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Item No. 14 – Appendices

Economic Development Activities Update

Total Tax Contributions of UK Financial Services

The Value of Fintech

(Pages 1 - 112)

John Barradell
Town Clerk and Chief Executive

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City of London Corporation Research Report

Total tax contribution of UK financial services

TENTH EDITION

CITY OF LONDON

In association with pwc

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City of London Corporation Research Report

Total tax contribution of UK financial services

TENTH EDITION

Contents

Foreword

This year, the financial services (FS) industry has made its highest tax contribution to UK public finances in the ten years that we have been publishing this study. In the year to March 2017, UK FS contributed an estimated £72.1bn to the Exchequer – 11% of UK tax receipts. This underlines the importance of the sector as an asset to the UK economy, providing over 3% of jobs, 7% of output, and 11% of taxes.

Produced by PwC, this annual report looks at the contribution of different types of tax paid by FS and changes over time as a result of UK economic conditions and tax policy. In the turbulent decade that has followed the first study, a key – and consistent – finding has been just how important employment in the sector is, not only in providing 1.1 million jobs in FS right across the UK, but also in generating the largest component of FS taxes year on year - £31.4bn in 2017.

At a time of great uncertainty around Brexit, it is worth remembering that the contribution made by employment taxes to the Exchequer has proven not only larger but also more resilient than profit-linked taxes such as corporation tax. With each job generating an average of nearly £30K in employment taxes annually, a strong and vibrant FS industry benefits the whole economy.

This year's research also highlights the role that location plays for different sub-sectors of the industry. For banks in particular, the location of their operations and employees is critical, with over 90% of their tax generated for the UK Exchequer dependent on where their jobs and operations are. Now, more than ever, this reinforces the need to ensure that the UK remains an attractive and competitive world-leading business location, ensuring that these firms and workers can continue to make a significant contribution to the UK's economic success into the future.

Catherine McGuinness
Chairman of Policy and Resources
City of London Corporation

November 2017

Executive summary

The key findings from the tenth study on the total tax contribution of the UK's financial services (FS) sector, for the year to 31 March 2017, are as follows:

- We estimate that the total tax contribution (TTC) of the FS sector in 2017 was £72.1bn, 11.0% of government receipts. This total is the highest contribution recorded in the TTC studies since 2007, and a 1.0% increase on last year.
- The total comprises taxes borne of £31.0bn (a 7.9% increase on last year) and taxes collected of £41.1bn (a 3.4% fall on last year). The increase was partly off-set by a decrease in taxes collected of 3.4%, due to a reduction in employment taxes, VAT and tax deducted at source.
- Employment taxes consisting of employers' NIC, employees NIC, PAYE and PAYE settlement agreements (PSA) remain the largest type of tax paid, with an average of £29,300 paid in employment taxes per employee. The sector employs 1.1 million people, with two thirds of employment outside London.
- The tax profile varies for banks and insurers. Insurance companies tend to collect a high proportion of taxes from their customers whereas employment taxes make up a high proportion of banks' tax contributions – hence tax from insurers is more dependent on the location of customers, and tax from banks on the location of their operations.
- FS firms create value in a number of ways. Government is the largest beneficiary of the value distributed by FS firms (46.3%). Employees are the second largest beneficiary (29.5%), followed by profit available for shareholders or for reinvestment (21.0%), while providers of finance receive the remaining 3.2%.
- Corporation tax (including the bank surcharge) paid by the FS sector, increased from £8.4bn to £11.6bn between 2016 and 2017. This includes the bank surcharge for the first time, raising £1.1bn, while the bank levy paid decreased from £3.4bn to £3.0 bn.
- The profile of taxes borne by companies has changed across the ten years of the survey. Corporation tax including the bank surcharge now represents 21.8% of taxes borne (40.8% in 2007). Employers NIC is the largest tax borne by this group of companies (32.4%) followed by irrecoverable VAT (24.1%).

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- The total tax contribution of the FS sector is £72.1bn, the highest level since the survey began.
- The contribution is 11.0% of total UK Government tax receipts.
- It includes both taxes borne of £31.0bn and taxes collected of £41.1bn.

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- The estimated tax contribution increased by 1.0% compared to 2016 as a result of an increase in taxes borne of 7.9% and a decrease in taxes collected of 3.4%.
- Taxes borne increased as a result of corporation tax, due to the introduction of the bank surcharge, and changes to the tax base.
- Corporation tax (including surcharge) is 21.8% of taxes borne. In 2007, this was 40.8%, reflecting the changing profile of the tax burden on the sector to taxes which are less dependent on profit.

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- Employment in the FS sector generates the largest amounts of tax.
- Irrecoverable VAT, a significant tax for FS firms, is the second largest tax borne.
- Corporation tax, including the bank surcharge, is the third largest tax borne.

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- Different sectors have very different patterns of taxes; employment tax is the largest tax borne by banks, but irrecoverable VAT is the largest tax borne by insurance companies.
- Insurance companies collect a higher share of their tax take from indirect taxes from their customers, while employment taxes are more significant for banks which are dependent on the location of the business.
- The contribution of the banking sector to public finances in 2017 was £35.4bn, comprising £17.3bn from foreign banks and £18.1bn from UK banks.

5
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- Estimated employment taxes are £31.4bn for the FS sector, which is 11.5% of government tax receipts from employment.
- Employment taxes per employee amounted to £29,300, and average wages per employee were £65,101.
- Two thirds of employment was based outside London which is consistent with ONS data.

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- The government's figures show that corporation tax (including the bank surcharge) paid by the FS sector increased from £8.4bn to £11.6bn (38.1%) between 2016 and 2017.
- This was a result of the introduction of the bank surcharge, legislative changes to restrict loss relief, and the deductibility of compensation payments.

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- The Total Tax Rate - the measure of taxes borne compared to profitability - is 36.3%, an increase from 35.8% in 2016.
- The Total Tax Contribution of the FS sector is equivalent to 20.5% of turnover.
- The GVA for the FS sector is 7.2% of UK GVA, which compares to tax receipts for the FS sector of 11.0% of total UK tax receipts.
- 46.3% of value distributed by FS companies is paid to the government in taxes.

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- Over the last 6 years, participants have spent £28.3bn in capital investment and invested £2.3m in research and development.
- The FS sector makes up 2% of the UK's VAT / PAYE registered firms but 24% of total turnover.

1. Estimated contribution of the financial services sector in the UK

The total tax contribution of the FS sector is £72.1bn, the highest level since the survey began.

The contribution is 11.0% of total UK Government tax receipts.

It includes both taxes borne of £31.0bn and taxes collected of £41.1bn.

Background to the study

The tenth Total Tax Contribution (TTC) study of the UK financial services (FS) sector has been carried out using data provided by 50 FS companies. These companies employed 38.4% of the UK FS sector workforce and include UK based banks, foreign based banks, insurers, asset managers, real estate companies[1] and other FS sector companies. For further details on the purpose and outline of the study, see Appendix 1.

Total Tax Contribution for 2017

From the details of the tax payments provided by the 50 companies participating in the 2017 study, we estimate that the FS sector in the UK made a Total Tax Contribution of around £72.1bn in the year to 31 March 2017.[2] This represents 11.0% of all government receipts for all taxes.[3] Figure 1 sets out the components of tax from the study companies, and extrapolated to the sector as a whole.[4]

FIGURE 1

Total Tax Contribution of the FS sector in the UK financial year to 31 March 2017

Figure 2 shows the Total Tax Contribution of the FS sector, as estimated in the ten studies, both as absolute amounts and as a percentage of government tax receipts.

FIGURE 2

Total Tax Contribution of the FS sector in the UK. Comparison of the ten study results

1 Acting as asset managers of property investments.

2 Includes accounting periods ended in 2016/17.

3 Government receipts are from: Office for Budget Responsibility (OBR) 'Economic and fiscal outlook', alongside Budget 2017, Table 2.8 Current receipts (on a cash basis).

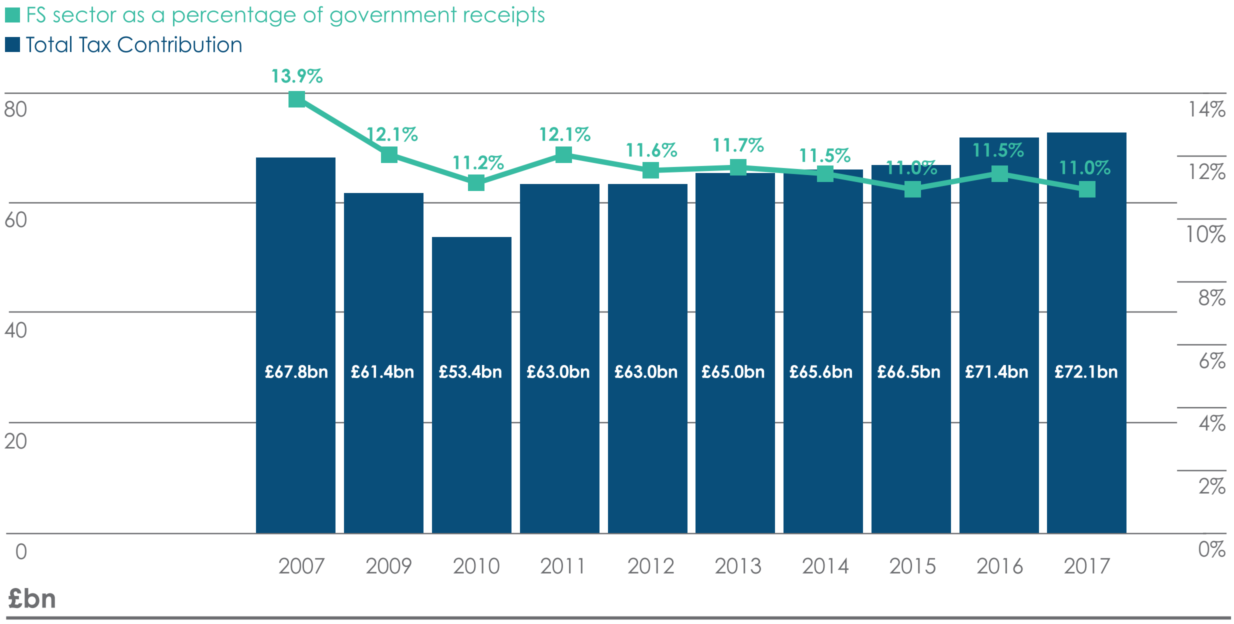
4 Extrapolation is based on government figures for corporation tax, bank surcharge and bank levy receipts from the sector as shown in HMRC T11.1 and HMRC "PAYE and Corporate Tax receipts from the banking sector: 2017", as well on the trend data for the companies participating in the study. Extrapolation uses the ratios of (1) CT, surcharge and bank levy to taxes borne; and (2) CT, surcharge and bank levy to taxes collected for different parts of the sector, as established in the study. Extrapolation is an estimate only, apart from corporation tax, bank levy and the bank surcharge, where actual figures are included.

FIGURE 1
Total Tax Contribution of the FS sector in the UK financial year to 31 March 2017

	FS companies in the study	Extrapolated to the FS sector	% of government receipts
£ billions	**2017**	**2017**	**2017**
Taxes borne			
Corporation tax[4]	4.4	10.5	
Bank Surcharge[5]	0.5	1.1	
Bank Levy[6]	2.8	3.0	
Other	8.9	16.4	
Total Taxes borne	16.6	31.0	**4.7%**
Total Taxes collected	18.2	41.1	**6.3%**
Total Tax Contribution	34.8	72.1	**11.0%**

FIGURE 2
Total Tax Contribution of the FS sector in the UK. Comparison of the ten study results.

Monetary figures refer to amounts of taxes borne and collected combined.



5 Corporation tax receipts from the financial services sector as shown in HMRC T11.1. Represents 21.3% of government receipts of corporation tax.

6 Bank surcharge receipts from the financial services sector as shown in HMRC T11.1. Represents 100% of government receipts of the bank surcharge.

7 Bank levy receipts from the financial services sector as shown in HMRC T11.1. Represents 100% of government receipts of bank levy.

This year, the total tax contribution is £72.1bn, an increase of 1.0% compared with 2016, and the highest level since the survey began, exceeding pre-crisis levels. The increase was driven by an increase in taxes borne (7.9% uplift on the previous year), mainly from corporation tax. The increase was partly off-set by a decrease in taxes collected of 3.4%, due to a reduction in employment taxes, VAT and tax deducted at source.

The TTC is a lower percentage of government receipts (11.0%) compared to last year (11.5%). There has been an increase in total government receipts largely as a result of increases in NIC (9% or £10bn), which is a reflection of increasing employment in the UK and the move away from public sector service companies. There were also increases in income tax, VAT and corporation tax receipts.

Looking at previous years, the trend in tax take has been influenced by both economic factors, and legislative changes (including the introduction of new taxes and changes to the rates of existing taxes), outlined in more detail below.

Economic factors: Looking at the overall ten-year picture, the financial crisis is evident in the fall in TTC from 2007 to 2010. This is partly driven by a fall in profits leading to lower corporation tax payments over this period, but also reflects other factors such as lower activity resulting in lower irrecoverable VAT receipts, and some job losses in the sector reducing employment taxes in the 2010 study. As the economy returned to growth, the TTC also increased.

Change in rate: the trend in TTC can be partly attributed to changes in tax rates for three key taxes over the period. The rate of corporation tax has fallen incrementally from 30% in 2007 to 20% in 2017; the rate of VAT increased from 17.5% in 2009 to 20% in 2011; employer NIC rates increased from 12.8% to 13.8% in 2011. These changes affect both the total tax take, and the profile of taxes contributed by the FS sector.

Introduction of new legislation: Three taxes introduced over the last ten years have affected banks specifically. The one-off bank payroll tax was introduced in 2010, and the bank levy was introduced in 2011, the latter of which contributed to the increase in the total tax contribution between 2011 and 2016. The bank surcharge of 8% borne by banks and introduced in 2016 has been a major factor contributing to the increase in 2017's TTC.

2.
Trends in Total Tax Contribution

The estimated tax contribution increased by 1.0% compared to 2016 as a result of an increase in taxes borne of 7.9% and a decrease in taxes collected of 3.4%.

Taxes borne increased as a result of corporation tax, due to the introduction of the bank surcharge, and changes to the tax base.

Corporation tax (including surcharge) is 21.8% of taxes borne. In 2007, this was 40.8%, reflecting the changing profile of the tax burden on the sector to taxes which are less dependent on profit.

This is the tenth annual survey we have carried out for the City of London Corporation. From the financial crisis in 2008 to the vote to leave the EU in 2016, there have been significant changes in the UK economy, in UK tax policy and, as a result, in the tax contribution from the sector. This year the total tax contribution is £72.1bn, an increase of 1.0% compared with 2016, and highest level since the survey began, exceeding pre-crisis levels.

Trends between 2016 and 2017

To understand the changes in the separate taxes that make up taxes borne and taxes collected, and the impact that these might have on the FS sector as a whole, we compare the 46 companies who provided data for both the 2016 and 2017 studies.

Taxes borne: Figure 3 shows how individual taxes contributed to the increase in total taxes borne of 7.9%.

Corporation tax, including the bank surcharge, was the main driver of the increase, reflecting three key policy changes which increased corporation tax take:

- The bank surcharge is a new corporation

FIGURE 3
Trends in taxes borne and collected 2007/2017

	% increase/decrease
Taxes borne	**2017**
Corporation tax (including the bank surcharge)	9.0%
Bank levy	-0.7%
Employers NIC	-1.0%
Irrecoverable VAT	-0.1%
Other taxes borne	0.7%
Increase in taxes borne	**7.9%**
Taxes collected	
Employee income tax	-3.7%
Employees NIC	-0.1%
Net VAT	-1.4%
Tax deducted at source	-1.0%
Stamp Duty Reserve Tax	0.0%
Insurance premium tax	2.8%
Total taxes collect	**-3.4%**

tax surcharge, introduced on 1 January 2016, which is applied to the taxable profits of banks at a rate of 8%.

- Legislation to restrict the deductibility of compensation payments.
- The amount of taxable profit that could be offset by a bank's brought forward losses was restricted to 25% in 2016 (a change from 50% in 2015).

The reduction in the bank levy, paid by 14 banks in the study, decreased total taxes borne by 0.7%. The rate of the bank levy fell from 0.210% in 2015 to 0.180% in 2016 for short term chargeable equity & liabilities, and from 0.105% to 0.090% for long term chargeable equity & liabilities. For further detail on the bank levy, see Appendix 2.

Government data shows that corporation tax for the FS sector increased from £8.4bn to £11.6bn between 2016 and 2017. The bank levy paid decreased from £3.4bn to £3.0bn between 2016 and 2017, reflecting the rate changes.

Taxes collected: Figure 3 shows a decrease in total taxes collected of 3.4%.

The decrease is due to a combination of factors. Reductions in the workforce in the retail banks led to a reduction in income tax deducted under PAYE.

Tax deducted at source has decreased due to the removal of the requirement for banks to deduct income tax from interest payments in the year. Taxpayers who have taxable interest income (above the personal allowance) now account for the tax liability themselves.

There has been an increase in insurance premium tax (IPT) receipts, reflecting the change in rate of IPT in October 2016 from 9.5% to 10%.

Trends in taxes borne and collected by sector

A significant driver of the trend in both taxes borne and taxes collected is due to the banking sector, in part because of the size of the sector - the banks in the study contributed 68.9% of the TTC. This trend also reflects the change in tax base and introduction of new taxes described above.

The insurers in the study contributed 23.0% of the TTC. The increase in taxes collected by the insurance companies is mainly due to the increase in IPT resulting from the rate increase and an increase in tax deducted at source through PAYE from insurance companies who are administering pension funds.

Trends between 2007 and 2017

Trends in taxes borne and collected

Nineteen companies from the 2017 study also participated in the first study in 2007, so we can look at the trends across ten years for this group, shown in Figure 5.[8]

8 For the companies participating in both the 2007 and 2017 studies, trends in the tax payments have been calculated on a like-for-like basis. Figures are included only where the same companies provided data for the same taxes in both years.

FIGURE 4

Trends in TTC by sub-sector

Components of the increase/decrease in taxes borne and collected

	Banks	Insurers	Other	Totals
Taxes borne	7.5%	-0.3%	0.7%	**7.9%**
Taxes collected	-8.2%	5.1%	-0.3%	**-3.4%**

FIGURE 5
Trends in taxes borne and collected 2007/2017

	Components of overall % increase/decrease by tax
Taxes borne	**2017**
Corporation tax	-23.6%
Bank levy[10]	28.7%
Employers NIC	4.8%
Irrecoverable VAT	12.2%
Other taxes borne	-0.2%
Increase in taxes borne	**21.9%**
Taxes collected	
Employee income tax	11.4%
Employee NIC	-1.8%
Net VAT	-5.0%
Tax deducted at source	2.8%
Other taxes collected	2.4%
Total increase	**9.8%**

Total taxes borne by these 19 FS companies have increased by 21.9%, reflecting the introduction of the bank levy, and an increase in the rate of employers NIC and irrecoverable VAT.

As noted in section 1, the rate of corporation tax has fallen from 30% in 2007 to 20% in 2017 (see section 6 for further details). In addition, the legacy of the financial crisis created tax losses brought forward which reduced the corporation tax due on current profits.
The bank levy was introduced in 2011, and is applied to a bank's equity and liabilities, rather than to profits. The rate applied to short term equity and liabilities is higher than that applied to long term equity and liabilities, to encourage banks to adopt less risky funding structures.

In 2011, the statutory rate of employers NIC increased by one percentage point, from 12.8% to 13.8%, counteracted in part by movement in the thresholds at which NIC is paid.

The increase in the rate of VAT to 20% in 2011 has contributed towards the increase in irrecoverable VAT, as have other factors, such as changes in the EU VAT system in 2010, alongside legislative and case law changes in the FS sector.

Taxes collected have increased by 9.8%, driven by a rise in employee income tax collected. In 2007, the top rate of income tax was 40%. In 2010/11, an additional rate of income tax was introduced on earnings over £150,000 at a rate of 50%. In 2013/14, this additional rate was reduced to 45%.

