



# Fintech – the importance of patents as banking and technology converge



**CIPHER**

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## “IBM owns 5x more Fintech patents than all the banks put together”

When banks say that they are now technology companies or heavily investing in Fintech, what’s the right performance measure? Many CEOs or CTOs point to the sheer size of their engineering team, others refer to their R&D spend. Both are valid measures, but are only inputs.

In this report we investigate the disruption in the Fintech sector by comparing banks, payment companies, fintech startups and established technology companies. We have used Cipher to analyse this disruption through a patent lens.

### Banks do protect their investment in technology

There is a massive difference in the attitude to patenting across the financial services sector. This is a familiar pattern which has been observed in other sectors disrupted by technology. There are always those that see the tech tsunami coming, and others who prefer strategies based on wait and see. The music and retail sectors are both excellent case studies.

Chart 1 analyses the patent portfolios of banks in the US, Europe and Asia. Bank of America is the stand-out winner using this metric, and has been building its portfolio for over a decade. As a generalisation, the US banks (e.g. JP Morgan, Goldman Sachs and Morgan Stanley) are all more patent savvy than the European banks (notably BNP and Deutsche). This type of analysis also helps with an understanding of specific technologies.

**Chart 1** Banks - Who protects what? (2017 granted and pending patents)

	Bank of America	Barclays	BNP	Capital One	Citigroup	Deutsche Bank	Goldman Sachs	Japan Post Bank	JP Morgan Chase	Mitsubishi UFJ	Morgan Stanley	RBC	TD Bank	UBS	Wells Fargo
ATMs	63	0	0	7	9	0	0	0	18	1	0	0	0	0	7
Banking IT infrastructure	999	56	0	161	71	0	0	18	207	125	0	19	46	27	48
Call center and support	55	0	0	3	10	0	0	0	11	2	0	0	0	0	4
Cash handling	53	0	0	0	1	0	0	1	2	1	0	0	0	0	0
E-commerce	6	2	0	2	2	0	0	0	3	0	0	0	2	0	3
OCR	86	0	0	2	3	1	0	0	17	2	0	0	3	3	7
Online and mobile banking	517	24	0	33	26	0	13	0	58	9	19	4	21	14	24
Payment Cards	35	1	1	42	22	0	0	1	29	5	0	0	0	1	8
Security and authentication	104	14	0	11	15	0	0	2	26	44	0	1	3	3	11
Social media and services	83	6	0	18	5	0	0	0	18	4	0	1	5	2	3
Transaction and data processing	546	57	0	56	31	2	144	22	126	65	122	6	10	26	26
Total	2,535	159	1	334	194	3	155	44	509	258	140	31	90	76	140

### How do banks compare to other players in the fintech space

IBM owns 5x more Fintech related patents than all the banks put together and the large card and payment companies also hold substantial portfolios. Chart 2 compares the patents owned by the banks with a range of technology companies. The stark difference reflects fundamentally different business strategies. Technology companies understand the role of intellectual property to define and protect markets. This is all relatively new to the financial services sector.

**Chart 2** Banks vs. selected other companies (2017 granted and pending patents)

	Banks (TOTAL)	IBM	Google	Microsoft	Visa	MasterCard	Apple	Facebook	Paypal	Intuit
ATMs	105	322	148	218	46	32	39	11	23	10
Banking IT infrastructure	1,778	9,266	3,728	7,331	2,090	717	1,239	523	490	293
Call center and support	85	321	249	306	36	17	44	29	23	10
Cash handling	58	56	19	12	5	6	6	2	3	2
E-commerce	20	354	158	429	61	21	17	9	30	6
OCR	124	546	247	597	118	13	120	32	19	30
Online and mobile banking	762	5,541	1,744	4,401	926	78	558	260	91	103
Payment Cards	146	568	272	422	133	35	20	4	10	3
Security and authentication	234	986	533	925	138	55	119	70	43	20
Social media and services	145	366	353	458	83	31	104	157	25	23
Transaction and data processing	1,240	5,538	2,306	4,571	1,635	159	556	340	165	189
Total	4,697	23,864	9,757	19,670	5,271	1,164	2,822	1,437	920	689

# “Banks and Fintech companies playing catch up with building patent portfolios”

**Chart 3** Patenting trend overview: TechCos, banks and Payment Cos (new patent fillings)

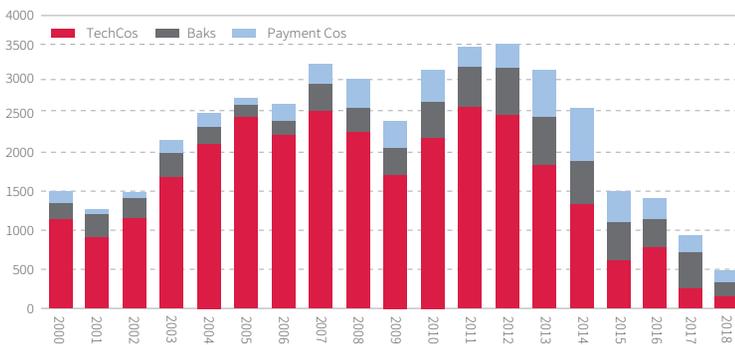


Chart 3 compares patenting activity over time for these groups of companies and it paints a similar picture - one of banks and payment companies playing catch-up. Ten years ago 80% of all FinTech patenting came from technology companies, whereas today it's less than half. Bank of America does, however, account for the lion's share of this activity.

