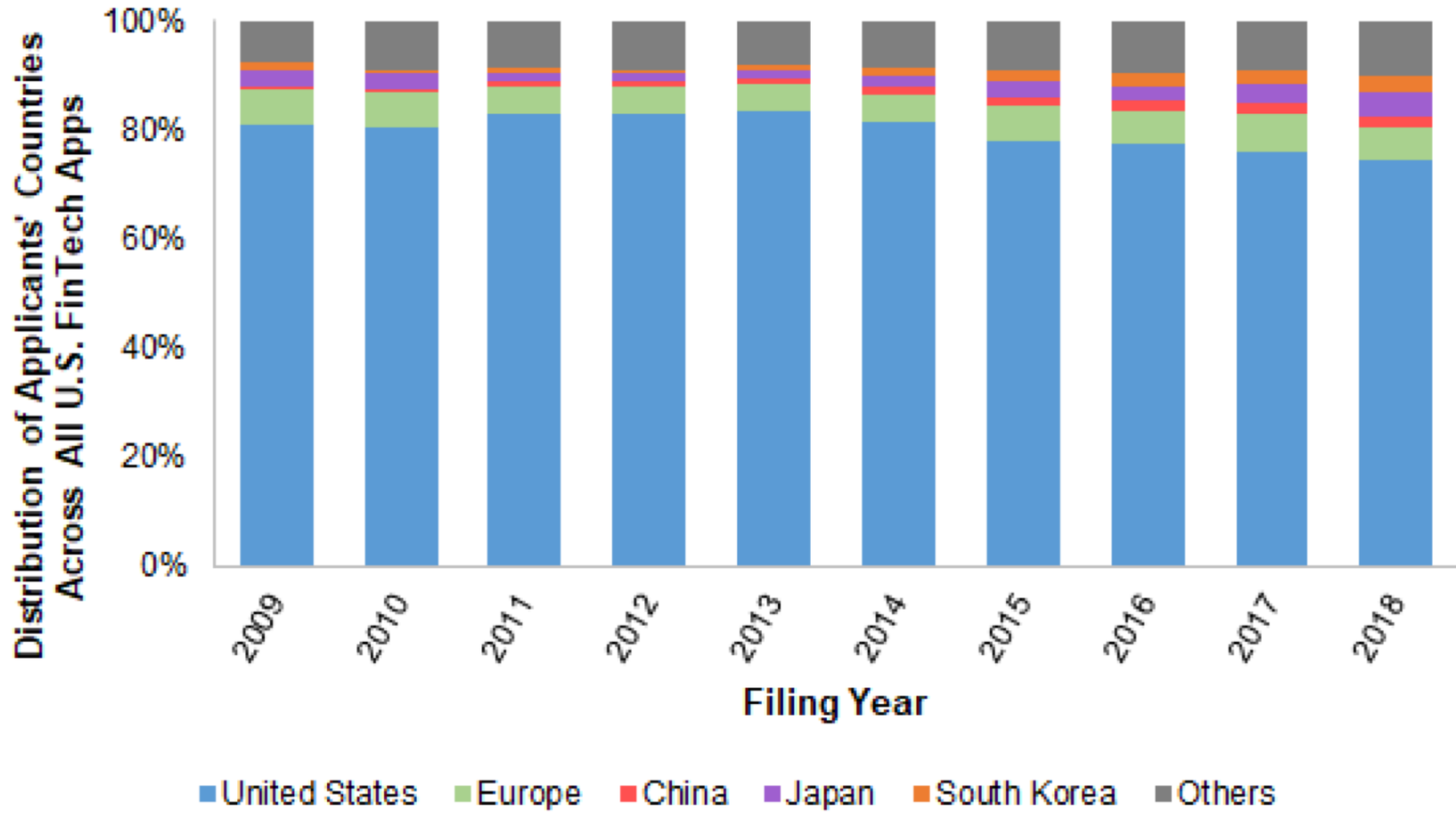Table 3. The assignees of financial and non-financial patents. The sample consists of finance and non-finance patents applied for between 2000 and 2018 and awarded by February 2019. We compare the finance and finance patents in a t-test: * denotes rejection of the null hypothesis of no difference in the means at the 10% level; ** at the 5% level; and *** at the 1% level.