Further detail on the taxes outlined here is given in the rest of this section.

The changing profile of taxes borne

The legislative changes described above have resulted in a change in the profile of taxes borne for FS companies. Figure 6 shows that in 2007, corporation tax was 40.8% of total taxes borne, with employers NIC accounting for 21.3%. In 2017, corporation tax made up 21.8% of taxes borne and employers NIC was 32.4%.

9 The bank levy was introduced in 2011.

This changing profile reflects the decrease in corporation tax rate and the legacy of the financial crisis, together with increases in rates of NIC and VAT described above.

FIGURE 6
The changing profile of the tax system from 2007 to 2017: Taxes borne

Trends in other business taxes borne

Figure 7 is another way of showing this changing profile of taxes borne. Eleven companies have participated in the survey every year since 2007, and Figure 7 shows the trend in employers NIC, irrecoverable VAT and the bank levy for those companies (taking 2007 as the base year at 100%).

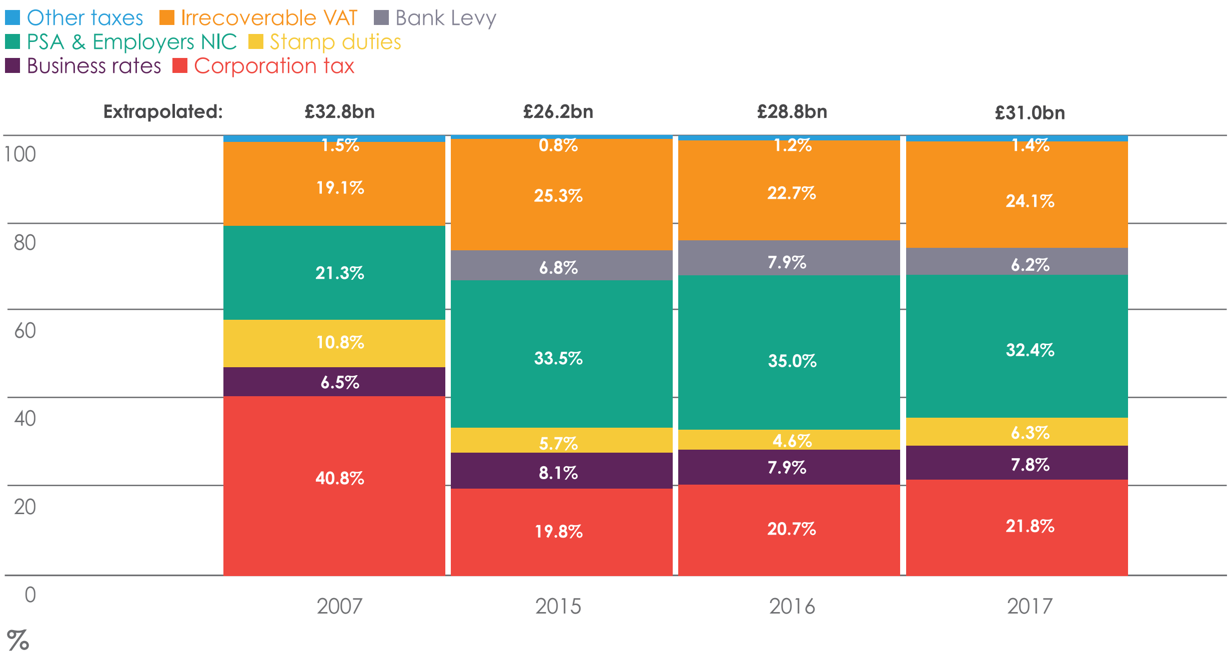
FIGURE 7
Trend in other taxes borne payments for FS companies

Irrecoverable VAT: VAT is a tax on the sale of most goods and services, however the supply of many financial services are exempt for VAT purposes, leading to irrecoverable VAT for the sector.

When a business supplies goods and services it generally charges VAT, and offsets any VAT it has incurred on purchases used to run the business (input VAT). Where the supplies of a company are exempt – as is the case for many FS activities – VAT is not charged to customers and the company cannot recover its input VAT, leading to irrecoverable VAT.

This irrecoverable VAT has increased by 69.5% over the ten years of the survey, highlighting the shift from corporation tax to other business taxes. There is often limited recognition of the significance of this tax for the FS sector.

FIGURE 6
The changing profile of the tax system from 2007 to 2017: Taxes borne
Analysis based on survey participants



Alongside the increase in rate of VAT, operational changes have also played a role. Increasing investment in information technology and infrastructure throughout the sector, a drive towards outsourcing administrative business functions, and a move towards employing more contractors following the financial crisis, have all increased the external cost base and hence the level of input, and irrecoverable, VAT.

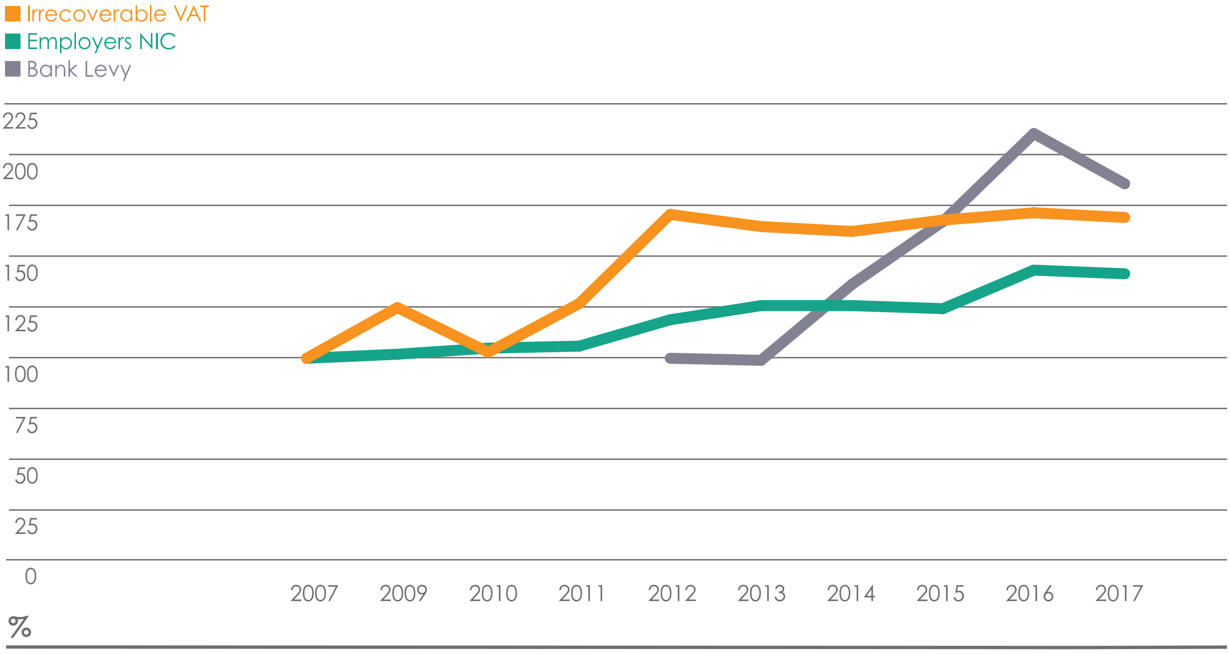
Employers NIC: is paid by employers at a rate of 13.8% on wages paid to employees above a lower threshold limit (£156 per week in 2016/17). Since 2007, the amount of NIC paid by employers has increased by 41.7%, a reflection of the increase in rate referred to above and annual changes to the threshold limits over the period. The increase in employers NIC paid is also a reflection of employment and wages paid in the FS sector.

The bank levy: was introduced in January 2011, designed to encourage banks and building societies to adopt less risky funding profiles. It is charged as a percentage of total chargeable equity and liabilities, with a higher rate applying to short term (and therefore higher risk) equity and liabilities than to long term equity and liabilities. Between its introduction in 2011 and 2017, the bank levy received by the government increased by 86.1%. There was a decrease in the bank levy in 2017 due to a reduction of the rate for short and long term chargeable equities and liabilities.

FIGURE 7

Trend in other taxes borne payments for financial services companies

Chart shows the average trend for companies in the study providing data for each year



3. Profile of taxes paid by survey participants

Employment in the FS sector generates the largest amounts of tax.

Irrecoverable VAT, a significant tax for FS firms, is the second largest tax borne.

Corporation tax, including the bank surcharge, is the third largest tax borne.

This section looks at the profile of taxes borne, taxes collected, and total tax contribution in more detail.

Profile of taxes borne

Taxes borne are the direct tax contributions of FS companies to the public finances. Taxes borne are a direct cost to these companies and have an impact on their financial results. Aside from corporation tax and the bank surcharge, many are "above the line" taxes that are deductible in calculating profit before tax, so will not be separately disclosed in financial statements. Figure 8 shows the profile of taxes borne by companies in the study.

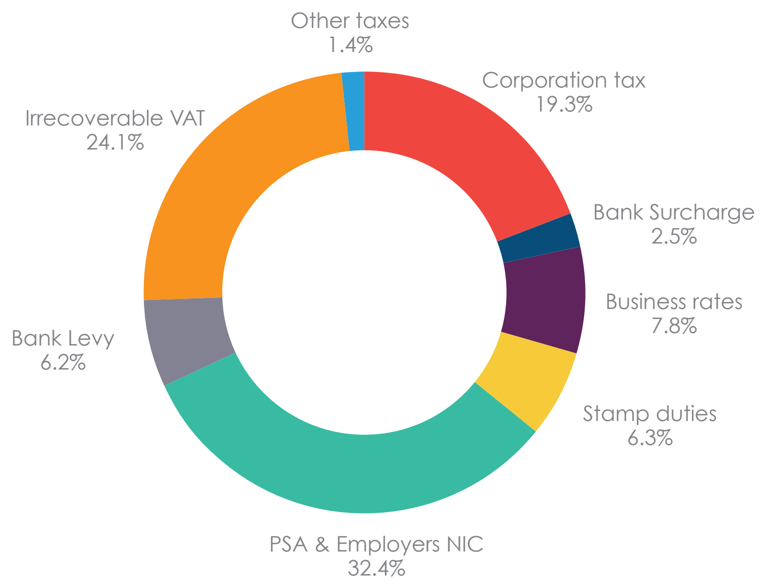
FIGURE 8
Taxes borne by FS companies in 2017

For every £1 of corporation tax paid there is another £2.36 paid in other taxes borne. Employers NIC (including PSA) is 32.4% of the total, the largest tax borne, followed by irrecoverable VAT (24.1%). Corporation tax (including surcharge) is the third largest tax borne (21.8%).

FIGURE 8

Taxes borne by financial services companies in 2017

Chart shows the average result for companies in the study.



The companies in the study are large employers, together employing 422,832 staff – which is reflected in the high proportion of taxes borne accounted for by employers NIC.

Profile of taxes collected

Taxes collected are those taxes collected from employees and customers, which companies are responsible for administering and paying to Government. These taxes arise from the jobs created and the services provided to customers by FS companies and are part of their indirect contribution to tax revenues. Figure 9 shows the profile of the taxes collected by the companies in the study.

FIGURE 9
Taxes collected by FS companies in 2017

The importance of employment to the sector is evident as employees' income tax deducted under PAYE and NIC are the largest taxes collected, together representing on average 64.7% of the total.

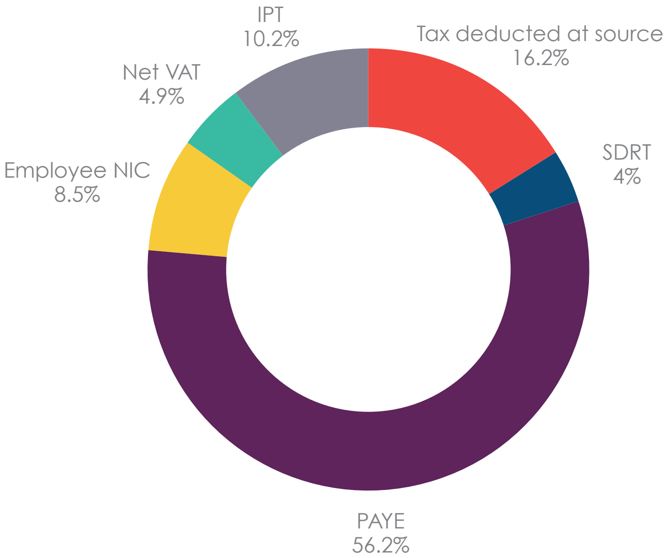
Tax is deducted at source by the FS sector; this includes tax deducted from interest paid to companies, and from annuities paid by life insurers. It also includes tax withheld on property income distributions made by real estate companies. Real estate companies which are structured as real estate investment trusts are exempt from UK corporation tax on the profits of their qualifying property, but are required to distribute a minimum of 90% of their qualifying profits to shareholders as dividends (known as property income distributions).

Further taxes collected by the FS sector include insurance premium tax, which is collected by insurance companies on insurance policies sold (non-life insurers). Foreign based banks administer stamp duty reserve tax, which is paid on transactions in shares.

FIGURE 9

Taxes collected by financial services companies in 2017

Chart shows the average result for companies in the study.



Total Tax Contribution profile

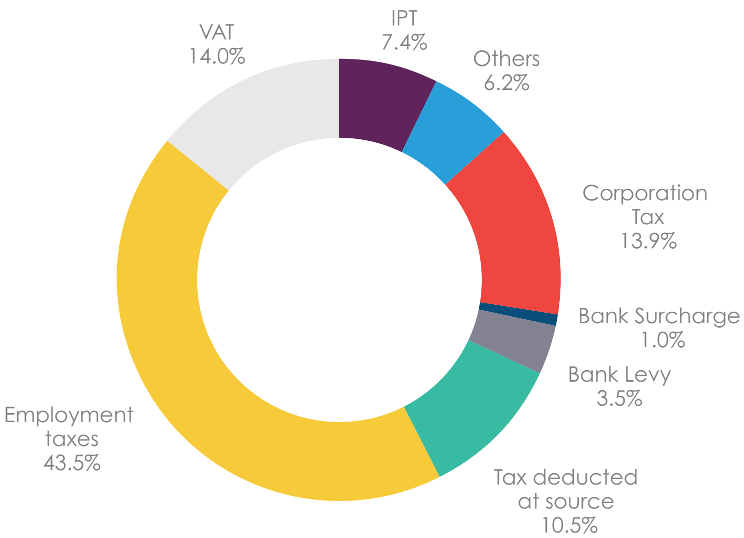
FIGURE 10
Total Tax Contribution of FS companies

Figure 10 combines taxes borne and taxes collected to show the average Total Tax Contribution profile for companies in the study.

Employment by the sector generates the largest amounts of tax paid into the public finances. NIC (employer and employee) and employee income tax under PAYE together account for 43.5% of the total.

Corporation tax (including surcharge) is the second largest tax of the Total Tax Contribution, followed by VAT (both net VAT collected and irrecoverable VAT) which is the third largest tax. The TTC profile emphasises the significance of the other taxes, in addition to corporation tax, paid by the FS sector.

FIGURE 10
Total Tax Contribution of FS companies
Chart shows the average result for companies in the study.



4. Comparing the different tax profiles for banks and insurers

Different sectors have very different patterns of taxes; employment tax accounts for a significant proportion of taxes borne and collected for banks, but irrecoverable VAT is the largest tax borne by insurance companies.

Insurance companies collect a higher share of their tax take from indirect taxes from their customers, while employment taxes are more significant for banks which are dependent on the location of the business.

The contribution of the banking sector to public finances in 2017 was £35.4bn, comprising £17.3bn from foreign banks and £18.1bn from UK banks.

Overview of the companies that participated

The companies that participated in the 2017 survey represent a significant part of the FS sector in the UK - Figure 11 shows the sub-sectors represented.[10] Fifty FS companies provided data on their UK tax payments for the 2017 study, together employing 38.4% of the total employees in the sector.

FIGURE 11
Survey participants by sector

This section looks in more detail at the two largest sub-sectors: banks (including UK based and foreign based banks), and insurers (including life and general insurance). ONS data[11] shows that banks employ approximately 48% of FS sector employees, while life, non-life and insurance agents and brokers account for 30% of the total employees of the total; other financial sub-sectors account for the remaining 22%. The number of companies in each sub-sector included in this study broadly reflects the split.

10 In general UK based banks are retail banks and foreign banks are investment banks.

11 Office for National Statistics, 'Table 2 - GB and UK level employment (thousands) by 2, 3 and 5 digit SIC 2007 (full-time/part-time and public/private sector split)'.

FIGURE 11
Survey participants by sub-sector

Sub-sector	Number of companies	% of total
Asset manager	8	16%
Insurance	8	16%
Foreign based Banks	11	22%
Real estate	6	12%
UK based Banks	8	16%
Other financial services	4	8%
Life insurance	5	10%
Total	**50**	**100%**

Taxes borne and collected for banks and insurance companies

Figure 12 shows the profile of both taxes borne and collected for banks and insurers.

FIGURE 12
Taxes borne and collected profiles for banks and insurers in 2017

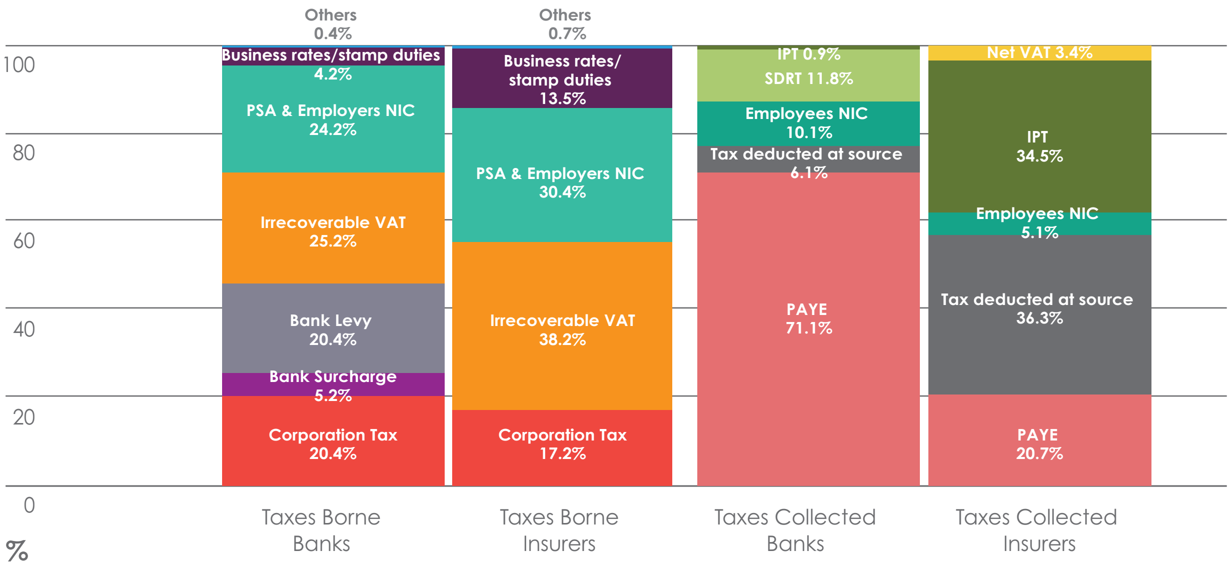
Employment taxes account for a significant amount of both taxes borne and collected for the banking sector, a combination of the contribution of foreign based banks with higher average salaries, and UK based banks with a large number of employees.

Irrecoverable VAT is the largest tax borne by insurance companies in the study, followed by PSA & employers NIC, and corporation tax.

Tax deducted at source is the largest component of taxes collected. This is due to PAYE deducted by insurance companies who administer pension funds on behalf of other companies, a unique tax for insurance companies. As expected, insurance premium tax is a large component of tax collected on general insurance policies.

FIGURE 12
Taxes borne and collected profiles for banks and insurers in 2017

Source: TTC for the banking sector (banks) and (insurers) study participants – chart shows the average result for insurers in the study[12]



12 https://www.ukfinance.org.uk/2017-total-tax-contribution-of-the-uk-banking-sector/

Figure 13 shows the profile of taxes borne and collected for the two sub-sectors. Taxes borne account for 54.0% of the TTC of banks and 32.5% of the TTC of insurers.