## Banks have been a target for patent litigation

There has been virtually no IP litigation between banks, which is one of the reasons why it has not historically been necessary for them to build an arsenal of IP assets. Chart 4 is an analysis of the litigation against banks, and specifically the actions brought by Non-Practising Entities (NPEs aka patent trolls). There has been a notable decline in NPE actions since 2012, in part because of US legislative reform, and also because of the excellent work by organisations such as Unified Patents and LotNetwork.

**Chart 4** Patent litigation against banks (new US lawsuits per year)

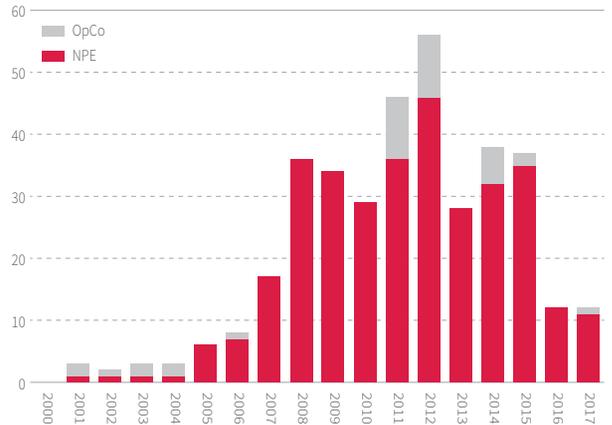


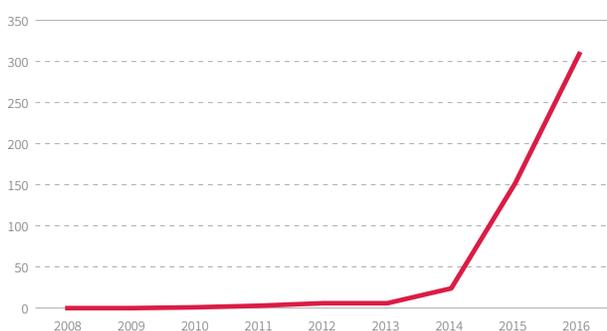
Chart 5 contains a helpful reminder that delivering complex B2C solutions requires many different technologies, by analysing the patented technologies asserted against banks. The vast majority of these are not developed in-house e.g. mobile banking, location based services and ecommerce, and tend to be the ones that increase the exposure to litigation risk.

**Chart 5** Analysis of US patent litigation brought against banks by technology area

	Bank of America	JPMorgan	Citigroup	Wells Fargo	Bank of NY Mellon	TD Bank	Capital One	Barclays	Morgan Stanley	Goldman Sachs	Deutsche Bank
Web and mobile	49%	52%	16%	37%	25%	25%	33%	38%	30%	57%	0%
Software and UI	15%	13%	36%	11%	60%	0%	23%	0%	33%	0%	0%
Financial products and trading	8%	12%	16%	42%	0%	0%	26%	63%	0%	0%	100%
Data transfer	5%	3%	4%	0%	15%	0%	2%	0%	18%	43%	0%
Data analysis	9%	10%	5%	0%	0%	75%	0%	0%	0%	0%	0%
Call center and support	8%	0%	22%	0%	0%	0%	5%	0%	18%	0%	0%
E-commerce	6%	7%	0%	3%	0%	0%	10%	0%	0%	0%	0%
Location based services	0%	3%	0%	8%	0%	0%	1%	0%	0%	0%	0%

## Disruptive Technology Highlight: Blockchain

**Chart 6** Blockchain patenting (new patents filed)



It wasn't until 2013 that companies started patenting blockchain and its many applications, as illustrated in Chart 6. To get a measure of who's doing what, Chart 7 uses a Cipher Classifier to identify the owners of Blockchain patents. There are over 350 companies owning 800 patent families. Only 2 months ago those numbers were 250 companies owning 650 patent families.

It wasn't until 2013 that companies started patenting blockchain and its many applications, shown in Chart 6, with the expected numbers in 2016 to top 500 new applications.

Chart 7 Who owns blockchain patents?