	Finance Patents	Non-Finance Patents
Assignee Type:		
U.S. corporation	81.29%	46.50%***
Foreign corporation	17.40%	50.21%***
Individual	8.65%	7.79%***
U.S. government	0.08%	0.36%***
Foreign government	0.01%	0.09%***
U.S. university	0.21%	1.45%***
Foreign university	0.07%	0.75%***

Table 4. The assignees of financial patents. Panel A presents the most frequent assignees of finance patents applied for between 2000 and 2018 and awarded by February 2019. Panel B and C presents the most sharply declining (growing) financial patent assignees. These are identified by comparing the share of financial patents in the sample applied for between 2000 and 2004 and the share applied for between 2015 and 2018.

Panel A: Most frequent assignees.

	Number of patents
Bank of America Corporation	652
Trading Technologies International	645
Visa Inc.	608
Diebold Nixdorf, Inc.	597
International Business Machines Corporation	589
Mastercard Inc.	418
JPMorgan Chase & Co.	407
American Express Company	404
United Services Automobile Association	351
Intuit	310

Applications for U.S. Patents

USING 2016 DATA:	
	Most Families Filed by (Applicants In alphabetical order)
FinTech	Bank Of America, IBM, Mastercard, PayPal, Walmart
Core banking System/ Processes	American Express Travel Related Services Co., Bank Of America, IBM, Mastercard, NCR Corp., American Express
Capital Markets & Investing	Axioma, Chicago Mercantile Exchange., Mastercard, The Stevens Institute Of Technology
Cryptocurrency	Bank Of America, Cognitive Scale, IBM, Intel, Mastercard
Electronic/Mobile Payments	IBM, Mastercard, PayPal, Toshiba Corporation and affiliates, Walmart
Financial Security	Bank Of America, IBM, Mastercard, PayPal, Samsung, VISA
Insurance	Allstate Insurance Co., IBM, State Farm Mutual Automobile Insurance Co., Swiss Reinsurance Co., The Hartford
Lending/Financing & Crowdfunding	American Express Travel Related Services Co., Bank Of America, IBM Intuit, Mastercard
Personal Finance Management	AT&T, IBM, Intuit Mastercard, PayPal