FIGURE 13
Taxes borne and collected as a percentage of Total Tax Contribution for banks and insurance companies in the study

As Figure 13 shows, the different profile of taxes from these two major sub-sectors means that location plays a very different role for each.

The TTC from banks is more dependent on employment taxes borne and collected, which are dependent on country of location of employees and business operations.

By contrast, because the TTC from insurers is more dependent on customer-related taxes, such as insurance premium tax, the location of customers plays an important role in generating the TTC.

UK and Foreign based banks

UK Finance commissioned PwC to carry out a TTC study of the UK banking sector. The study estimated that the contribution of the banking sector to the public finances in 2017 was £35.4bn, comprising £17.3bn from foreign banks and £18.1bn from UK banks. Foreign banks in the study paid 53.5% of the employment taxes, despite employing fewer people.

FIGURE 13

Taxes borne and collected as a percentage of Total Tax Contribution for banks and insurance companies in the study

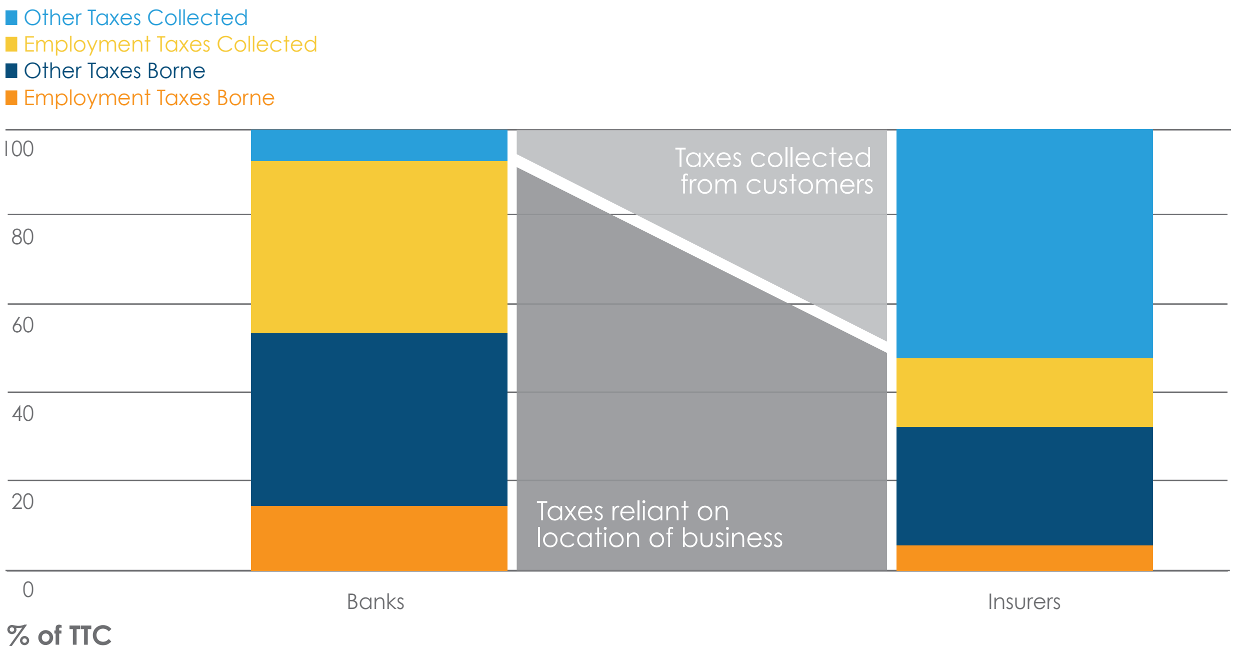
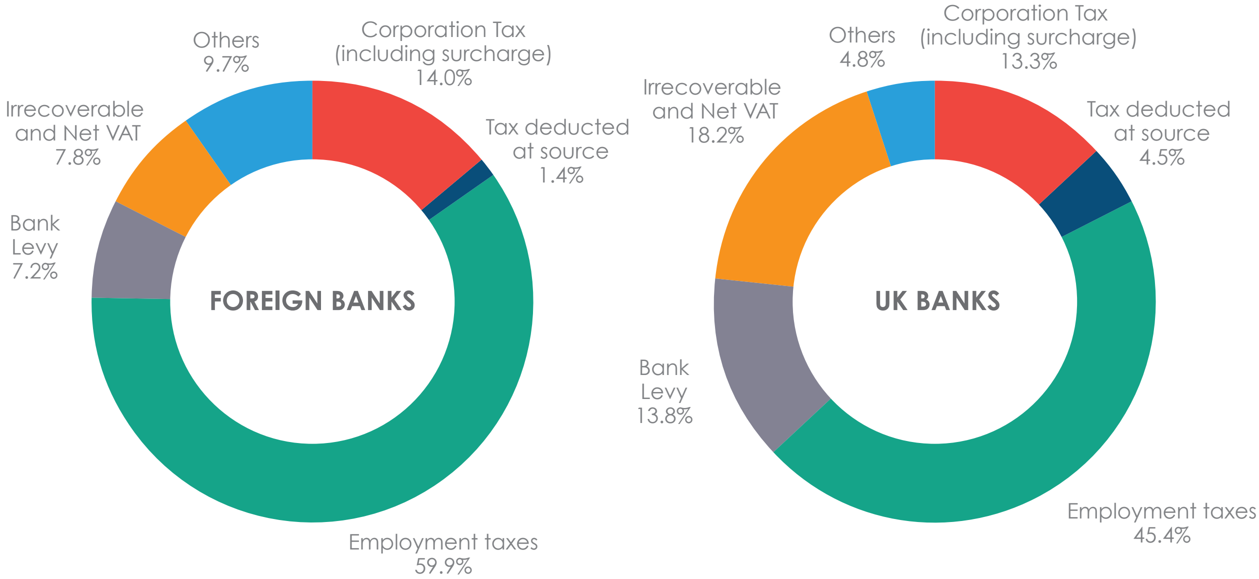


FIGURE 14
TTC Profile for Foreign and UK based banks in 2017

The results highlighted the different TTC profiles for UK based and foreign based banks. Figure 14 shows that employment taxes are more significant for foreign based banks, with corporation tax the second largest tax. For the UK banks, VAT was the second largest tax payment, followed by the bank levy.

FIGURE 14
TTC Profile for Foreign and UK based banks in 2017

Source: 2017 Total Tax Contribution study for the UK banking sector[13]



13 https://www.ukfinance.org.uk/2017-total-tax-contribution-of-the-uk-banking-sector/

5. Employment taxes

Estimated employment taxes are £31.4bn for the FS sector, which is 11.5% of government tax receipts from employment.

Employment taxes per employee amounted to £29,300 and average wages per employee were £65,101.

Two thirds of employment was based outside London which is consistent with ONS data.

Extrapolation of the employment taxes paid by the FS sector

Employment and job creation is an important means by which the FS sector contributes to the UK economy. Employment taxes account for the largest share of taxes borne and collected by FS companies. These taxes provide a more stable source of revenue for the Government than corporation tax receipts, which can be volatile and depend on profitability and the economic cycle.

Government figures show that the sector employs 1.1million employees, which is 3.5% of the total UK workforce (both private and public sector together).[14] Using our study data, we estimate that employment in the FS sector generates total employment taxes of around £31.4bn[15], equivalent to11.5% of Government tax receipts from employment.[16]

ONS data also shows an increase in average wage in the sector in 2016/17 of 2.4%.[17]

Wages and taxes per employee

The FS sector employs skilled, well-paid staff. ONS data[18] shows that the percentage of the workforce population working in the FS sector with a degree level qualification or above was 48%, compared to 35% for the England and Wales workforce as a whole.

Across all employees in the study the average wage[19] was £65,101. The UK national average for the period was £28,200.[20] Some parts of the FS sector pay higher wages than others, for example, foreign banks tend to pay higher salaries than UK-based banks. For the majority of the sample – companies that together employed 75% of total employees – the average wage was lower, at less than £54,000.

For 2017, employment taxes per employee amounted to £29,300 on average,[21] including taxes borne and collected.

For the FS sector as a whole, there was an increase in employment of 3.1%. However, for the companies in the study, total employees fell by 27,000 and total employment taxes fell by £297m.

14 Office for National Statistics, 'Labour market statistics', October 2017

15 Extrapolation has been carried out using average employers NIC per employee, employees NIC and PAYE per employee for the employees in different parts of the study, together with trends in employment taxes per employee. Extrapolation is an estimate only.

16 Calculation of the proportion of government receipts is the extrapolated employment taxes as a percentage of government receipts for income tax under PAYE (excluding self-assessment) and all NIC receipts.

17 Office for National Statistics, Average earnings by sector EARN01

18 Census, 2011, https://www.nomisweb.co.uk/census/2011/wp6503ew

19 The average wage was calculated by taking the total wages and salaries for the survey population and dividing it by the total number of employees within that population. Participants were asked to give a figure for total UK wages and salaries paid, including bonuses.

20 Office for National Statistics – Annual Survey of Hours and Earnings: 2017 provisional results

21 The average employment tax per employee was calculated by taking the total employment taxes for the survey population and dividing it by the total number of employees in the population.

Trend in employment taxes

In those companies reporting numbers for both 2016 and 2017 editions, there was a decrease in the number of employees of 6.6%. This was largely due to changes in the banking sector with firms reducing and re-organising their workforces.

The same group of companies reported an increase in wage per employee of 8.8% and an increase in employment taxes per employee of 4.5%. These increases are driven largely by companies with redundancies and mergers and acquisitions. Removing these companies[22] from the calculation, the average wage per employee increased by 1.3% and average employment taxes per employee by 1.7%.

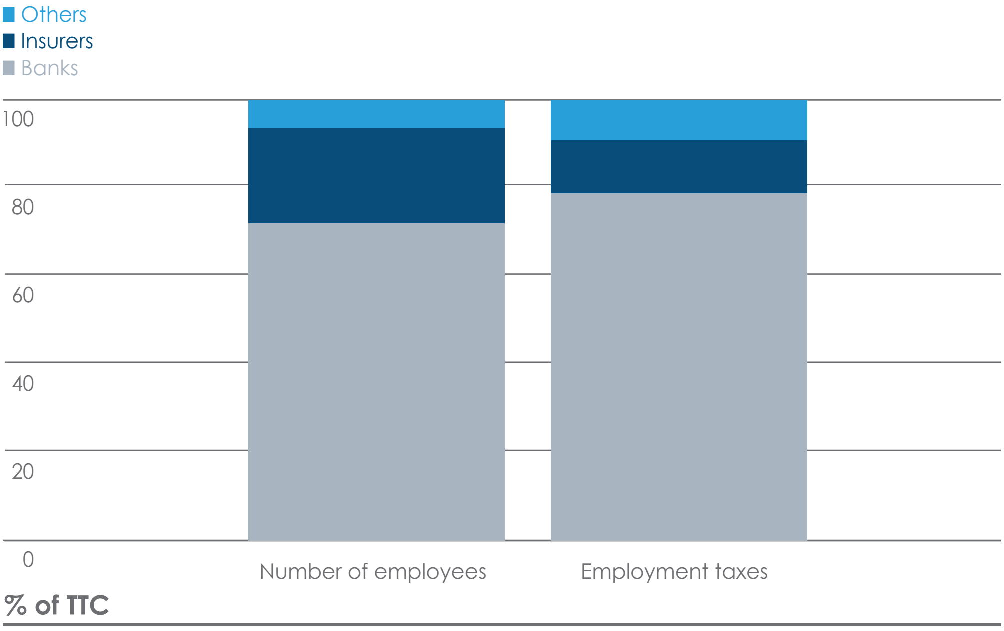
Employment in the banking sector

The banks in the study are the largest employers in the FS sector – 72.0% of study employees - and generate the largest proportion of employment taxes – 78.8% of the total employment taxes.

FIGURE 15
Employment in the study split by sub-sector

22 Companies who had a fall in the number of employees but experienced an increase in wages.

FIGURE 15
Employment in the study split by sub-sector



The regional picture of employment

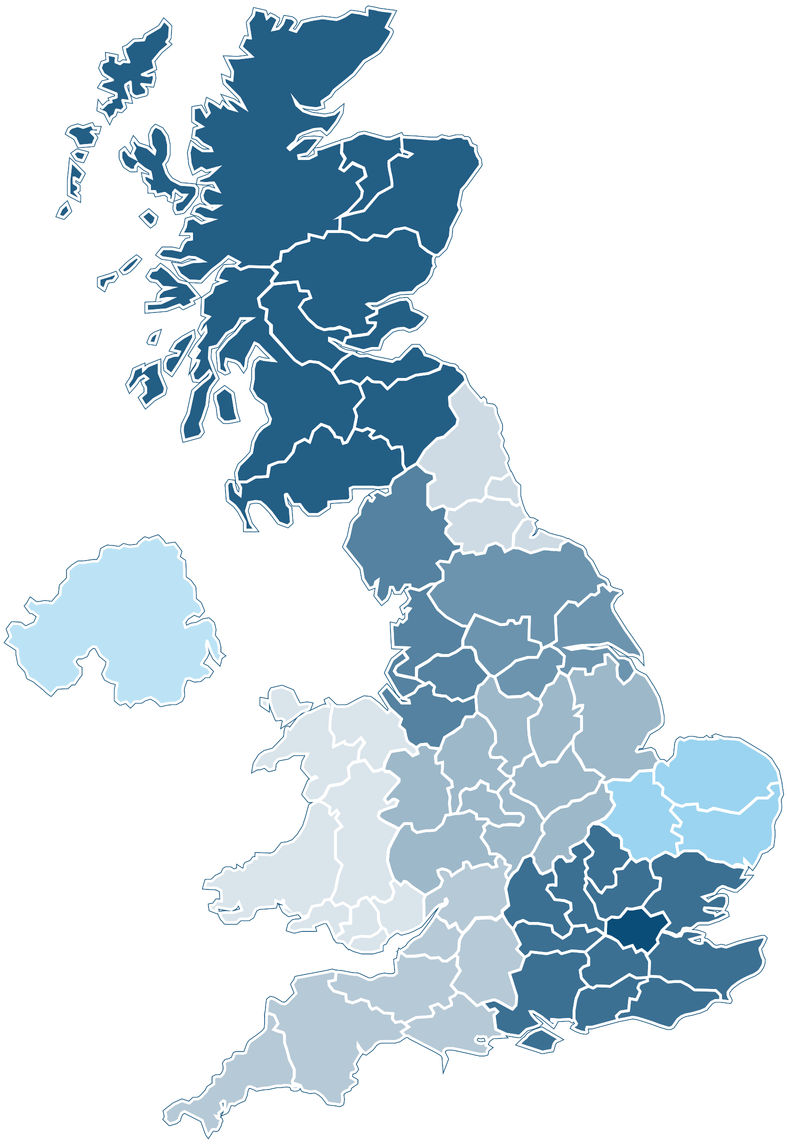
Twenty-one companies provided additional data on the distribution of their employees across the UK. In line with ONS[23] data, results from study participants found that two thirds of their employees were based outside London.

FIGURE 16
Distribution of study participants' employees across UK

23 ONS, Business Register and Employment Survey, 2017, and ONS Workforce Jobs by Industry, 2017

FIGURE 16
Distribution of study participants' employees across UK

London	32.7%
Scotland	13.6%
South East	12.4%
North West	9.4%
Yorkshire & Humber	7.5%
East England	6.5%
East Midlands	4.8%
West Midlands	4.8%
South West	3.2%
Northern Ireland	2.7%
North East	1.5%
Wales	0.9%



6.
Corporation tax

The government's figures show that corporation tax (including the bank surcharge) paid by the FS sector increased from £8.4bn to £11.6bn (38.1%) between 2016 and 2017.

This was a result of the introduction of the bank surcharge, legislative changes to restrict loss relief, and the deductibility of compensation payments.

Government figures show the importance of the FS sector for corporation tax receipts. Figure 17 shows that the increase in corporation tax receipts from the FS sector exceeds that in each of the manufacturing, distribution and North Sea companies business sector. Receipts from all other sectors in the economy combined (other industrial and commercial) have grown strongly, reflecting the growth in the economy in the latest year.

FIGURE 17:
Government corporation tax including surcharge receipts by business sector

The trend in corporation tax

Over the ten years of the study, Government receipts from corporation tax have been heavily affected by the financial crisis, as well as by the reduction in corporation tax rate which has varied from 30% to 20% across this period, as shown in Figure 18. It was announced in April 2017 that the rate of corporation tax will fall to 17%, although the bank surcharge of 8% will mean a combined rate of 25% for banks.

FIGURE 17
Corporation tax receipts by business sector (including surcharge)

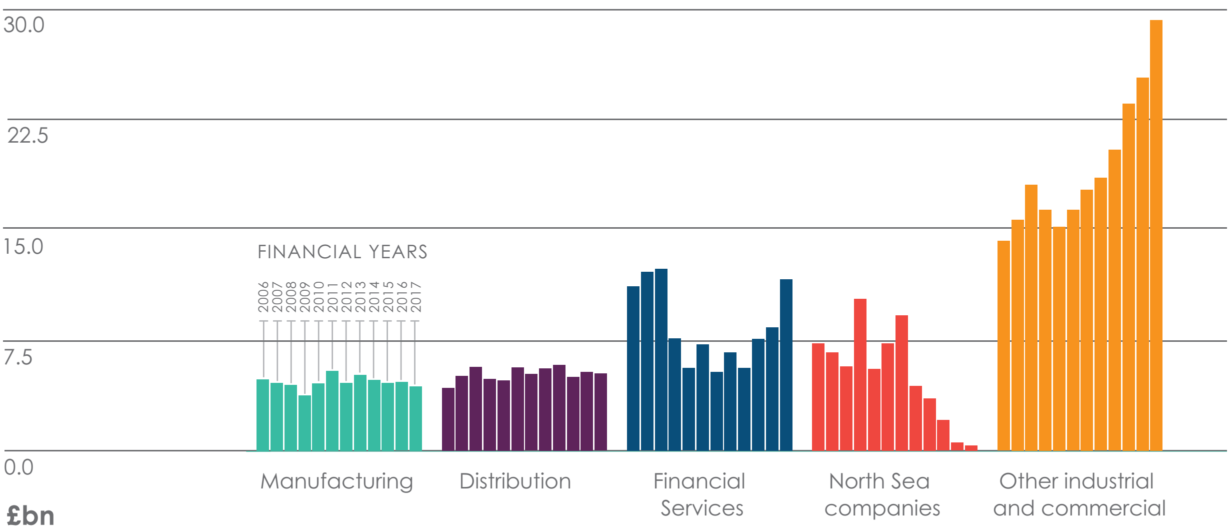


Figure 18 shows a cyclical pattern of corporation tax receipts from the FS sector alongside the changing rates of corporation tax from 2001 (tax year to March 2001). From 2016 to 2017, corporation tax payments increased, driven by the banking sector as explained earlier.