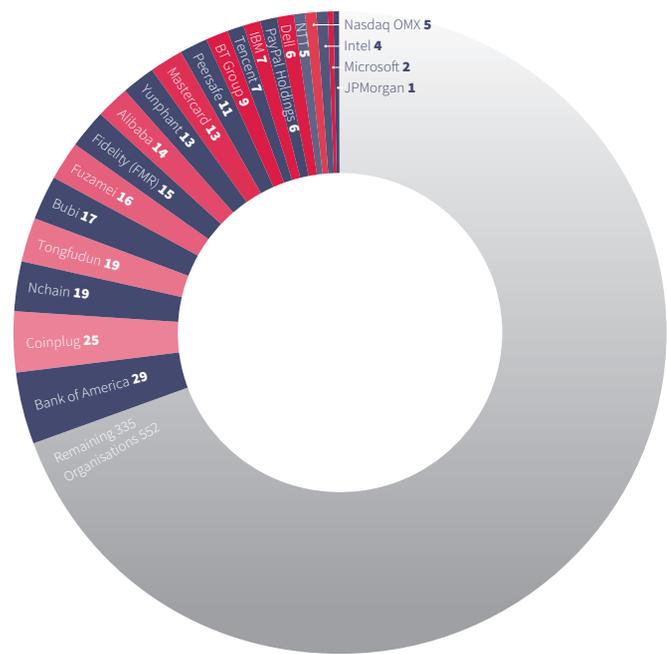


Chart 7 uses a Cipher Classifier to identify the owners of blockchain patents. It is of significance that there are over 350 companies owning 800 patent families; just 2 months ago that same number was 250 companies owning 650 patent families.

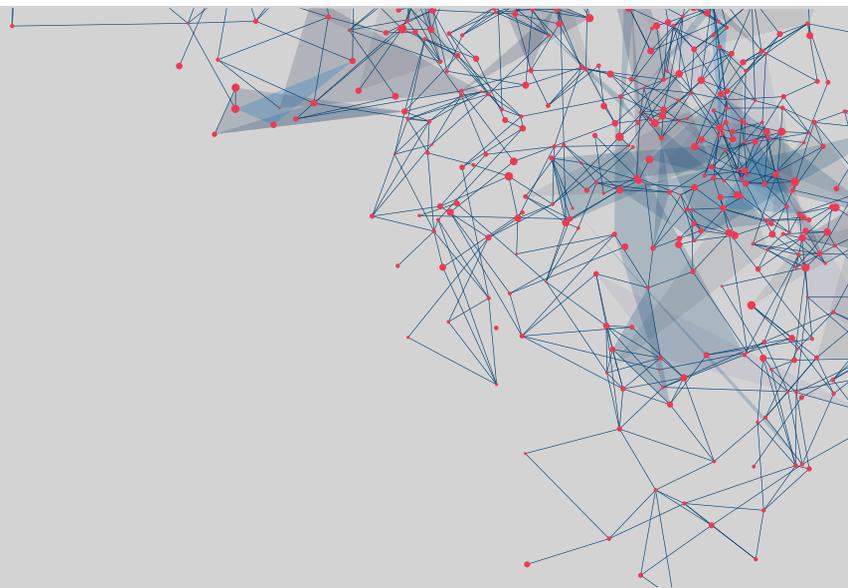
Analysis of this sort is an essential source of competitive intelligence. Blockchain innovation will not be limited to a handful of the established players, but will also come from a wide range of new entrants. Patent analytics therefore is an essential source of competitive intelligence e.g. as a way of keeping track of Chinese companies such as Tongfudun, Fuzamei, Bubi and Yunphant.

## What needs to be done?

In a recent interview, Cathy Bessant, Chief Operations and Technology Officer of Bank of America suggested that even if the banks are not Fintech companies, they will have to buy, partner and compete with them. In this reality, Fintech companies are the disruptive new entrants. To this we would stress the importance of the major technology and card/payment companies such as Microsoft, IBM, MasterCard and Visa who have been investing in these technologies for years.

Our view is that many of the banks have significantly underestimated the importance of patents. Patents are no longer merely weapons of war but can play an important role on a number of levels. First, as an essential source of competitive intelligence. As more Fintech patents are filed there is more information to monitor and IP analytics is an effective way to screen quickly and economically. Secondly, as currency in collaboration and licences that is the inevitable path to interoperability and standardisation. Thirdly, as a way of protecting investment in proprietary technology.

If you think of all great inventions from light bulbs and cars to mobile devices, no one prospered without a decent understanding of patents.



Cipher has a fresh and powerful approach to analysing patent information. By harnessing the power of artificial intelligence, Cipher is able provide actionable insight about technology and innovation trends

To learn more about our approach and the industries we support, contact us today.... [info@cipher.ai](mailto:info@cipher.ai)