China
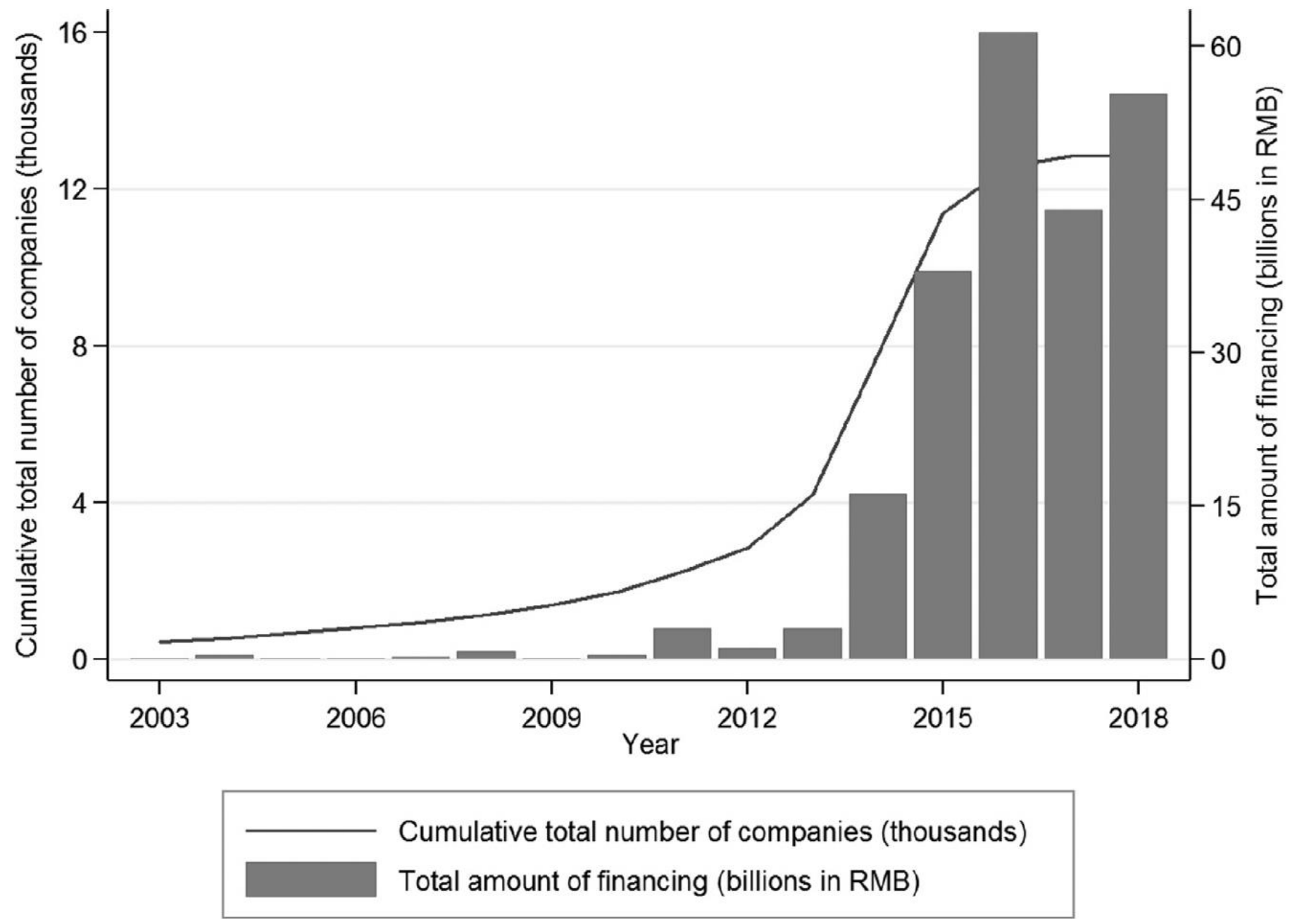
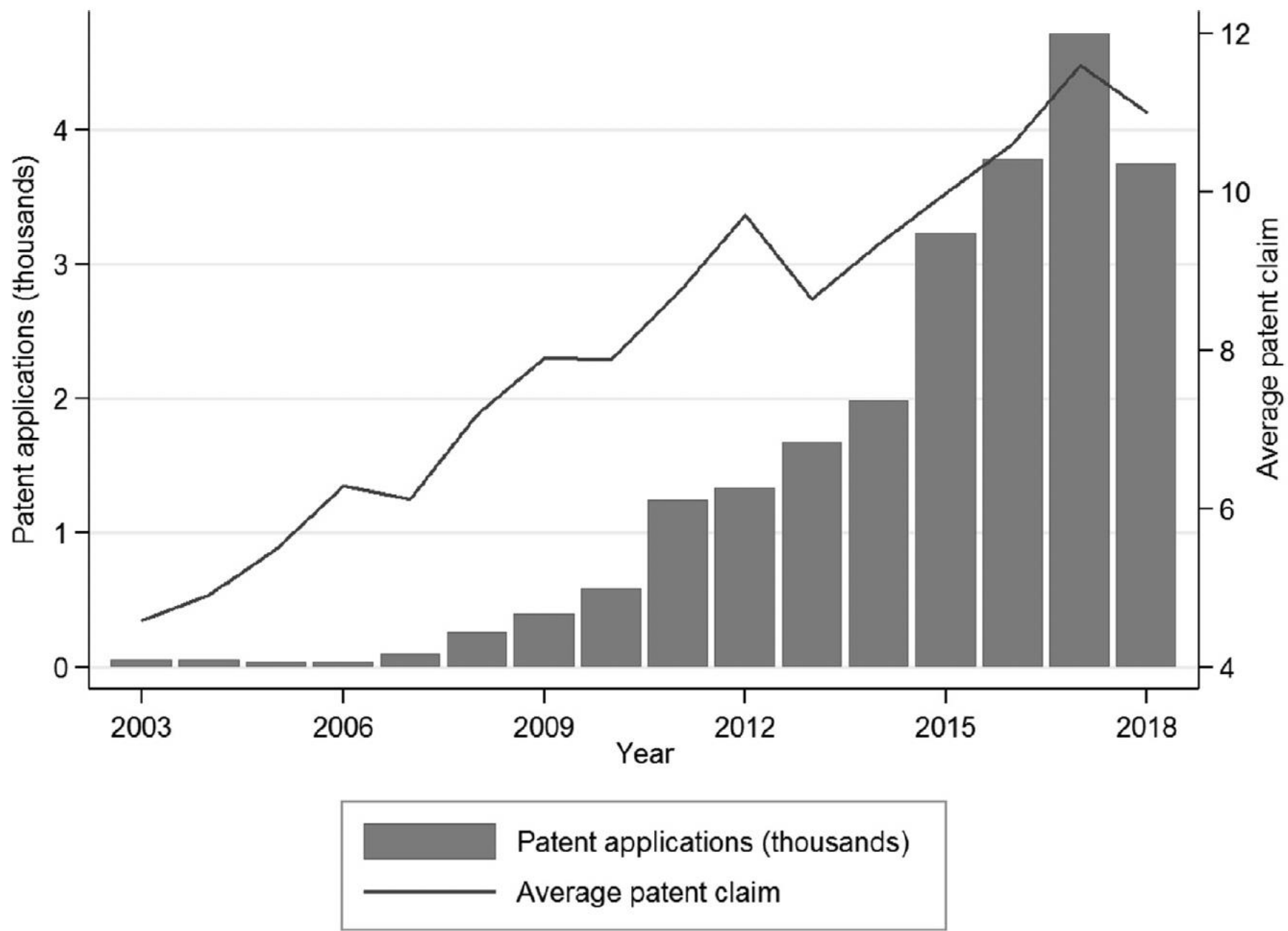**Fig. 1.** FinTech development in China according to industry data.