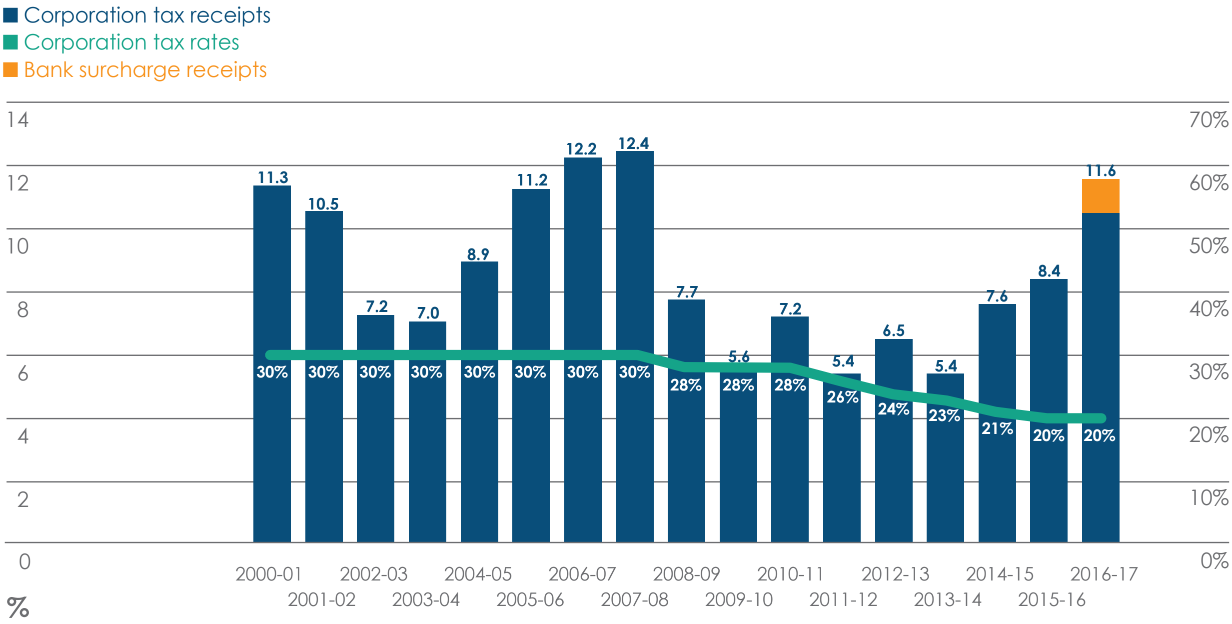
FIGURE 18

Rates of corporation tax and Government corporation tax receipts including surcharge from FS sector

FIGURE 18

Government corporation tax receipts from the financial services sector including surcharge

Source: HMRC T11.1A Corporation tax, bank Levy and bank surcharge net receipts 1999-00 to 2016-17



7. Putting Total Tax Contribution data in context

The Total Tax Rate - the measure of taxes borne compared to profitability - is 36.3%, an increase from 35.8% in 2016.

The Total Tax Contribution of the FS sector is equivalent to 20.5% of turnover.

The GVA for the FS sector is 7.2% of UK GVA which compares to tax receipts for the FS sector of 11.0% of total UK tax receipts.

46.3% of value distributed by FS companies is paid to the government in taxes.

Total tax rate

This ratio compares taxes borne to profits before taxes borne (excluding taxes collected). The average Total Tax Rate for FS companies in the 2017 study was 36.3%.[24] This increase on 2016 arises from the increase in corporation tax referred to above.

Figure 19 shows the average Total Tax Rate - the measure of taxes borne compared to profitability - for FS companies in each of the ten studies, together with the statutory rate of corporation tax.

FIGURE 19

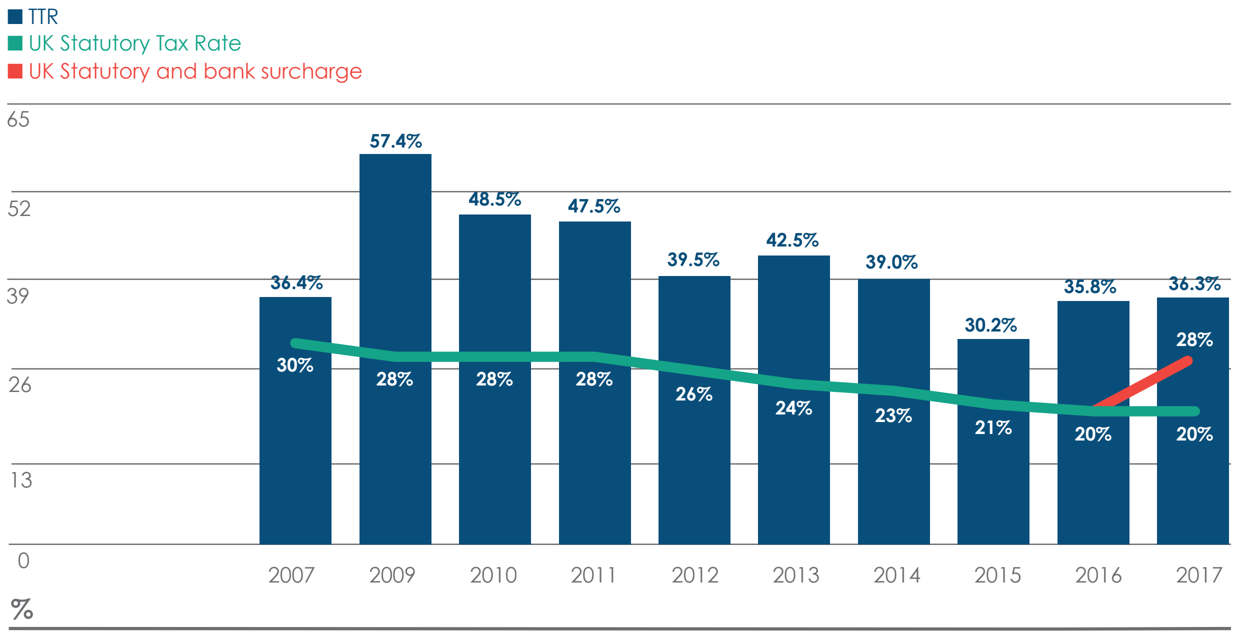
Total Tax Rates for FS companies

In the 2009 study, the average rate rose sharply above the rate in the first (2007) study, carried out before the financial crisis. This was due to profits falling markedly between the two years. In this period corporation tax payments fell with declining profit, but payments of the other taxes borne, remained more stable and the Total Tax Rate rose as a result.

24 The average Total Tax Rate was 36.3%, the median was 31.6%, and trimmed mean was 31.9%.

FIGURE 19

Total Tax Rates for Financial Services companies
Comparison of the ten study results



In the years after a recession, as the economy recovers, profits increase, and other taxes borne are more stable, causing the Total Tax Rate to decrease. In addition, losses brought forward offset the corporation tax due on these profits, depressing the Total Tax Rate even further, as can be seen in 2015. In 2016 and 2017, there are fewer carried forward losses available and the Total Tax Rate has increased.

Total Tax Contribution compared to turnover

In addition to the Total Tax Rate, the total amount of taxes borne and collected as a percentage of turnover is an indication of the size of the Total Tax Contribution (TTC) of the FS sector companies in relation to the size of their business.

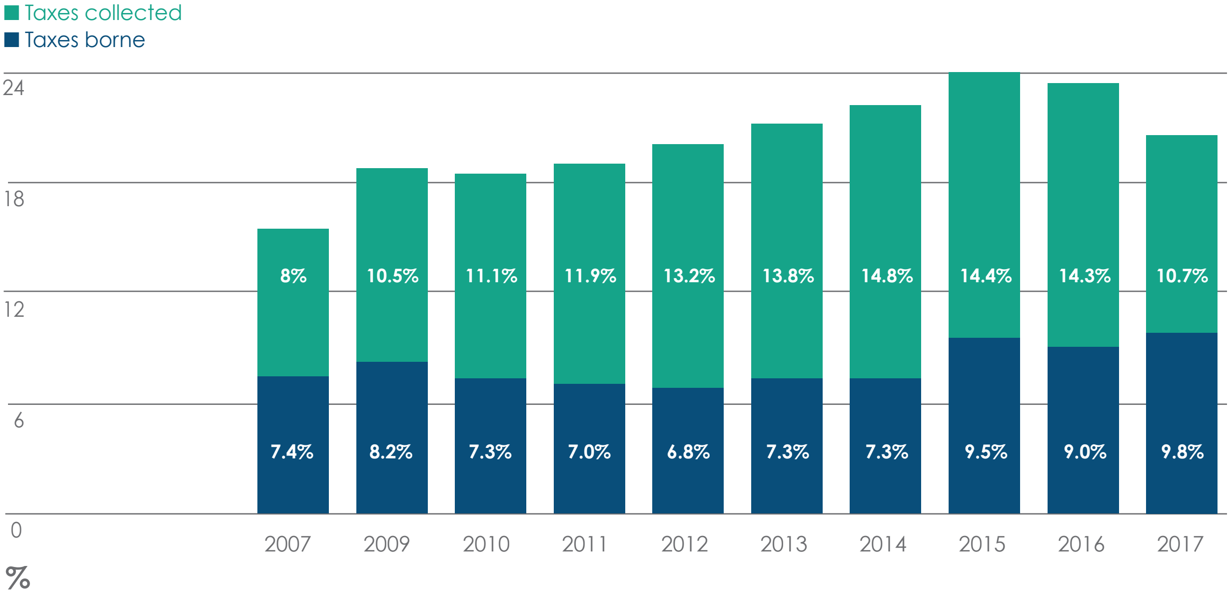
As shown in Figure 20, on average the TTC for 2017 was equivalent to 20.5%[25] of turnover, with a split of 9.8% taxes borne and 10.7% taxes collected.

25 The average TTC to turnover was 27.31%, the median was 23.5%, and trimmed mean was 23.1%.

FIGURE 20
Total Tax Contribution as a percentage of turnover for FS companies

In 2007, TTC as a percentage of turnover was 15.4%. In 2009, during the recession, it rose to 18.7% as turnover fell more than taxes. This in turn reflects the impact of non-profit related taxes. Turnover recovered in 2010, but since 2011 it has been slowly declining. Turnover increased in 2017, resulting in a decrease in the ratio, as shown in Figure 20.

FIGURE 20
Total Tax Contribution as a percentage of turnover for Financial Services companies
Comparison of the ten study results



Gross Value Added

The tax contribution of the FS sector can be compared to the Gross Value Added (GVA) of the sector[26]. In 2016 the GVA for the FS sector represented 7.2% of UK GVA[27]. In the same year tax receipts for the FS sector amounted to 11.0% of total government tax receipts.

Taxes borne and collected as a percentage of value distributed

The TTC can be put in the context of value created and distributed by companies. Value is distributed to the government in taxes, to employees in wages, and is retained in the business for reinvestment or distributed to shareholders. Figure 21 shows how the value generated by the FS sector is distributed across the economy, with taxes borne and collected representing 46.3% of the total.

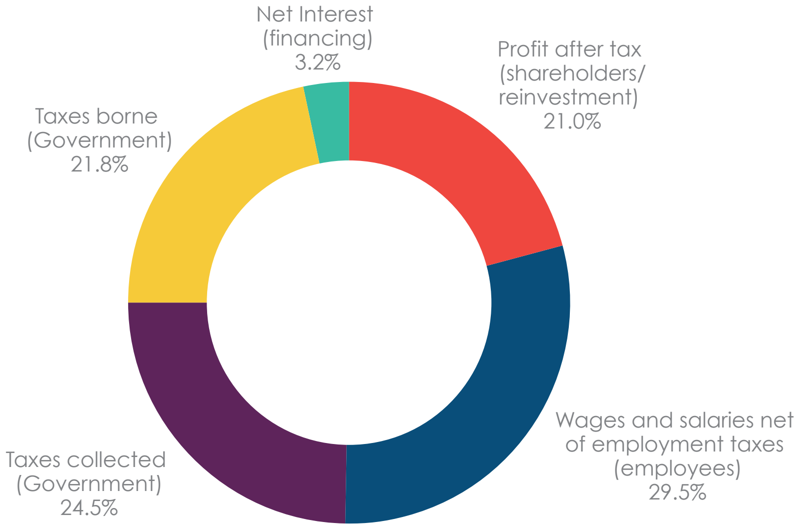
26 An industry's contribution made to economic output is typically measured by calculating the Gross Value Added (GVA), which is a measure of the economic value added of an industry.

27 http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06193

FIGURE 21

Taxes borne and collected as a percentage of value distributed

Chart shows the average result for insurers in the study.



8.
The broader picture

Over the last 6 years, participants have spent £28.3bn in capital investment and invested £2.3m in research and development.

The FS sector makes up 2% of the UK's VAT / PAYE registered firms but 24% of total turnover.

Wider economic contribution

For the sixth year running, we asked companies to provide information on their wider economic contribution in the form of capital investments and research and development expenditure.

41 companies provided data on their capital expenditure in the period under review totalling £2.4bn; 17 companies provided data on research and development expenditure of £510m.

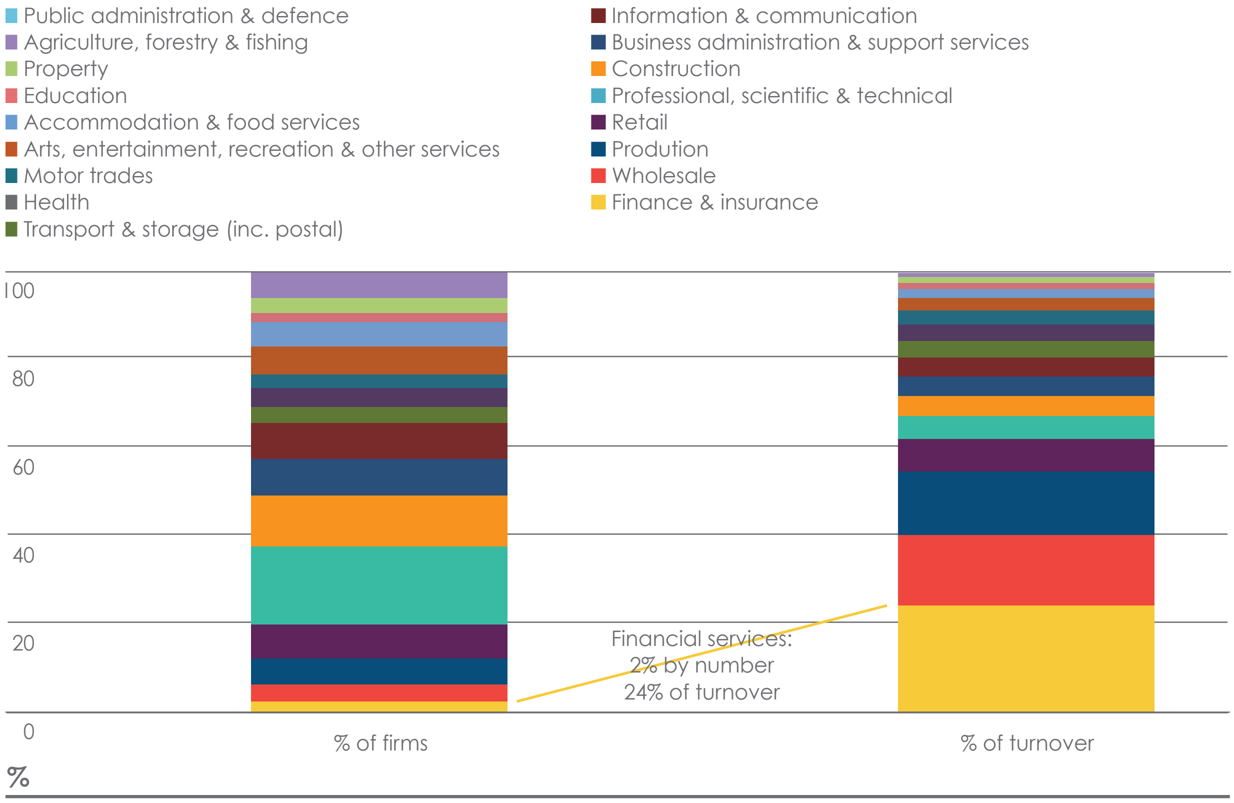
We have collected data on the wider economic contribution since 2011 and over the six-year period companies in the survey population have made capital investments totalling £28.3bn and invested £2.3bn in research and development.

The FS sector in the context of the broader economy

ONS data shows the turnover from different sectors of the economy and the number of firms contributing to that turnover. This data emphasises the contribution made by large FS firms. As Figure 22[28] shows, the FS sector represents 2% of the number of the UK's firms registered for VAT / PAYE but those firms represent 24% of total turnover.

28 Source: http://colresearch.typepad.com/colresearch/london/

FIGURE 22
UK firms sector proportions by number and turnover



Appendices

The following appendices detail the purpose and outline of the study, recent changes in UK tax policy, the UK taxes borne and collected by financial services companies, and the data provided on total taxes borne and collected by the 50 financial services companies taking part in the study.

Appendix 1

Purpose and outline of the study

Estimating the size of the FS sector's tax contribution

This is the tenth study we have carried out for the City of London Corporation. It looks at the TTC of the FS sector in the UK for the year to 31 March 2017. The purpose of all ten studies is to estimate the size of the contribution that the FS sector makes to tax revenues in the UK, how this has changed over time, and how it has been affected by the economic climate and changes in government policy.

The Total Tax Contribution methodology

The studies which look at all the different taxes that companies pay and administer, including corporation tax, employment taxes, VAT, and other taxes, some of which are sub-sector specific. The study reports on both the taxes that are borne by these companies, as well as the taxes they administer and collect on behalf of the Government.

The distinction between taxes borne and taxes collected

The Total Tax Contribution methodology makes a distinction between taxes borne and taxes collected.

Taxes borne are all the taxes levied on a company, which are its cost and will affect its results. They include corporation tax, employers' NIC, irrecoverable VAT, and business rates. Taxes borne are a company's direct contribution to tax revenues. **Taxes collected** include employee income tax and NIC administered through the payroll, and the insurance premium tax charged to customers. These are the taxes of employees and customers respectively, but are collected from them by companies and paid over to the Government. Taxes collected are generated by a company's business activity and are part of its indirect contribution to tax revenues. Appendix 3 lists these in full.

How we collected the data

This tenth study has been carried out using data provided by of 50 FS companies on all their UK tax payments. These companies employed 38.4% of the UK FS sector workforce and include UK based banks, foreign banks, insurers, asset managers, real estate companies and other FS sector companies. The results are a measure of their cash taxes paid, covering both taxes borne and taxes collected. The results provide information which would not otherwise be in the public domain, since this is not information companies are required to disclose in their financial reports. PwC has anonymised and aggregated the data provided by the FS companies to produce the study results. PwC has not verified, validated, or audited the data and cannot therefore give any undertaking as to the accuracy of the study results. Where we refer to data published by the Government and HMRC, this is clearly indicated.

A note on the time period covered

This tenth study looks at tax payments by FS companies in their accounting period ended in the tax year to 31 March 2017; for the majority (74%), this is the calendar year to 31 December 2016. The first study we carried out looked at tax payments by FS companies in their accounting year ended in the tax year to 31 March 2007. The ten studies therefore measure years from before, during and after the financial crisis and the impact of these events on UK tax payments by the sector can be seen in the results. All ten studies use the same methodology and we are therefore able to compare the results.

Putting the Total Tax Contribution report in context of the current debate on tax transparency

September 2016 saw the requirement come into force for large companies to publish a tax strategy as it relates to UK taxation. While some FS companies are focusing on the mandatory requirement, others see it as an element of the broader transparency agenda, of which TTC is a part. In a second move towards greater transparency, some large companies will be required to file their "country-by-country" disclosures with tax authorities by the end of 2017. While a number of FS companies make "country-by-country" disclosures under Article 89 of the Capital Requirements Directive IV, this is a further move towards increasing scrutiny of companies' tax affairs. Total tax contribution disclosures are helpful in raising the visibility of other business taxes paid in addition to corporation tax, as well as demonstrating the total tax contribution of the sector to the UK public finances.

Appendix 2

Recent UK tax changes

This tenth study shows the impact of recent legislative changes in the UK tax system and broader economy. The changes that have occurred to the UK tax system and which might be expected to have a significant impact on the Total Tax Contribution of the FS sector in the UK are:

- On 23 June 2016, the UK voted to leave the EU. There is still uncertainty over the impact this will have on the FS sector.
- From 1 January 2016, the government introduced an 8% surcharge tax on the taxable profits of banks with certain reliefs added back (any group relief for the period from non-banking companies and any relief arising before 1 January 2016).
- The 10% starting rate on savings was abolished from April 2015 and replaced by 0%. In addition, the requirement for banks to deduct tax at source was removed from April 2016.
- The bank levy was introduced in 2011 and was intended to raise £2.5bn a year from banks operating in the UK. Following the introduction of the bank surcharge, there will be a gradual reduction in the bank levy. The rate for long term chargeable equity and liabilities was 0.105% from April 2015 to December 2015, from January 2016, the rate decreased to 0.090% and from January 2017 to 0.085%. The rate for short term chargeable equity and liabilities was 0.210% from April 2015 to December 2015, from January 2016, the rate reduced to 0.18% and from January 2017 to 0.170%.
- In the Autumn Statement 2014 it was announced that the amount of taxable profit that could be offset by banks' historic carried-forward losses would be restricted to 50% from April 2015. In 2016, this was further restricted to 25%.
- Legislation was introduced to restrict the deductibility of compensation expenditures arising on or after 8 July 2015 covering all compensation costs.
- Personal allowance threshold for income tax increased from £10,600 to £11,000 in 2016/17. The higher rate threshold decreased from £31,865 to £31,785 in 2015/16.
- The rate of insurance premium tax (IPT) increased in October 2016 from 9.5% to 10%. The rate is due to increase to 12% as of June 2017. The increase in the rates is due to generate £855m by 2022.
- From April 2015, pension freedom reforms removed the need to buy an annuity, allowing pensioners to make drawdowns of their pensions and savings. While 25% is a tax-free lump sum, insurers deduct PAYE on drawdowns in excess of these amounts.
- The rate of corporation tax remained at 20% in 2015/16 and 2016/17. It will fall to 17% in 2020.
- Looking forward, the apprenticeship levy was introduced in April 2017. At 0.5% of total employer's wage bill, this is likely to be a significant contribution from the FS sector.

Appendix 3

List of UK taxes borne and collected by financial service companies

	Tax borne	Tax collected
Profits taxes		
Corporation tax	✔	
Bank Surcharge	✔	
Tax deducted at source[29]		✔
Property taxes		
Bank levy	✔	
Business rates	✔	
Stamp duty land tax	✔	
Stamp duty	✔	
Stamp duty reserve tax	✔	✔
People taxes		
Income tax under PAYE		✔
PSA (tax on benefits)	✔	
Employees' national insurance contributions		✔
Employers' national insurance contributions	✔	
Product taxes		
Net VAT		✔
Irrecoverable VAT	✔	
Custom duties	✔	
Insurance premium tax	✔	✔
Air passenger duty	✔	
Fuel duty	✔	
Vehicle excise duty	✔	
Planet taxes		
Landfill tax	✔	
EU ETS borne	✔	
Carbon reduction commitment	✔	
Congestion charge	✔	
Climate change levy	✔	

29 Tax deducted at source from, for example, interest, royalties, subcontractors, PAYE on annuities, withholding tax on Property Income Dividends and others.

Appendix 4

Data provided by 50 financial services companies taking part in the study

Taxes borne and collected in their accounting year ended in the year to 31 March 2017.

Tax borne		£Millions
Profit taxes	Corporation tax	4,437.4
	Bank Surcharge	521.1
Property taxes	Bank levy	2,809.2
	Business rates	654.8
	Stamp duty land tax	111.6
	Stamp duty/stamp duty reserve tax	100.4
People taxes	PSA (tax on benefits)	61.5
	Employers' NIC	3,634.6
Product taxes	Irrecoverable VAT	4,237.0
	Insurance premium tax	12.3
	Air passenger duty	7.0
	Fuel Duty	4.9
	Vehicle excise duty	26.0
Planet taxes	Landfill tax	0.6
	Carbon reduction commitment	13.6
	Climate change levy	7.0
Total taxes borne		**16,639.0**

Taxes collected		£Millions
Profit taxes	Tax deducted at source	3,782.3
Property taxes	Stamp duty reserve tax	1,381.1
People taxes	Income tax under PAYE	9,733.7
	Employee's NIC	1,514.5
Product taxes	Net VAT	(30.9)
	Insurance premium tax	1,781.1
Total taxes collected		**18,161.8**

Total tax contribution		**34,800.8**

City of London Corporation Research Report

Total tax contribution of UK financial services

TENTH EDITION

CITY OF LONDON

In association with

pwc

KPMG

Value of Fintech

CITY OF LONDON

October 2017

Foreword

The UK is currently well-established as a world-leading financial and business services centre, and a global hub for fintech.

We know that financial services are just that, namely services enabling businesses, consumers and investors to access products and services which in turn allow them to achieve their respective ends. We also know that fintech businesses increasingly hold significant importance to the UK economy, particularly following the remarkable growth in those businesses in recent years.

Fintech is however often, and in our view wrongly, understood to be separate from financial services. In fact, we believe that fintech is an evolution of financial services and that every business in the sector must engage with it if they are to survive. The City has reinvented itself many times – fintech is, put simply, the latest iteration of this evolution of how financial services will better meet the needs of its business, retail and institutional customers.

So what is its value?

This report, commissioned by the City of London Corporation and produced by KPMG, seeks to ‘unpack’ the term "Fintech" and its value, not only to financial services but also to other areas of the economy. It considers the position of SMEs, and whether they stand to benefit more from fintech than they have through financial services conventionally delivered. It also aims to demonstrate how fintech will continue to open access to financial services to individual consumers, particularly those hardest to reach.

The key recommendation is for a sector deal for fintech that reinforces and cements the UK as the leading global hub for fintech and as the number one destination for fintech businesses. This will develop a single policy vision for fintech, coordinate open standards, enhance regional engagement and support talent development and greater access to capital for fintech businesses.

Ultimately if we can achieve this, our financial and related professional services businesses will continue to lead the way in providing products and services effectively to consumers by improving financial inclusion, enhancing the customer experience, and increasing transparency, compliance and security.

And surely that is the value of fintech.

Catherine McGuinness
Chairman of Policy
City of London Corporation

Introduction

Page 43

Fintech has grown rapidly in recent years, driven by technological advancement, changing customer expectations, availability of funding and increasing support from governments and regulators. This report considers the value fintech creates for individuals, small businesses and society, and what makes a successful fintech ecosystem.

Building upon a range of data sources, including KPMG's Pulse of Fintech report and the results of KPMG's global survey of fintech activities in financial institutions, the report is based on more than 40 interviews with fintechs, incumbent financial services companies, industry associations, Government agencies, and capital providers.

We found numerous examples of how fintechs enhance the role of financial services firms and help them provide products and services more effectively, identifying five principal themes - improving financial inclusion, enhancing customer experience, increasing transparency, improving security and compliance, and providing support and guidance.

The UK has a strong position as a global fintech hub, reflecting its large financial services sector and sophisticated customer base. The UK's government and regulators have actively supported fintech growth by creating an open market environment and taking practical steps. A clear theme through interviews was how other countries are making significant progress in attracting fintech, taking steps to attract and retain talent, improve the regulatory environment, and improve the availability of capital.

In an increasingly competitive global market, there is a need for the UK to establish a single and consistent position on fintech which will enable the sector to more effectively market itself as a good destination for fintechs and as a source of fintech services.

Additional steps could be taken to improve policies and regulation, for example by clarifying the perimeter between regulated and unregulated activities and building upon the successes of sandboxes with further regulatory support. There is considerable scope to identify and assist UK regions to become regional hubs and enablers of the growth of the wider fintech ecosystem. Further improvements to infrastructure, support for talent development, and promotion of the UK as a global fintech hub will contribute to the continued success of this vibrant and valued sector.

Paul Merrey

Partner

Global Strategy Group
KPMG in the UK

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Contents

01. Executive summary

Executive summary: The fintech landscape

Fintech is an evolution of financial services driven by technology, changing customer expectations, availability of funding, and increasing support from governments and regulators.

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Fintech and key drivers of growth

Fintechs, businesses which use technology to transform or enable business and operating models in the financial services (FS) sector, have grown significantly in recent years.

Fintechs have seen close to $1.5 billion in investments into banking, insurance and asset management each year since 2014.

The growth of fintechs has been primarily driven by four factors.

- **Technological evolution:** Fast pace of technological developments combined with reduction in cost of technology.
- **Emerging customer expectations:** Customers now demand digital services and experiences similar to other sectors.
- **Availability of funding and capital:** Funding into fintechs has increased significantly in the last several years.
- **Support from governments and regulators:** Both governments and regulators recognise fintech as the evolution of financial services and proactively support them.

Fintech focus areas in banking, insurance and asset management

Fintechs are challenging traditional business models across banking, insurance and asset management.

- **Banking:** The largest share of fintech investment has been in banking, with payments and lending being the dominant area comprising approximately 65% of all banking fintech investments. Personal finance, peer-to-peer (P2P) services, money transfer and trading platforms are other growth areas.
- **Insurance:** Insurtech is increasingly attracting investment across distribution, underwriting and servicing. Fintechs provide new products such as on-demand and P2P insurance. Internet of Things (IoT) and analytics have also enabled the industry to offer new digital distribution platforms and more effective claims management.
- **Asset management:** Fintechs are changing how products are distributed and advice is delivered in asset management.
- **Financial education:** Fintechs have enabled the financial services industry to deliver tools to help educate customers and manage their finances better.

Fintechs have implications for the consumers government, regulators and the industry

Fintechs overall drive benefit to society.

- **Consumers:** Fintech adoption has increased globally with a third of customers indicating that they use at least one non-traditional FS firm. While fintech requires digital capabilities, they significantly increase choice and value and empower consumers.
- **Government and regulators:** As fintechs drive opportunities for economic growth and consumers increasingly adopt them, governments and regulators are required to keep pace with technology and provide a regulatory environment which encourages innovation and ensures consumers are protected.
- **Financial services industry:** Business and operating models of incumbents are challenged by new fintechs. Incumbents are required to embrace new technologies either through building capabilities or partnerships and acquisitions.

Executive summary: Value of fintech

Fintechs supplement the traditional roles of the financial services industry by helping incumbents provide products and services effectively and expanding the reach of the industry.

1. Improving financial inclusion

Fintechs enable provision of new products and services to customer groups who haven't been able to access traditional financial services. These are made possible through:

— The provision of simple products at lower costs (for example, Cuvva, Transferwise).

— Helping underbanked with innovative solutions (for example, αire, Doreming).

— Providing small and medium sized enterprises (SMEs) with funding access (for example, iwoca).

5. Providing support and guidance

Navigating complex financial services and products can be difficult for end users. Fintechs, through the use of technologies such as Artificial Intelligence (AI) and big data analytics, provide tailored customer support and guidance in a cost efficient way. Examples include Neos in insurance for risk tracking, Oval in banking and Nutmeg in asset management.

4. Improving security and compliance

Retail and SME customers are vulnerable to fraud, cyber attacks and other online risks. For example, 74% of UK small businesses reported a cyber security breach in 2015 and financial fraud losses across payment cards, remote banking and cheques totalled approximately £770 million in 2016.

There are multiple fintechs which help businesses to detect fraud (for example, Ravelin) and manage risks and compliance issues (for example, Trulioo, Covi Analytics).

2. Enhancing customer experience

Empowered by new technology, fintechs are able to offer personalised services and communicate interactively with customers, significantly enhancing customer engagement and experience.

— Simple and engaging interaction with customers (for example, RighIndem in claims management and Boundlss in digital health).

— Simplified solutions for SMEs such as those provided by iZettle and Tide.

3. Increasing transparency

Trust is the foundation of the financial services industry. Fintechs enable financial services companies to increase clarity of services and products, and provide transparency on fees and charges. The following examples illustrate fintechs which help improve transparency and increase trust:

— Simply Business and Bold Penguin in commercial insurance brokerage.

— Pension Bee in pensions and savings management.

— Brolly in retail insurance.

Executive summary: UK and London as a fintech hub

The UK, and London in particular, is seen as a leading global fintech hub supported by a large financial services market, forward-looking government and regulators supportive of innovation.

Key attributes	Description	UK and London fintech market
Availability of market for fintech services	Strong market demand is a fundamental driver of fintechs. Successful fintech hubs have a large local market (UK, US and China) or act as gateways to a larger market (for example, Singapore and Hong Kong).	The UK financial services industry has revenues of approximately £200 billion, making up approximately 11% of GDP, providing a significant market for fintechs. Additionally, the UK market has a high proportion of consumers with digital skills.
Pool of capital to support fintechs	Availability of funding for fintechs at different stages of maturity and through various funding sources (seed funding, private VC funding, government-backed schemes etc.) is critical for a leading fintech hub.	The UK has good availability of capital for early-stage companies through a strong seed funding landscape and the supportive environment created by the Government. However, the UK has limited growth capital to support late stage start-ups.
Government participation and support	Government has a significant role to play in the development of the fintech market by creating a fintech friendly business environment through progressive policies, tax incentives and programmes.	The UK Government is perceived as very supportive of fintech growth. The Government has been proactive through initiatives such as the newly established the FinTech Delivery Panel, the Financial Services Trade and Investment Board (FSTIB) FinTech Steering Group and enabling Fintech Bridges.
Regulatory environment	Regulatory requirements can be complex for start-ups, especially in the financial services sector. A start-up friendly regulatory environment is important to attract and nurture fintechs.	The UK regulators, the PRA and FCA, are seen as global leaders, providing a regulatory environment that is amenable to fintech growth. Such initiatives include the FCA Project Innovate and regulatory sandboxes, and the PRA/FCA New Bank Start-up Unit. The industry believes that the regulators can further enhance fintech growth through additional initiatives.
Availability of talent (FS, tech, entrepreneurial)	Availability and access to technology and financial services skills and entrepreneurial talent will drive growth of the fintech market.	The UK and London have a good talent pool to support the growth of fintechs. Brexit has elicited significant concerns around availability of tech and entrepreneurial talent in the future. The government and industry recognise the need to address this potential issue.
Quality of infrastructure to support fintech development	Fintechs require affordable and accessible infrastructure (for example, office spaces), including ancillary services to enable them to grow effectively.	The availability of infrastructure related to technology and services is considered adequate in the market. Fintechs would benefit from more working spaces with ready ancillary services.

Executive summary: Recommendations

We have outlined ten suggested actions for the Government, financial services industry and the wider fintech ecosystem to consider. In addition to helping the UK maintain its leadership as a global hub for fintechs, we believe that these activities would support the UK's financial services market deliver greater value to society.

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1 Secure a fintech sector deal

The UK is considered a global hub for fintechs with significant support from the Government, regulators and the wider financial services industry. We recommend that fintechs, through organisations such as the the City of London Corporation, Innovate Finance and other agencies secure a sector deal through which the Government and the industry can collaborate to further cement the UK's position as a global leader in fintech, help financial services sector deliver relevant products and solutions to retail customers and businesses, and engage regional development and growth.

Within the sector deal, the fintech industry should collaborate and commit to support the Government in developing a single public policy, vision and strategy for fintech, driving harmonisation / equivalence of standards and regulations for fintech, and supporting fintech bridges with other countries. Additionally, the industry should help the Government enhance regional engagement and integration, and the development of talent that will support the development of fintech and the wider financial services industry.

2 Provide clarity on regulatory perimeters applicable to fintechs

The UK Regulators, the PRA and the FCA, are perceived as proactive in supporting the development of fintechs in the UK and London.

To further support fintechs and the existing financial services companies investing in technology, the regulators should develop and issue fintech specific guidance on regulatory perimeter, provide further clarity on operational and conduct requirements (such as risk, data, processes and technology) and publish / share a pipeline of regulatory activities related to fintechs.

3 Build on the success of the regulators and establish procedures to support fintechs on regulatory requirements

The activities of the PRA and the FCA have firmly established a favourable environment for fintechs. The regulators should identify opportunities to simplify authorisation by further embedding the process within the sandbox. The regulators could also broaden support by setting up specialist fintech teams focused on specific capabilities. Additionally, the PRA could start providing clarity on prudential and solvency requirements as they would apply to fintechs.

4 Identify and support UK regions to become hubs and enablers of fintech growth

The Government should lead initiatives to enable the growth of fintechs across the regions. This could be driven by ensuring fintech is a priority on the agendas for regional and local development plans, local enterprise partnerships (LEPs), identifying regions and cities based on existing infrastructure and capabilities as potential hubs and providing incentives (funding and capital in development plans) for fintechs and financial services companies to consider regions for their fintech activities.

Executive summary: Recommendations

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5 **Support fintechs in developing partnerships with incumbents**

Fintechs face significant challenges in getting traction and securing support from incumbents within the financial services industry. The Government could explore opportunities to develop and implement programmes to enable fintechs to access partners.

Industry incumbents should also work with Innovate Finance and similar organisations to articulate what they need from fintechs.

6 **Conduct activities to advocate the value of fintechs**

Narratives around fintechs have focused around incumbents and start-ups with little focus on the value delivered to the end customers.

Successful fintechs, Innovate Finance and wider financial services firms should work together to demonstrate the value delivered through fintechs to the end customers. This will help drive adoption by individuals, SMEs and corporates.

7 **Promote and position UK as a global hub for fintechs**

Given the size of the UK financial services industry, the UK will continue to be attractive to fintechs. The Government should continue to build the UK's profile as a global fintech hub by developing a fintech policy position, vision and strategy to lead international efforts on cooperation and equivalence of regulations and standards (for example, data protection and privacy). This will require the Government to provide as much clarity as possible on Brexit and in the short-term, implement a campaign to engage the fintech ecosystem.

8 **Identify and unlock sources of funding for late-stage start-ups**

The UK has good supply of capital from angel investors and venture capital funds for early-stage start-ups. To make more capital available to late-stage start-ups, the Government should identify and implement measures to unlock the institutional market including pension funds in its Patient Capital review, replacement funds for the European Investment Fund (EIF) by working with British Business Bank and the industry, and review the competitiveness of the existing tax regime for capital providers.

9 **Review and provide critical infrastructure and ancillary services available to fintechs**

The Government should explore opportunities to develop a fintech cluster to further support and drive growth. The Government and industry should also review existing facilities available to fintechs in and outside London and address gaps with wider stakeholders such as property owners, City Property Association and the City of London Corporation's own Property Advisory Team. Fintechs and Innovate Finance should collaborate closely with ancillary services providers.

10 **Retain existing talent and pipeline and implement measures to address existing and emerging gaps**

Fintech is an evolution of financial services sector and will be fundamental to the UK economy. The Government should review the impact of Brexit on talent and consider measures to retain and attract tech, financial services and entrepreneurial talent. The Government should also work with the private sector and higher learning institutions to develop fintech specific training and courses to boost the domestic skills supply.

02. The fintech landscape

What is fintech?

Fintechs are businesses which use technology to transform or enable business and operating models in the financial services sector.

What is fintech?

- Businesses that use **technology to change how financial services are offered** to end customers.
- Firms that **use technology to improve the competitive advantages of traditional financial services firms** by improving efficiencies, and driving new products and solutions for customers.

Fintech generally excludes pure technology providers, such as large software companies, which provide unregulated services to financial institutions.

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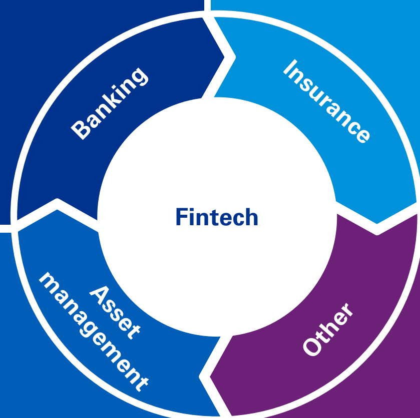
Fintech broadly covers the following four areas:



Banking

- **Personal finance**: monitoring spending, savings, credit scores, tax liabilities through technology-driven services as well as providing basic retail banking outside of traditional banking.
- **Payments/transactions:** using technology to provide the transfer of value as a service; also companies whose core business is predicated on distributed ledger technology and / or relating to use of cryptocurrency.
- **Lending**: using technology platforms to lend money to new / existing customer segments, including SMEs, using data and analytics.

Insurance

- **Products and solutions:** using data analytics and technology (for example, IoT and wearables) to develop new insurance products (for example, on-demand and peer-to-peer insurance, non-standard insurance) and propositions (for example, wellness).
- **Distribution**: using digital platforms and aggregators to provide insurance products in a targeted manner.
- **Servicing and claims management:** focusing on improving services and overall insurance experience (for example, policy processing and claims management).