Fig. 2. FinTech patent development pattern.

Number of patent applications of leading fintech enterprises in China in 2020, by company type
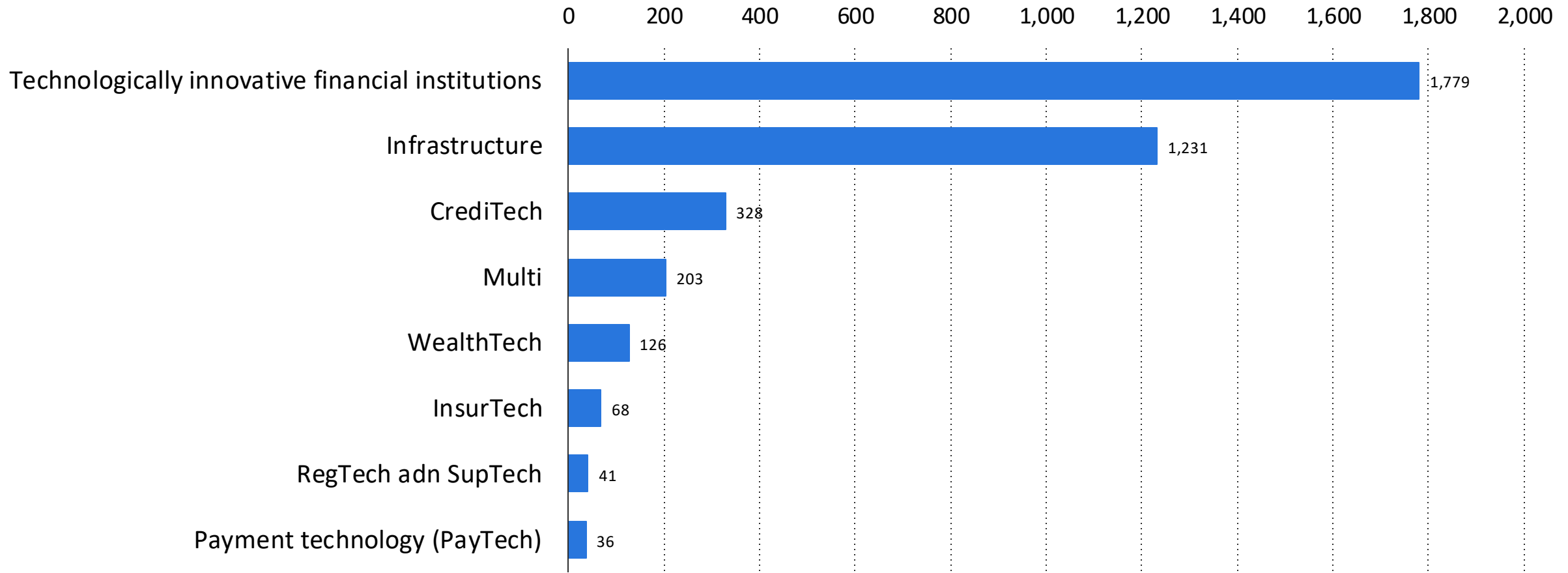
Company type	Value
Technologically innovative financial institutions	1,779
Infrastructure	1,231
CrediTech	328
Multi	203
WealthTech	126
InsurTech	68
RegTech adn SupTech	41
Payment technology (PayTech)	36