Asset management

- **Distribution:** offering wealth or investment management services to retail investors via platforms. Platforms include simplified interfaces/systems and tools for insights and investments.
- **Advice:** propositions using algorithms to support the advice process. Often called robo-advice, they provide access to customer segments who cannot afford traditional advisers.
- **Portfolio management:** use of artificial intelligence and machine learning for management of portfolio.

Other cross-industry propositions

- **Capital markets:** providing various types of financial intermediation services, which were historically performed by investment banks and brokerage firms.
- **Business-to-business fintech:** offering technology-driven solutions and services specifically for other enterprises or financial institutions. For example, software to automate financial processes, and enhance financial security (excluding blockchain), authentication, and make strategic decisions.
- **Regtech:** facilitating and streamlining regulatory compliance by leveraging new technologies, such as big data and machine learning.

Fintech - An evolution of the financial services industry

Fintech is a radical evolution of the financial services industry, driven by a combination of technology advancements and changing customer expectations.

Fintech has grown significantly in recent years. Investments peaked in 2015 with a total deal value of $60 billion globally.

Banking has led the growth of fintech with insurance and asset management beginning to catch up.

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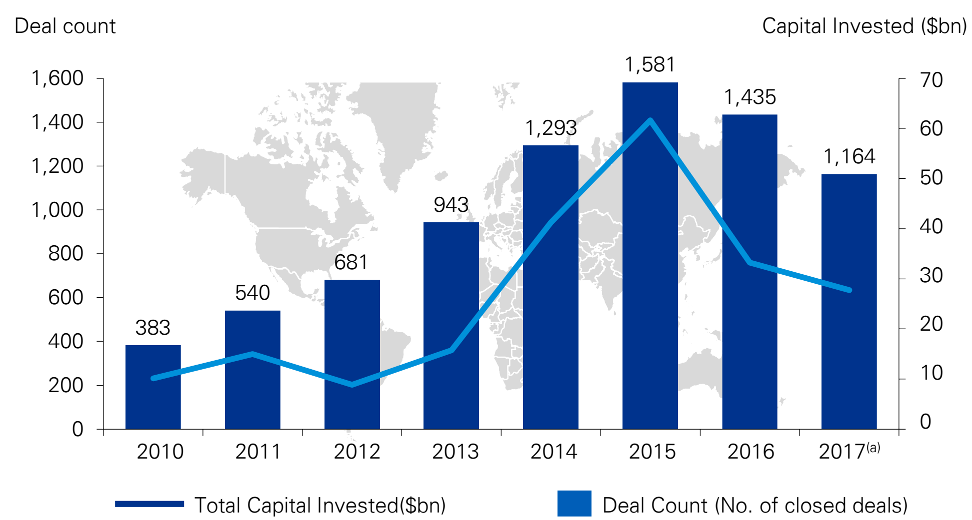
Figure 1: Total global investment (VC, PE and M&A) in fintech companies[1][a]



Note: (a) Estimated value and number of deals for the whole year, based on first three quarters' figure.

Banking

- Payments and lending have been the key sub-sectors driving fintech in banking historically, with a number of them in the top 20 fintech unicorns globally (VC-backed companies valued at over $1 billion).
- Since 2016, investments into payments and lending fintechs have decreased, especially in the developed markets. Main focus expected to move from early-stage funding to late stage financing or exit.
- New fintechs have emerged in personal finance, money transfers and similar areas.

Insurance

- Many traditional insurance companies have been focused on IT systems and regulatory transformation programmes, with limited funds to invest in innovation. Hence the industry has lagged behind others in technological innovation.
- Interest in insurtech grew substantially during 2016. Global venture investment in insurtech companies totalled 175 deals, raising $1.7 billion of capital.[2]
- Although most deals have remained small, larger deals are expected in coming quarters as early-stage insurtechs mature and the incumbents adopt more innovations.

Asset management

- There has been steady increase in interest in asset management from both Venture Capital (VC) and Private Equity (PE) firms.
- Since 2010, institutional investors have made $11.4 billion of private investments in financial technology firms in the asset management space. The peak in capital invested occurred in 1Q 2016 with $1.9 billion.[3]
- The last four quarters did not see outside financing skewing figures. It was mainly companies raising conservative late-stage funding.

Drivers of fintech

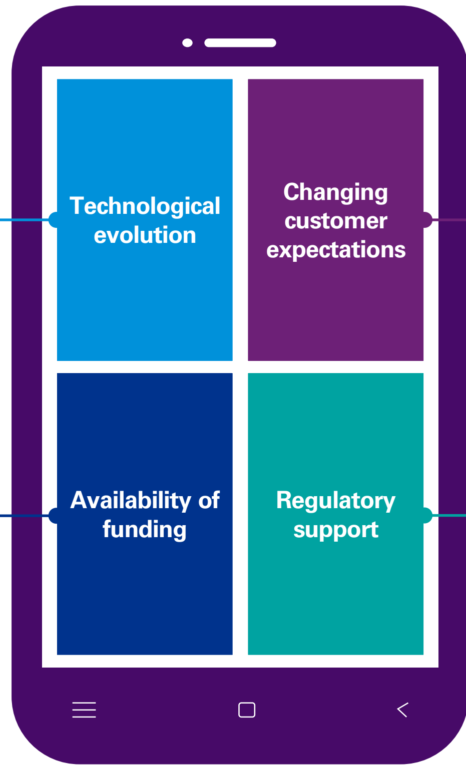
Fintech has grown rapidly, enabled by technological evolution, changing customer expectations, availability of funding and increasing support from governments and regulators.

Fintechs, having no legacy constraints, are ideally placed to take advantage of opportunities arising in the midst of technological evolution

— Fast pace of technological developments including data analytics and the rise of new channels, such as mobile and online, opened new possibilities to those that were ready to adapt (with no legacy systems).

— Technology cost has been decreasing very fast, for example, average cost of storage has declined by 31% per annum over the last 10 years.[(4)]

"New technologies could transform wholesale payments, clearing and settlement, […] saving tens of billions of pounds of bank capital and significantly improving the resilience of the system".[(5)]



Changing customer expectations and their demand for digital services have called for innovative solutions from traditional players and fintechs

— Customer expectations are changing with a growing demand for better experience and service, inspired by digital interfaces delivered by technology companies such as Apple, Google, Facebook etc.

— 63.1% of consumers across the globe have started using fintech products and services.[(6)]

"Solutions that have the potential to impact the customer experience, such as predictive analytics, are particularly well-positioned for future growth".[(7)]

Easier access to funding and capital enables entrepreneurs and founders to start new ventures and innovate in new products and business models

— Funding is available in various forms to support fintechs at different stages of growth.

— For example, seed capital from angel investors and accelerators to nurture initial start-up activities, VC funds and corporate venture vehicles.

"VCs invested $13.6bn of funds globally in fintech in 2016".[(8)]

Support from the governments and regulators may lower barriers to entry into services within the financial services industry

— Some governments have started recognising the important role fintechs can play in facilitating and supplementing traditional roles of financial services companies.

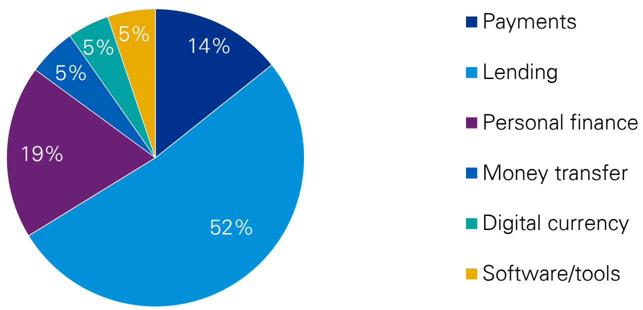
— Regulators are proposing new policies, regulatory changes and facilities such as fintech sandboxes to facilitate fintech activities, creating a conducive environment for fintech.

"In 2016, governments across five countries announced the development of regulatory sandbox programs".[(8)]

Fintech propositions in banking

Fintech propositions in banking revolve around retail and SME customers, with a focus on payments, lending and personal finance.

Figure 2: Fintech companies by proposition[8][a]



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Key developments

- Focus areas for fintechs have been in banking related technology, 'with over 70% of investments focusing on the 'last mile' of user experience in the consumer space'.[9]
- Retail and SME lending, and tools for personal finance and payments have seen most innovations.

Key drivers

- Consumers' expectations for quality service have risen, as they are used to better digital experiences offered by tech and retail companies.
- High penetration of smartphones and other connected devices has enabled adoption of digital solutions.
- By innovating to provide user friendly products, fintechs have gained traction with end customers.

Focus areas within banking

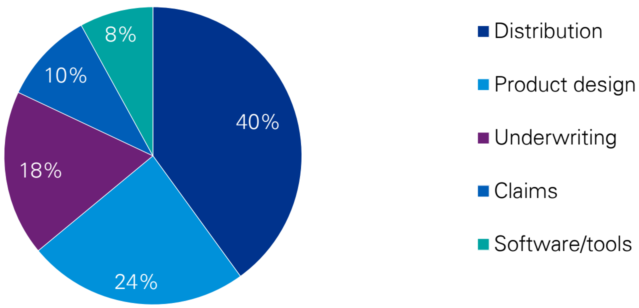
Payments	**Payments systems** Includes Point-of-Sale products and services (card readers, stands, and digital storefronts), and online payment systems.	**Billing, automation & streamlining** Solutions to streamline invoicing and automate financial processes and billing, targeting SME clients; includes trading platforms.
Personal finance	**Personal finance** Digital platforms to monitor spending, savings, credit scores or tax liabilities.	**Online / Mobile banking** Digital banking, deposit and current account solutions, primarily via mobile or online platforms.
Lending	**Direct lending and underwriting** Use of machine learning technologies and other non-traditional methods to assess creditworthiness of individuals and businesses, including SMEs.	**Peer-to-peer lending** Online platforms for consumer borrowers / SMEs to connect with willing lenders.
Other	**Money transfer and FX services** Digital solution for sending money across borders quickly and cheaply.	**Cryptocurrency payments** Using digital currencies, for example bitcoin, to make payments faster and more secure.

Note: (a) Analysis was conducted based on 356 fintechs listed in the report 'FinTech 250' by CB Insights 2017.

Fintech propositions in insurance

Insurtechs have started offering innovative and better services for both retail and SME customers from distribution through to servicing.

Figure 3: Fintech companies by proposition[8][10][a]



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Key developments

- Insurtechs have expanded beyond distribution across the whole value chain to underwriting and claims.
- They are driving new products, better risk selection and pricing, and servicing (including improved claims management).
- New business models such as peer-to-peer (P2P) insurance and on-demand insurance are emerging.

Key drivers

- Strong need for the insurance industry to evolve and replace slow and manual legacy processes and systems.
- Consumers are demanding faster and real-time pricing, claims decisions, more transparency and easier ways to choose / switch insurers.

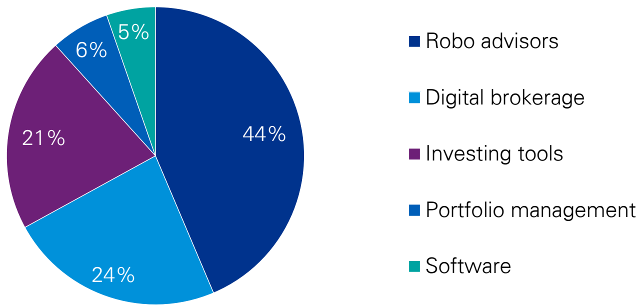
Focus areas within insurance		
Product design	**On-demand insurance** Specialised insurance covering risks based on specific activities at certain times.	**Insurance coverage dashboard** Apps that provide analysis of existing coverages and advice on purchase.
Distribution	**Digital distribution platforms** Aggregators focus on user interaction, online brokerage and price comparison platforms.	**Peer-to-peer insurance** Business model allowing consumers to pool their capital, self-organise and self-administer their insurance.
Underwriting	**Connected devices** Inter-connectedness of physical devices, vehicles, buildings embedded with connectivity to collect and exchange data enabling better pricing.	**Telematics** Use of devices in cars and wearables to track customer behaviours and support better risk segmentation.
Claims	**Digital claims management** Apps which automate and speed up the claims process allowing insurers to process them virtually and deliver better customer services.	**Fraud management** Fraud detection and management solutions using big data and analytics, AI and machine learning.

Note: (a) Analysis was conducted based on 111 Insurtechs listed on insuretech.com

Fintech propositions in asset management

Asset management has seen fintechs innovate around advice and distribution.

Figure 4: Fintech companies by propositions[8][11]



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Key developments

— Growing interest in passive investing and increasing use of lower cost automated digital asset management services. For example, robo-advisors.

Key drivers

— Pressures on management fees have forced asset management firms to develop fintech solutions which enable cost reduction.

— Changing customer needs and increasing demand for digital experience requires new solutions, especially with millennials entering the asset management market.

— Innovative products attract sticky, younger and more tech-savvy users resulting in a recurring source of revenue.

Focus areas within asset management

Portfolio selection

Robo-advisors
Online platforms and applications providing fully automated, algorithm-driven investments and automated advisory solutions to retail customers.

Portfolio management
Software that helps centralise investment portfolios in a single platform, analyse/forecast portfolio performance and make portfolio allocation decisions.

Product selection

Digital brokerage
Alternative brokerage platforms for retail investors and software solutions.

Investment tools

Investor tools and networks
Research platforms and social networks providing access to a network of experts, user generated financial content and algorithmic technology for on-demand analytics to facilitate investment decisions.

Investment platforms
Platforms that enable customers to invest in a wide range of products.

Enhanced professional support by bringing conventional advisors and technology on the investment platform to provide an omni-channel experience.

Software & infrastructure

Blockchain
Use of Distributed Ledger Technology (DLT), Distributed Autonomous Organisation and smart contracts.

Analytical tools
Software that supports the operations of asset management firms.

Implications for consumers

Fintechs, despite requiring customers to be technologically savvy, have resulted in greater choices and increased ability to make financial decisions.

— Global fintech adoption has increased over the years with over a third of customers stating that they use at least one non-traditional financial services firm.

— Close to a fifth of investment management customers surveyed use only non-traditional providers.

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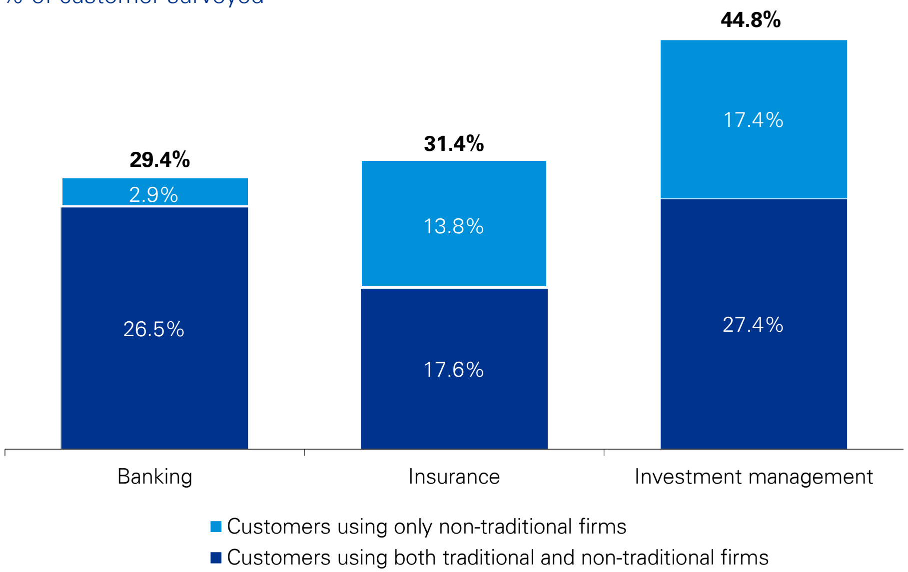
Figure 5: Customers who use at least one non-traditional firm for financial services, 2016[12]

% of customer surveyed



1 Increasing choice and value

Fintechs are introducing many alternative financial products and platforms providing consumers with more choice around product and access resulting in informed and cost effective decisions.

Reduction of the role of intermediaries and improvement in operational efficiencies enables fintechs to provide products and services at lower costs, and hence increase the returns for consumers.

2 Consumer empowerment

Consumers are changing the way they use and think about financial services. Fintechs provide consumers with dashboards and data which provide them more transparency and awareness of products, and control over their choices.

3 Dependency on digital access and capabilities

While fintechs deliver services and products efficiently at lower costs, consumers with limited digital skills or access to fast internet connections may find less value from fintechs. Where infrastructure and digital capabilities exist, fintechs enable governments to deliver financial services efficiently to millions of people with no or little access to traditional financial services.

Implications for governments and regulators

Governments and regulators recognise that fintech is a natural evolution of financial services and need to be actively engaged in its development.

Fintechs bring opportunities for economic growth and Governments need to create a supportive environment, in order to seize the opportunity for growth.

> Fintech is a positive disruption which a successful economy like Australia can and must embrace. Growing Australia's fintech capabilities will position Australia to seize new opportunities to develop export markets for our financial services technology in the transitioning economies of our major trading partners.
>
> — Government of Australia, 21 March 2016[13]

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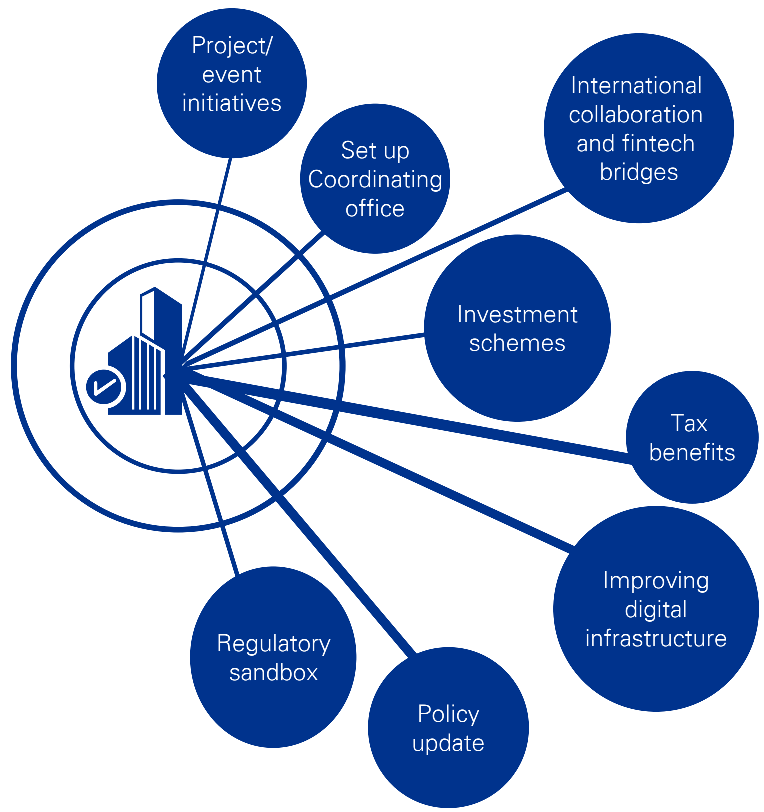
Government and regulators face a new industry landscape that requires new frameworks and capabilities to govern.

> FCA is (a) thinking about the needs of fintech innovators and entrepreneurs; (b) doing all it reasonably can, within a tight legislative framework, to welcome and encourage innovation; and (c) developing the skills of a team of people who are (presumably) interested in, and want to help, new businesses thrive.
>
> — FCA, 12 April 2016[14]

Governments around the world are acting to foster and support growth of fintechs. Regulators are refining or redeveloping their approach towards regulation and support offered to fintech innovations.

Main government and regulatory initiatives [a]



Note: (a) Based on analysis on five countries / regions: Australia, Hong Kong, Singapore, US, UK.

Implications for financial services institutions

Financial institutions increasingly feel compelled to embrace the innovations brought by fintechs.

Figure 6: Sources of disruption [15]

% of respondents selecting

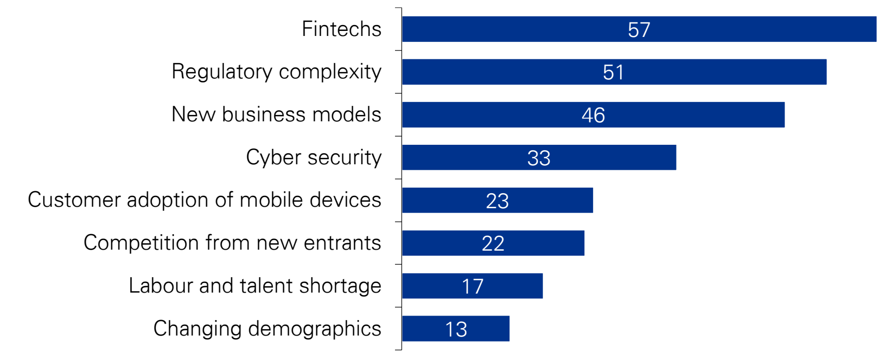


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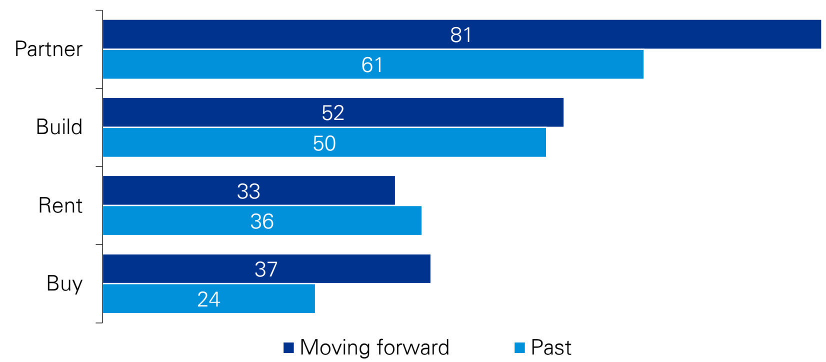
Figure 7: Approach towards fintech investment [15]

% of respondents selecting



Fintech as sources of disruption and innovation ...

Fintechs have disrupted the financial services sector by providing new services/product propositions, with better customer engagement and better quality services. Financial institutions have to keep pace with new technologies and business models, in order to compete with their new rivals.

Financial institutions recognise the potential risks. In a survey of 168 respondents within large financial institutions around the world, 57% identified fintechs as 'the greatest' source of disruption, ahead of regulatory pressure and other factors such as cyber security.[15]

Meanwhile, financial institutions also view fintechs as sources of innovation. Over 51% of the respondents ranked fintechs as the top source of innovation, with 21% ranking it as the second most important source.[15]

In response to the disruption from fintechs, financial institutions are looking to collaborate and embrace ...

Overall, financial institutions are now more likely to push forward their fintech development through partnership, self-build or acquisition.

Partnership appears to be the most popular strategy considered by financial institutions. Partnering with innovators will allow incumbents to bring new solutions to the market quickly.

For firms who have acquired fintechs, integration remains a challenge going forward. Only a third have successfully integrated fintechs into their firms.

Fintech landscape - Summary

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Fintech development

- Fintechs have grown rapidly over recent years and are likely to continue to grow. The **focus of fintechs** will gradually **move beyond customer experience improvement and distribution, to more innovative products**.[16]
- Meanwhile, growing pressure on traditional financial institutions to reduce their cost base will drive **more investment into fintechs that focus on middle and back offices**.
- Financial services institutions with more manual, complex and out-dated systems (for example, insurance) and business-to-business offerings will **benefit from fintech innovations using AI, robotics, blockchain, data analytics and cloud services**.
- Regulatory complexities are also bringing **regtech** and **insurtech** to the forefront of fintech investments.

Who does it affect?

- Along with consumer preferences and behaviours, technology has also changed the way consumers use financial services: they require **more cost efficient, easy to use and transparent solutions** which are able to deliver higher value through a digital experience.
- **Financial services institutions** recognise the importance of fintechs to innovation and are increasingly **more likely to acquire or partner** with fintechs.[17]
- **Regulators and governments** are seeing the uncertainties and challenges fintechs create. They are looking to **introduce new infrastructure and regulatory frameworks** in order to support and foster fintech development.

What is the response?

- To respond to the rapid technological evolution and mounting pressure from changing customers needs, **a strategy focused on collaboration may help financial institutions innovate and materialise ideas into outcomes quickly**.[18]
- The industry has come together in the past to bring revolutionary industry wide solutions (for example, SWIFT interbank payments network which was founded and is still owned by banks), so there is **a potential to see larger collaborations** (for example, applications for decentralised systems, blueprint for digital identity).
- As some of the fintech propositions start to mature, it is likely to see **more fintechs becoming an essential part of the ecosystem**. In addition, **more partnerships** will be seen in the areas where mutual benefits can be found: start-ups may offer use of their technology in exchange for access to growth capital, customer base and critical industry infrastructures (for example, regulatory permission).

03. Value of fintech

Role of the financial services system

A competitive financial services system provides individuals and businesses with access to financial products and services, facilitating everyday life and helping businesses thrive.

Banking

Banking services to support individuals and businesses

- Provides over 140 million current and deposit accounts in the UK, covering over 99% of the adult population.[19]
- Offers transfer and remittance services.

Payments infrastructure to facilitate transactions

- Facilitated approximately £647 billion spending through 14.8 billion purchases[20] in 2016.
- Supported businesses with £94 billion in retail sales through credit card transactions in 2016.[20]

Funding and liquidity services

- Lent an estimated £256 billion to homeowners in 2016, up 12% from 2015[21], helping people to climb up the property ladder.
- Lent £430 billion to companies across all industries (outstanding loan as of year end 2015).[21]

Insurance

Protection for everyday risks and losses

- £44 million was paid out each day in private motor and property claims.[22]
- Travel insurers paid out £365 million in claims to travellers whilst abroad.[22]
- Liability insurers pay out £7.2 million every day to protect businesses.[22]
- £400,000 paid per day in claims for trade credit insurance to protect business against financial distress.[22]

Protection of lives and planning for life events

- 5.4 million people in the UK have whole of life insurance and 0.6 million people have term life products.[22]
- 97% of protection claims presented were paid out.[22]

Asset management

Safeguarding savings and investing for the future

- 19.1 million individual pension policies in force.[22]
- £8.2 billion was withdrawn from pension pots in 2016.[22]
- £4.3 trillion asset under management (AuM) by UK fund managers, of which pension assets total around £2.1 trillion.[19]

Fintechs enhance the role of FS firms and help them provide products and services effectively

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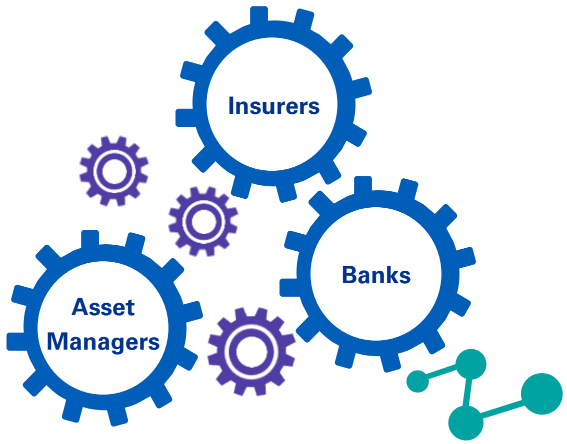
How fintechs enhance the FS sector



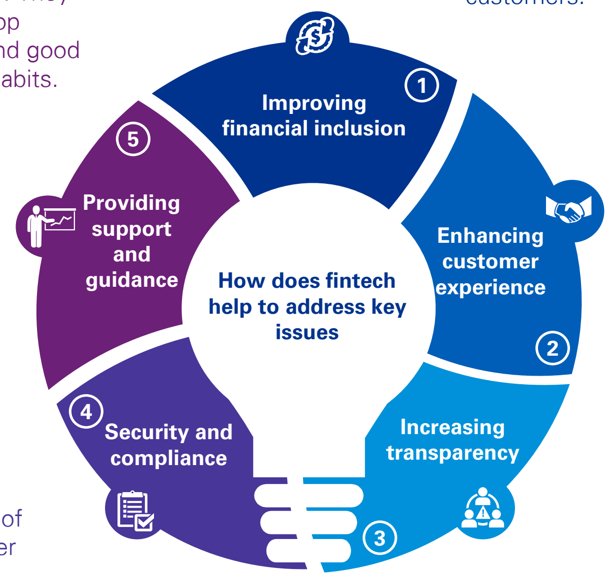
While playing a key role in people's lives and business activities, traditional financial institutions are yet to build and maintain relationships based on trust with their customers. There are various issues and challenges to be addressed, such as limited choices, high costs, lack of transparency, exclusion etc.

Fintechs, being the "disruptors" and "facilitators", are using technology and innovative propositions to help address these challenges.

Value of fintech

5 Technologies such as AI and data analytics have enabled fintechs to provide tailored customer support and guidance in a cost effective way. They help customers develop financial knowledge and good saving and spending habits.

1 Fintechs enable access for customers that were previously excluded from the traditional financial system by enhancing infrastructure, innovating in new products, lowering costs and allowing them to enjoy the same standards of services as other customers.

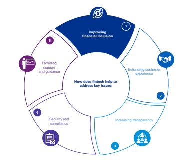


2 Empowered by new technology, fintechs are able to analyse customer data to offer personalised services, and provide more interactive communication through multiple channels, significantly increasing customer engagement and experience.

4 Regtech, through use of data analytics and other technologies, offers possible solutions to improve security, mitigate risks and streamline compliance processes.

3 Fintechs enable aggregation of products/services and data, providing information on choices, coverage and pricing of products and services, enhancing fair customer outcomes.

1 Financial inclusion



A competitive financial services system should be fit-for-purpose for individuals and businesses, enabling them to participate fairly and fully in everyday life and business. Although the UK has a leading financial services industry, some segments of the population could benefit from better access to financial services.

Credit

- 1.5 million adults remain unbanked in Britain.[23]
- Approximately 50% of the newly banked have incurred penalty fees.[1]

Banking

- An estimated 2 million people took out a high cost loan in 2012 as they were unable to access any other forms of credit.[23]
- The payday loans market reached its peak of £3.7 billion in 2012.[23]
- Problem of thin/empty credit files impacts 30% of applicants in rented accommodation.[24]

Insurance

- 50% of households in the bottom half of the income distribution lack home contents insurance, compared with 20% of households on average incomes.[23]
- The average premium for young drivers (aged between 17 and 22) is up to £1,771, compared with average premium of £440.[26][22]

SME financing

- Rejection rate for first time SME borrowers is around 50% when they apply to big banks. [24]
- Only 6% of SMEs declined for loans are referred to alternative funding.[24]
- 37% of businesses appear to give up their search and cancel their spending plan after the first rejection.[24]

Main challenges around financial inclusion

Inaccessible facilities

- Limited access to financial services infrastructure (for example, branches, ATMs, internet).
- 12 million people live in rural or remote areas of the UK, and are impacted by the closing down of branches (583 closures in 2016).[24][25]
- 1 in 5 consumers in the UK lack digital skills, and will find it difficult to manage their finances online and access digital services.[24]

Lack of non-standard products

- Mainstream financial offerings are designed to meet standard demand, leaving people with non-standard requirements unprotected. They may face higher costs to use basic services.
- Examples include: insurance for young drivers, health insurance for disabled people.

Lack of financial profile to support applications

- Major financial services companies tend to rely on past records (for example, credit profile, lending history) to assess applications. Individuals with little or bad record face difficulties in accessing credit products from high street banks.
- SME businesses encounter difficulties in obtaining low cost funding from banks.

1 Financial inclusion – Offering simple products with lower prices

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High cost is one of the reasons preventing consumers from getting the product or service they need. Customers, especially those in poor financial situations, get excluded from financial services.

Fintechs have significantly reduced the costs by providing services through innovative yet simple ways.

For example, flexible, subscription-based insurance policies enable infrequent drivers to save on premiums.

New online money transfer service providers eliminate high bank fees by matching its users' currency demand and supply. This has particularly benefited large number of customers who use cross-border payments.

	Cuvva	TransferWise
Overview	— Pay-as-you-go car insurance for infrequent drivers through a user friendly mobile app. — Founded in 2014 in Scotland, with head office based in London.	— A money transfer service across 750 currency routes, with a customer base of over 1 million.[28] — Founded in London in 2010, launched in 2011.
How it works	— Insurance can be bought via a monthly subscription ranging between £10 and £40.[27] This covers the car whilst it is parked and users buy top-up policies only when they need to drive. — It also offers short-term insurance that allows drivers to get cover by the hour. — Information collection, purchase and customer services are all conducted via mobile app.	— TransferWise has built a local banking network across the world, which enables money transactions without crossing the borders. — The platform automatically matches the currency flows at the real mid-market exchange rate and pays out from the local account. — This arrangement cuts the traditional banking fees and avoids currency conversion.
Impact	— Significantly reduced the amount spent on car insurance by offering flexible insurance by the hour. — Simplified the sign up and purchase processes. — Provides tailored products that meet customers' needs.	— Transfers £1 billion per month globally, saving consumers £1.5 million every day compared to traditional bank transactions.[29] — The service is up to 8 times cheaper than the UK's major high street banks.[30]

1 Financial inclusion – Helping the 'underbanked' with innovative solutions

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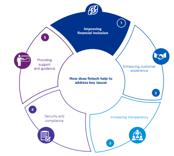
High street banks have managed to do very little to address the issues faced by those outside their existing customer base.

Some fintechs have developed alternative solutions that provide similar functionality to a bank account, in order to support low income individuals. An interesting example we discuss here is a payment service linked to payroll.

Fintechs also provide new solutions for those with 'thin' credit files. By broadening data scope and utilising data analytics, these firms are able to build alternative credit profiles for customers and enable them to access credit.

	aire	Doreming
Overview	— An algorithmic credit scoring engine that uses AI to conduct assessment and underwriting. — Designed to serve the increasing number of non-conventional applicants, such as self-employed individuals and first time borrowers. — Founded in 2014, based in London.	— A fintech payment service allowing individuals to shop without access to a bank account. — Designed to target low income workers. — Founded in 2016.
How it works	— The Interactive Virtual Interview engages directly with the customers to assess their profession, education, financial maturity etc., simulating the actual underwriting process with AI. — Supports lenders through an online underwriting tool and data directly sent back through an API Portal.	— The real-time payroll system gives workers access to their daily incomes (in which payments are processed through a virtual account). The virtual account is linked to their payroll account. — Supports businesses via the cloud-based All-in-One HR & Payroll management system.
Impact	— Offers opportunity to create alternative credit profile for self-employed workers and first time borrowers. — Fourth credit bureau in UK, increasing competition in the market. — Provided credit scores for over $5 billion of loan value.[27]	— Allows unbanked workers to pay for basic items and enables them to develop their employment history to access banking services including affordable loans from official financial institutions (rather than resort to payday lenders). — Wants to create a market for 400 million workers.

1 Financial inclusion - Providing SMEs with access to funding



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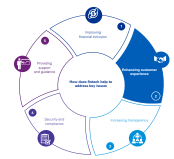
High street banks have traditionally underserved SMEs with short trading history, such as start-ups, whose owners had to rely on consumer credit (personal loans, credit cards) to fund their working capital needs.

In addition, some SMEs are discouraged by complex loan applications which could take weeks to process.

A number of fintechs have emerged offering flexible alternative financial solutions for SMEs. Through business model innovations (for example, use invoices as collateral) or applying data analytics, fintechs have simplified the processes, and increased customer coverage, making capital more accessible for SMEs.

	Funding Circle	iwoca
Overview	— Direct lending platform and focus exclusively on small business finance. — Founded in 2010 and headquartered in London.	— iwoca provides financing to small business. — Founded in 2011, with 160 staff headquartered in London.
How it works	— Funding Circle connects creditworthy small businesses looking for finance with people and organisations with money to lend through their online platform. — Businesses can borrow from a wide range of investors, including more than 70,000 people, the UK Government, local councils, the European Investment Bank, a university and a number of financial organisations such as pension and insurance funds.	— Offers revolving credit facilities with on-demand access to £1,000-100,000 to SMEs in the UK, Germany and Poland.[31] — Small businesses apply online via the iwoca website (or through its partner network) within minutes and can get funded within hours of an application. — Data-driven credit assessment based on multiple data sources.
Impact	— More than £3.5 billion has been lent to over 36,000 businesses across the UK, USA, Germany and the Netherlands. *'a real success story… playing an important role in our economy – helping businesses to grow and create jobs'.* [32] *– Chancellor Philip Hammond*	— Funded more than 10,000 businesses since 2012 from its own balance sheet in more than 30,000 separate transactions.[33] — Removes barriers for small businesses that are unable to access financing from traditional lenders.

2 Customer engagement



Empowered by digital experiences offered by tech and retail players, customers have greater expectations around experience and engagement from financial services providers.

However, financial institutions have been slow to respond to changing customer expectations. According to a survey by Capgemini, overall customer satisfaction was only at the level of 31.1%.[23]

Ongoing engagement and interaction are the most important aspects that reflect customer experience.

Examples of areas where customers value superior experience:

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Banking

1. Digitally update transaction limits.
2. Real-time alert notifications.
3. Real-time information to manage financial life.
4. Initiate or close a loan from digital channels.
5. Real-time loan quotes on mobile.
6. Onboarding process.

Insurance

1. Proactive updates on status of claim.
2. Instant claim notification to insurer online and / or through mobile.
3. Automatically connect to third parties to assist with an emergency.
4. Policy renewal and cancellation digitally.
5. Reward and incentive programs enabling savings.
6. Onboarding process.

Customer expectations on engagement

Frequent communication via multiple channels

— Customers demand more frequent communication from their services providers through multiple communication channels.

— 57% of insurance customers prefer contact at least semi-annually; however only 47% receive this.[26]

Personalisation of services

— Consumers want more personalisation and are willing to participate and share data.

— 63.2% of customers said they would like to have ‘personalised advice and data-driven recommendations for investment goals’ when talking about the asset management services they receive.[23]

Ease of control

— Consumers appreciate the ability to control and manage their financial products via digital interfaces, anytime and anywhere.

— This feature is particularly valued in banking and payment products where frequent usage is required.

2 Customer engagement - Simple and engaging interaction with customers

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Fintechs are increasing consumer confidence in financial services by providing products that are engaging and give more control to the customer.

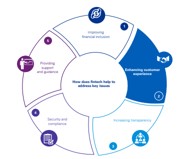
In areas such as claims management in insurance, customers have often suffered from bad experience harming the trust with the insurer.

Fintechs help to increase customer retention rates by making processes easy and transparent to both parties involved.

Some digital health platforms engage customers by offering personalised advice and communications in interactive methods to build close client relationships.

	RightIndem	boundlss
Overview	— A white label service to help insurers "deliver their promise" and make policyholders whole following a loss. — SaaS-based motor claims platform; next focus area will be on property claims. — Founded in 2016 and based in Nottingham.	— A platform which helps insurers engage customers around their health, and build closer relationships with them through a digital health coach in a mobile app: a 'personal trainer in their pocket'. — Customers chat to the coach in a 'Whatsapp' style chat, creating an easy way for insurers to build stronger personal relationships with them.
How it works	— Customers can digitally manage their claims via their chosen device. — The platform enables virtual damage assessment and claims processing including anti-fraud AI. — It also offers customers the ability to choose repair workshops/replacement vehicles from the same mobile app.	— Customers connect their fitness app or wearable (Boundlss' integrates with over 200 apps and wearables). — The AI analyses their data and sends out personalised messages about their activity, and helpful suggestions on exercise, nutrition, sleep, stress management, mindfulness and sleep. — Customers can chat to the coach and ask for help and suggestions to meet their health goals.[37]
Impact	— Reduces the workload of insurers and loss adjusters and improves claims handlers' productivity (approximately 10x).[35] — Improves customer experience resulting in a 60% increase in renewals during pilots.[35] — During pilots, the use of the platform has resulted in reduction of indemnity spend of 10-20%.[35][36]	— Boundlss' blended AI and human health coaching is being trialled by health insurers in Hong Kong, Singapore and in the UK.[38] — Customers have found this to be an engaging and easy way to chat to their insurer about their health and their needs, and many form close bonds with their 'coach'.