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Examples of Fintech Patents in China

TABLE 4: Examples of FinTech patents.

Category	Patent	Applicant	Introduction
Data analytics	Abnormal warning methods, devices, systems, equipment, and media of big data products	Shenzhen Qianhai Micro Public Bank Co., Ltd.	The invention relates to the field of big data technology of FinTech and converts the error information of big data products into error codes and error descriptions for the convenience of operation and maintenance personnel to view and improve efficiency
Investment	Generating method and device of financial market product trading report	Bank of China Limited	The invention discloses a method and device for generating a financial market product trading report, in which the transaction information of all target customers is collected within a specified period
Security	Method and device of bank user authentication based on behavior characteristics	Industrial and Commercial Bank of China Limited	The invention proposes a bank user authentication method based on behavior characteristics, which makes full use of the user identity to identify the behavior characteristics of all kinds of business in the bank and labels the behavior characteristics

Source: Wang et al., "Classification of FinTech Patents by Machine Learning and Deep Learning Reveals Trends of FinTech Development in China (2022)

Examples of Fintech Patents in China

Insurance	Method, device, and storage medium for calculating insurance probability	Ping An Technology (Shenzhen) Co., Ltd.	The invention calculates the common characteristics of the customers who buy insurance through the GBDT model and then injects the customer data of the target customers into the model to obtain the insurance probability of the target customers
Lending	The invention relates to a loan system data processing method	China Construction Bank Corporation	The invention discloses a loan system data processing method, device, device, and storage medium. By dividing the prebatch and the primary batch, batch errors can be exposed in advance during prebatch, preventing dirty data from being directly stored in the database
Payment	Payment methods, devices, and systems	Tencent Technology (Shenzhen) Co., Ltd.	The invention discloses a payment method, equipment, and system. It solves the problem of complicated operation of online payment process when the third-party merchants access the shopping platform application in the form of web page

Source: Wang et al., "Classification of FinTech Patents by Machine Learning and Deep Learning Reveals Trends of FinTech Development in China (2022)

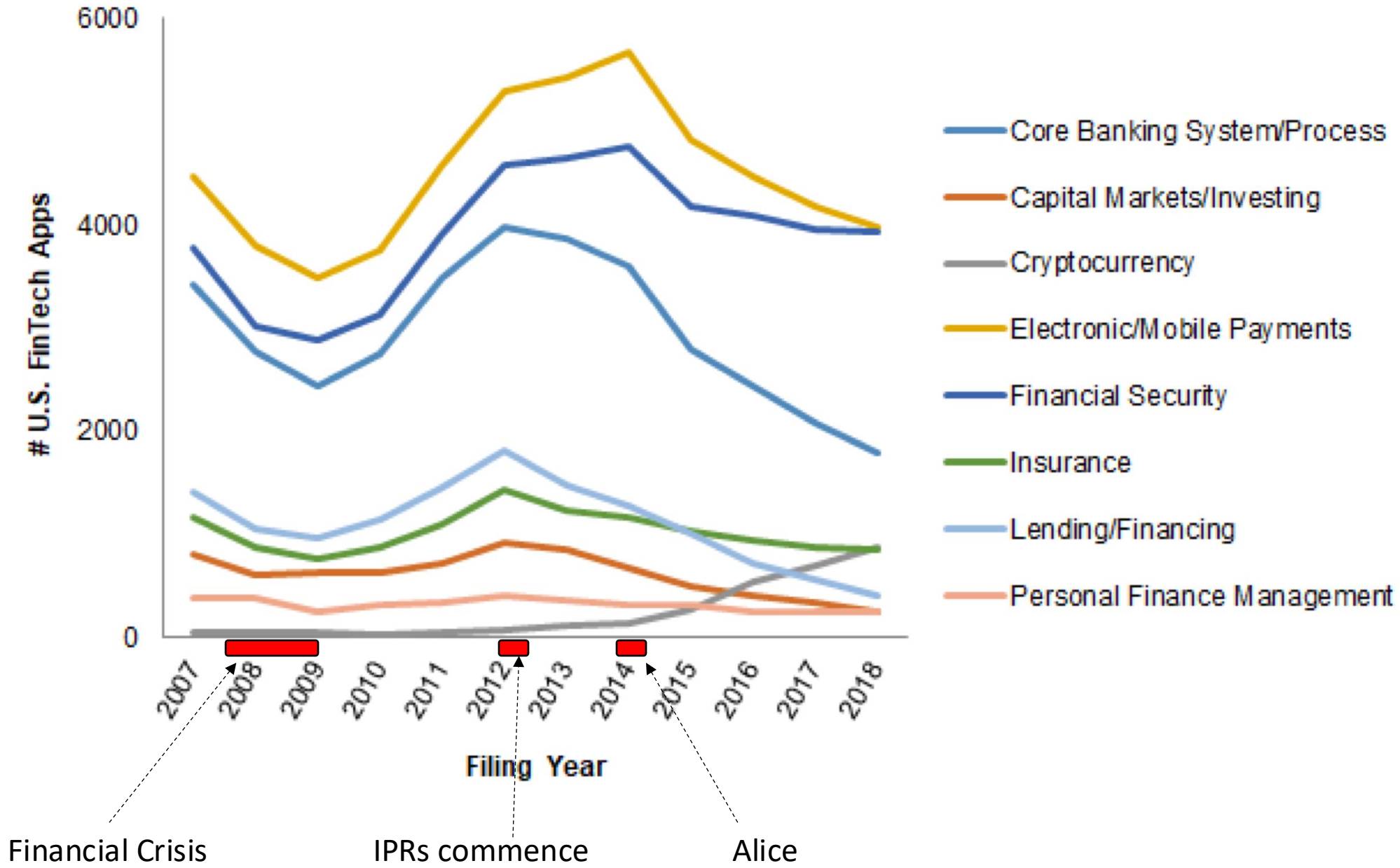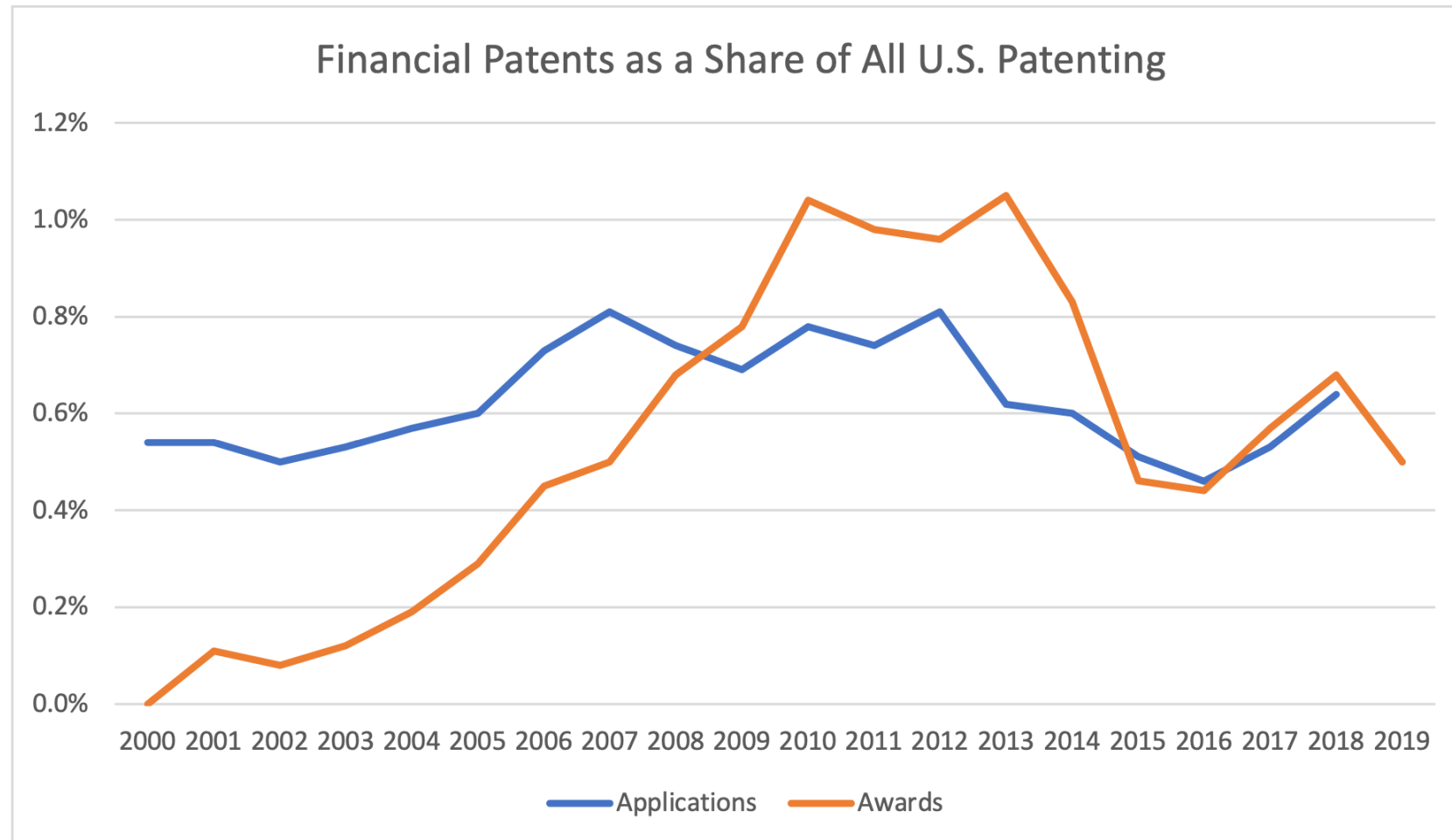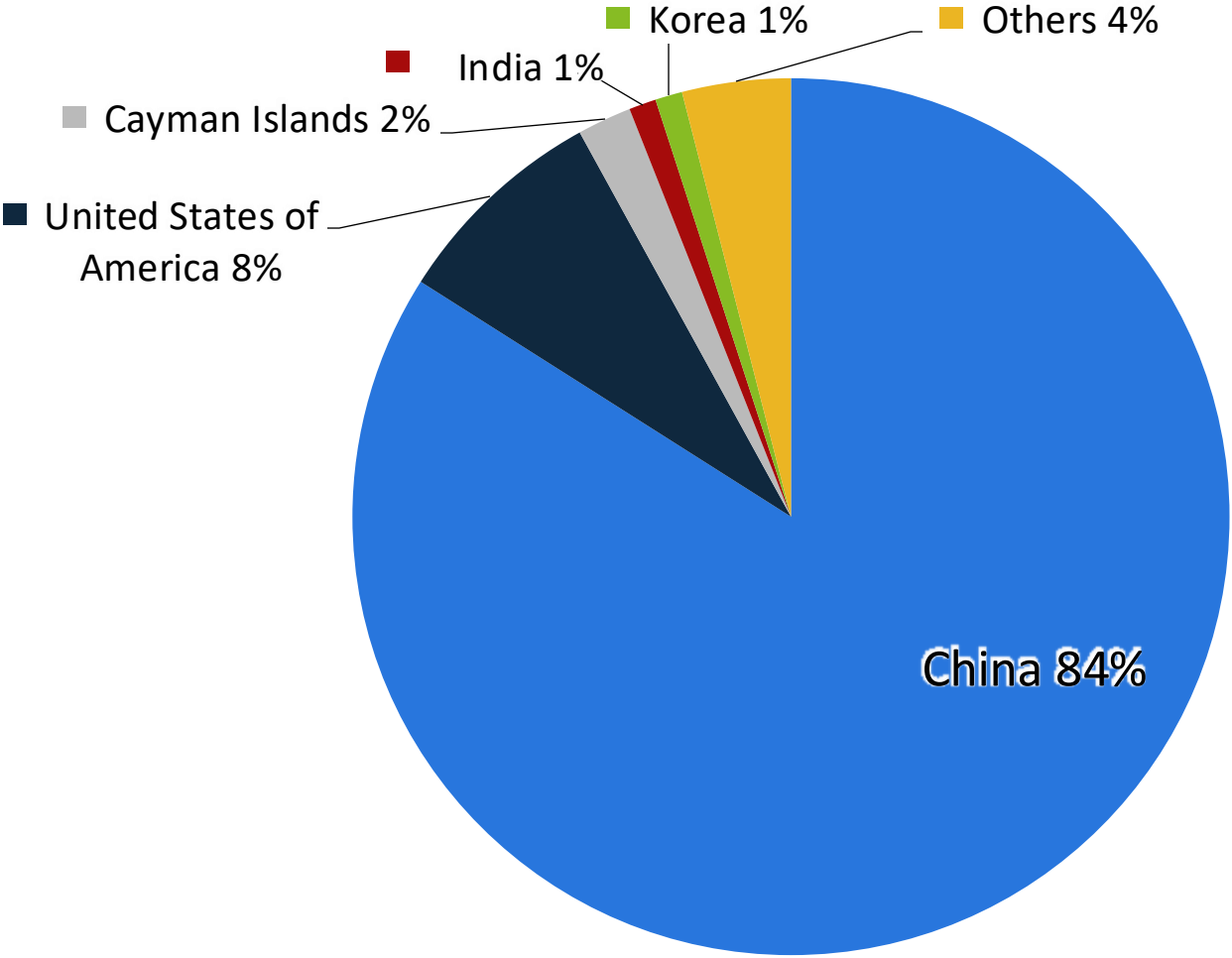# Comparison

Applications for U.S. Patents

Figure 1: Financial patents and applications as a share of total U.S. patenting. The red line shows the number of financial patents granted annually by the total number of patents granted that, for patents applied from January 2000 to December 2018, and issued by February 2019. The blue line shows the number of financial patents applied for annually divided by the total number of patents applied for.

Financial Patents as a Share of All U.S. Patenting

Distribution of global blockchain patents in 2021, by country

Korea 1%

India 1%

Others 4%

Cayman Islands 2%

United States of America 8%

China 84%

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Rough Comparison of Major Jurisdictions

	China	USA	Europe
Adoption of Fintech Services	Highest	High	Low (except UK)
Investment in Fintech	Low	High	Medium
Availability of Patent Protection for Innovations in Fintech	Medium	Low	Low
Patenting Activity	High	Low	Low