2 Customer engagement - Simplified solutions for SMEs



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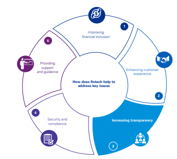
Fintechs have largely focused on simple solutions, transparent fee structures and products that help individuals and SMEs resolve issues they did not have answers to before.

Following the wave of digital only banking and payment solutions in the retail space, SME customers recently started to benefit from the rapid development in the 'last mile' of payment and banking services and insurance.

With the help of fintech tools, SMEs are able to participate in the digital payments growth and simplify their daily financial management.

	iZettle®	Tide
Overview	— iZettle provides services which allows small businesses to take payments, register and track sales and get funding. — Founded in 2010 from Stockholm.	— Digital only account services targeting small businesses. — Founded in 2016 in London.
How it works	— Provides a chip-card reader and a point-of-sale app for smartphone and tablet based payments. — Complete electronic point-of-sale solution for hospitality clients. — Provides partner applications and small business loans.	— Offers current account functionality for small businesses. — Built-in tools to help business operations including categorising transactions, attaching files to transactions to help manage expenses, and sending invoices reminders.
Impact	— Has witnessed its small and micro customers grow 15% every year. — Has reported 1,000 new businesses being introduced every day, and an annual processing volume of €5 billion.[39] — Users reported increase of sales as a result of accepting card payment. *"Sales have increased more than 50% since I can take card payment."[27] – a market vendor*	— Announced a new partnership with iwoca to initiate its first loan programme, offering up to £100,000. — Lowers cost and simplifies admin tasks for SMEs. *"People who run small businesses waste time with crappy administrative tasks, so we work out smart ways with software to automate these things."[40] – Tide CEO*

3 Transparency and trust



Trust is one of the main pillars of an effective financial services system. With a reduction in consumer confidence since the financial crisis in 2008, only just over a third of customers say they trust traditional financial services firms.[23]

Although traditional firms still hold a slight advantage over the newcomers and fintechs in areas such as quality and security[23], non-traditional players are more valued for their timely and more efficient services and value for money – factors which are more important in winning customers and building their trust.

With the appeal of digital solutions being stronger amongst the customer segments of the future (Generation Y and Generation Z), fintechs have a solid platform on which to build trust, especially as the regulators take an increasingly active role in this space.

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What affects trust in financial services companies and their products?

Banking

- System outages, broken promises around local branch closures, regulatory scandals and fines have damaged banks' reputation and their ability to maintain customers long term.
- Propensity to switch is increasing with 1 in 5 UK customers stating they would consider banking with PayPal if it offered current accounts.[26]

Insurance

- Customers' reliance on online reviews is increasing; negative customer experience is easier to share.
- Price comparison sites and aggregators are increasing awareness of competitors and their products in the market.
- Customers may be willing to share more personal data but only if security and privacy can be guaranteed.

> "Digital has given customers a window into the factory. The aim of RBS is to become 'radically transparent' to meet the corporate objective of becoming the UK's most trusted bank.
> — Chris Popple, RBS[26]"

Main issues around trust and transparency

Clarity of services and offers

- Recent regulatory scandals and fines (for example, PPI) have shown the importance of being transparent with customers.
- Awareness of financial products and providers is increasing but customers and regulators are demanding information and advice to be presented in plain/easy-to-understand language.
- With more customers taking decision making into their own hands, transparency is becoming vital in attracting and retaining customers.

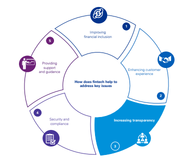
Transparency on fees

- Demand is increasing for greater transparency on fees which is proving difficult for traditional firms with complex pricing policies and structures.
- Fintechs are taking advantage of technology to provide simple fee structures, dashboards to monitor activity and comparison tools to help customers understand differences between different providers and offerings.

Security and exchange of data

- As the financial services industry becomes increasingly dependent on data, customers are more willing to share their data in exchange for personalised services.
- Those that can show an ability to safeguard customers' privacy and ensure security will be seen as trustworthy and will have stronger customer relationships.

3 Transparency and trust – Providing simple and transparent services through digital platforms



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In industries with many legacy complex systems and manual processes such as insurance, many businesses have benefited from fintechs which brought digital platforms with fast and lean processes that help them reduce workload and serve their customers more efficiently.

Simply Business

Overview

— An online B-Corp Certified (US) brokerage service delivering policies tailored to individual business requirements.

— Owned by Travelers, a US-based insurance company.

How it works

— Provides public liability insurance and landlord insurance for small, micro-businesses and landlords.

— Uses Snowplow analytics[(a)], Google and Twilio to personalise site experience for individual users.[(41)]

— Provides insurance policies from leading insurers including AXA, Hiscox, Ageas etc. along with its own insurance brands which are underwritten by AXA and Munich Re.

Impact

— Has more than 425,000 micro-business customers since 2005, covering more than 1,000 classes of business.[(42)]

Bold Penguin

Overview

— Commercial insurance brokerage portal which allows agents to link with carriers.

— Delivers a more streamlined insurance experience to commercial insurance agents.

— Based in Ohio, US.

How it works

— Portal allows the insurance agent and carrier to streamline the quoting, binding, and servicing elements of new and existing policies.[(43)]

— Offers solutions in areas of underwriting efficiency, customer retention and management, and risk data aggregation.

— Targets independent and captive insurance agents and brokers.

— Has partnered with Hiscox.

Impact

— Within six months of its launch, more than 3,000 insurance agents and brokers signed up for Bold Penguin.[(43)]

Note: (a) Snowplow analytics is a tool that helps companies collect and utilise data produced within their business.

3 Transparency and trust - Increasing transparency using dashboards and all-in-one solutions

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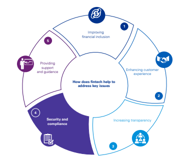
With an increasing number of financial products available to customers and many purchasing more than one product, it has become more difficult to consolidate all the paperwork in a single place and, manage and understand where overlaps or gaps might exist.

A number of fintechs have started offering solutions which focus on organising financial products (for example, insurance policies or pension plans) in one place and using technology like AI to help customers identify gaps in their financial needs.

	PensionBee	Brolly
Overview	— A web app that enables its users to bring and manage all their pension plans together. — Founded in 2014, based in London.	— An AI-driven application acting as a central place for buying, managing and getting advice on insurance. — Founded in 2016, based in London.
How it works	— Enables users to manage their savings by finding and combining old pensions into an online value plan. — Customers have access to their current balance, a projected retirement income and a tool to set up regular or one-off contributions. — Easy drawdown solution for customers over 55. — Pension plans are managed by BlackRock and State Street.	— Uses data from the holistic profiles of individuals to price insurance policies. — Brolly Advisor provides insurance advice and keeps the customer informed about coverage gaps. — Brolly Locker stores all policy documents, key dates and contacts. — Brolly Shop enables consumers to purchase the best value insurance and switch providers easily.
Impact	— Already has a customer base of more than 50,000 since its start in 2014.[44]	— Brolly has impacted the role of brokers by using AI and data analytics to provide personalised insurance buying.[45]

4 Security and compliance



Retail and SME customers are particularly vulnerable to fraud, cyber attack and other risks online. With more financial services activities now carried out online, security becomes a key issue that needs to be addressed.

A competitive financial services system would need to create a secure and disciplined environment for financial activities. Financial institutions have the responsibility to meet regulatory and compliance requirements; however they have yet to find an effective, efficient and economic solution.

With the use of technology and data analytics, regtech offers possible solutions to improve security, prevent risks and streamline compliance processes.

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74% of small UK organisations reported a cyber security breach in 2015.[23]

Financial fraud losses across payment cards, remote banking and cheques totalled **£768.8 million** in 2016.[22]

SMEs face **7 million** cyber crime attacks per year which cost around **£5.3 billion** to the UK economy.[26]

89% of FS firm executives surveyed believe that compliance spend could more than double in five years.[24]

Key areas that regtech can help

Fraud detection and prevention

- Leverages machine learning technology and data analytics to check and verify identity.
- Analytics to understand fraud patterns and predict susceptibility to fraud.

Cyber security

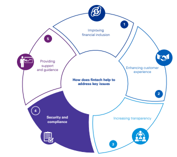
- Identify information security and cyber security threats, conduct vulnerability management, threat remediation and alert notification to help companies prevent cyber risks.
- Provision of pre-emptive security services to protect against cyber.

Internal risk management tools

Includes a wide range of risk management tools supporting financial institutions such as:

- Anti-money laundering (AML) / Know your customer (KYC) tools.
- Enterprise risk management.
- Portfolio risk management.
- Regulatory reporting.
- Conduct monitoring.

4 Security and compliance - Helping businesses to detect fraud



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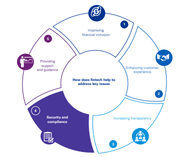
With the growth of e-commerce, merchants and financial services institutions face challenges in customer verification to protect their business. Card security and online payments fraud remain the biggest issues today.

To mitigate rising fraud related issues, fintechs are applying technology to detect fraudulent and abnormal financial behaviour.

	Ravelin	HELLOSODA
Overview	— A fraud detection and prevention platform to stop online payment fraud for merchants. — Founded in 2014, based in London.	— Using big data and text analytics Hello Soda provides multilingual software solutions, helping businesses leverage digital data to verify identity, reduce fraud, and personalise the user experience. — Founded in 2013, Hello Soda is headquartered in Manchester with subsidiaries in Austin and Bangkok, and has clients across 5 continents.
How it works	— The platform imports the client's visitor, registration, and payment data in real-time, via an API and uses AI to analyse it. — Uses machine learning and graph network techniques to analyse customer behaviour and look for fraudulent patterns in customer data. — Ravelin recommends the merchants whether to accept or reject a transaction in real-time. Ravelin has several hundred proprietary fraud signals.	— Uses advanced text analytics techniques such as psycholinguistics, natural language processing and Bayesian belief networks to support verification. — With explicit user consent, Hello Soda's primary verification solution PROFILE ID, collects and analyses data from a consumer's digital footprint allowing businesses to confirm a user's identity and recognise fraud indicators.
Impact	— Has proven to reduce the charge-back to 0.1% across the client base.(46) — Managed to reduce charge-back of Deliveroo by 90% using machine learning to predict if an order is fraudulent.(47)	— Recent clients of Hello Soda have seen a 30% uplift in customers they are able to verify ID more quickly compared against traditional data sources.(78) — Customers who are verified through Hello Soda's solutions prove to be better performers as banks have seen a reduction in delinquency rates of 27% when using Hello Soda's solutions.(78)

4 Security and compliance - Helping businesses to manage risks



Cross border online commerce continues to grow exponentially and merchants face the challenges of customer verification to protect their business.

Some regtechs are applying technology to identity verification applications such as digital identities, passports e-residency, birth certificates etc.

With reliable data and advanced technologies, the process of identity verification can be automated during customer registration or checkout to further reduce fraud.

Trulioo

Overview

- Global online identity verification company which provides instant electronic identity and address verification.
- Founded in 2011 in Vancouver with a satellite office in San Francisco.

How it works

- Trulioo’s bank-grade electronic identity verification (eIDV) platform, GlobalGateway, enables businesses to perform frictionless identity verification via more than 200 sources
- Trulioo’s identity verification solution helps businesses and organisations streamline and automate AML and KYC processes.
- Through a single API, clients can instantly verify customers and businesses online and screen them against international watch lists.

Impact

- Has the ability to verify over 4 billion people in 60+ countries.[(49)]
- Helps businesses scale into new markets faster, more efficiently saving them time, money and resources.
- Helps businesses meet complex compliance requirements while also reducing fraud/risk.

CoVi Analytics

Overview

- Simplifies compliance for financial institutions based on an AI powered SaaS suite.
- Founded in December 2015, based in London.

How it works

- AI powered SaaS platform.
- Have tools to interpret principle based regulations, and map them to business processes.
- Simplifies and automates repetitive exercises, with the support of management tools.
- Provides visualisation and analytics on regulatory reporting.

Impact

- Helps financial institutions be more effective at managing their compliance commitments, freeing up management's time to focus on driving the business forward.

5 Guidance and support

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Navigating the financial services world can be daunting and time consuming to many customers. Complexity of products, low level of awareness, lack of plain language solutions and easy to access advice creates information barriers.

Fintechs offer digital platforms providing investment and savings advice, advanced analytics on digital transactions and personalised offers with a touch of a button.

What guidance and support could financial services firms provide?[8][12]

Banking

1. Real-time bank balances.
2. Alerts when exceeding monthly expenditures, unexpected payments.
3. Spending pattern analysis.
4. Savings advice.
5. Digital card control.
6. Individual transaction notifications.

Insurance

1. Gaps in coverage.
2. Personalised offers and advice.
3. Personalised multi-policy solutions to mitigate risks.
4. Alerts as/before the event (for example, break-in) happens.
5. Consolidated view of all policies and paperwork.

Asset management

1. Consolidated view of all assets and portfolios.
2. Personalised advice and recommendations.
3. Instant view of possible and earned returns.
4. Convenient and simple way to interact and access information.

Main areas for support and guidance

Decision making

— Product complexity, lack of financial education and awareness together with an increasing number of financial products create a need for support with decision making to consumers.

— Price and product comparison sites help customers in some areas but advice using chatbots and robo-advisors is becoming increasingly attractive.

Risk awareness and mitigation

— Insurance companies are moving away from transaction-only based relationships to more comprehensive relationships to help customers mitigate risks.

— Customers are willing to exchange their data for a lower insurance premium or insights and advice on spending, saving or asset management.

Savings and investment advice

— The UK has a historically low savings rate compared with other European countries with 4 in 10 UK adults having less than £500 in savings to cover an unexpected bill.[50]

— A number of fintechs have introduced micro saving solutions which help customers understand their spending habits and simplify and automate savings they can afford.

5 Guidance and support - Helping customers mitigate risks

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Telematics and connected devices are changing the way consumers buy insurance and interact with insurance providers.[51]

Consumers install or connect their existing devices to insurers' platforms in order to receive notifications and help them mitigate risks.

Insurers are moving away from a simple transactional role to a risk partner/advisor role. At the same time, consumers benefit from lower premiums and savings from avoiding the accidents and break-ins etc.

	neos	MYPOLICY
Overview	— Connected home insurance provider that uses smart technology to connect, protect and insure homes. — Founded in London in 2016.	— Specialises in insurance for young drivers through a black box policy (telematics), and offers mileage-based insurance to low miles drivers.
How it works	— Uses connected home technology to provide wireless smart home security devices to policyholders including cameras, leak detectors, motion sensors and smoke detectors which are all connected to the Neos app. — The app sends alerts to homeowners in case of a break-in, leak or fire and also contacts the 24 hour monitoring team. — Includes comprehensive home insurance.	— Helps safe young drivers and inexperienced drivers to secure lower premiums with some of the UK's leading insurers. — Installs telematics to record driving history and monitor mileage. — Provide an online dashboard for monitoring driving behaviour. — Offers rewards for safe drivers.
Impact	— Will impact the £7 billion home insurance and the UK's Internet of Things (IoT) market which is expected to grow to 156 million connections by 2024.	— Telematics based motor insurance has witnessed a 40% surge in a year with approximately 445,000 people using technology to monitor driving behaviour.[51] — Claims savings of 65% on premiums for drivers on the black box policy.[52]

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5 Guidance and support - Educating and helping customers manage their savings

In the digital age, consumers don't have the time to manually monitor and track numerous accounts, collect all the necessary paperwork or keep on top of all financial products they use.

Fintechs have come to help consumers by introducing digital platforms which allow customers to link their bank accounts, cards and investments in a single place to analyse spending patterns, provide insights on user habits advise the best ways and amounts to save, all with a click of a button, and available via an app.

	oval	moneybox
Overview	— Oval is creating a platform designed to tackle the global issue of financial literacy. — The app also leverages a community experience to make saving more dynamic. — Founded in London in 2016 and with offices in London and Turin.	— Mobile app that helps customers save and invest for the future. — Launched in 2016. — Based in the UK and regulated by the FCA.
How it works	— Allows users to link the app to their bank accounts and cards and have an overview of their monthly budget with all expenses and earnings categorised automatically through machine learning and collective intelligence. — Educates users on how to save effectively by monitoring their spending habits and by making savings automatic through automated saving rules that are linked to transactions.	— Moneybox enables users to invest the spare change from their everyday purchases. — Users can sign up to Monybox and open an ISA in minutes from their mobile phone. — Users can invest into a Stocks & Shares ISA, with as little as £1. Tracker funds are provided by Vanguard, BlackRock and Henderson.
Impact	— Users of Oval Money now save an average of £114/month versus £72/month just 5 months ago, that is a 58% increase in savings.[52] *"I've managed to save so much in under a month, meaning I could buy the new shoes my daughter needed without worrying"* [77] *– Oval customer*	— Encourages young people to save, opening up the market to a new generation of investors. — Democrats investment via simple and engaging mobile experience.

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5 Guidance and support - Simplified digital asset management advice and support

A number of Fintechs have started offering online investment advice through robo-advisors and chatboxes to offer convenience to consumers who don't have the time to physically visit or who can't afford financial advisors.

Moreover, the use of algorithms and AI have reduced the costs of providing tailored advice to customer, compared with the traditional independent financial adviser (IFA) model. Robo-advice has enabled customers who were not able to afford such services to benefit from the services at an affordable price.

It will have a positive impact on the society's saving and retirement planning.

	Wealth Wizards	nutmeg
Overview	— An online independent financial advisor via a simple online app. — Founded in 2009, based in Leamington Spa. — Directly regulated by FCA since 2011.	— An online discretionary asset management company. — Founded in 2011 in London.
How it works	— Combines financial planning, actuarial science and smart software technology to offer pension and retirement advice at affordable cost. — Works with employers and pension consultants to offer online contributions and at-retirement advice to employees. — Offers white label algorithm-based SaaS, providing advice and guidance solutions to large financial services brands.	— When clients sign up they are asked about their investing goals and their risk preference. With that information, Nutmeg helps customers choose a portfolio that is right for them. — Portfolios are diversified across different asset classes, countries and industry sectors, with use of ETFs to keep costs low while maximising diversification and transparency. — Nutmeg offers two investment styles – fully managed and fixed allocation.
Impact	— First online app to provide affordable and accessible financial advice for pension investments. *"Our services are designed to address the advice gap. Using AI and expert systems to build robo-advice solutions, we are addressing a largely underserved population, creating a new market"*(53) *– CEO, Wealth Wizards*	— Has more than 47,000 customers and more than £900m of AuM.(80) *"The way consumers save the invest is changing. […] We are leading this change by offering smarter investment options for both experienced and new investors"* (80) *– Chief Marketing Officer, Nutmeg*

Risks and implications

While fintechs deliver significant value to end customers and the wider financial services market, there are emerging risks that need to be mitigated.

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Fintechs need to consider some emerging risks …

Data Privacy

- Almost all fintech solutions involve data exchange and analysis, which pose potential risks to customers' data privacy.
- Ensuring data security will be key to protect customers and increase their willingness to share their data, enhancing the trusted relationship.
- While UK Open Banking initiatives will enable fintechs to have access to more data from banks, fintechs will need to comply with the rules on data storing and privacy of GDPR.

Cyber security

- Cyber threats are a growing concern in any sector. As financial services become more connected, it exposes customers to the risks of fraud.
- Fintechs are also vulnerable due to their size, maturity and level of technological exposure.

Financial stability

New players may develop their product and systems without sufficient risk management expertise or under-estimate the amount of risk taken on. As a result, financial activities carried out may fall outside the more rigorous regulatory perimeter and pose a risk to the wider system. For example, existing capital buffer calculation may not be sufficient for high frequency transactions.

Players in the financial services ecosystem should work together to mitigate risks…

Balanced policymaking from regulators

Rising risks should be captured in the regulatory framework. A careful balance must be struck, with regulations providing necessary protection and encouraging innovation without hindering the development of fintechs.[54] Policymaking will need to be nimble, experimental and cooperative.[55]

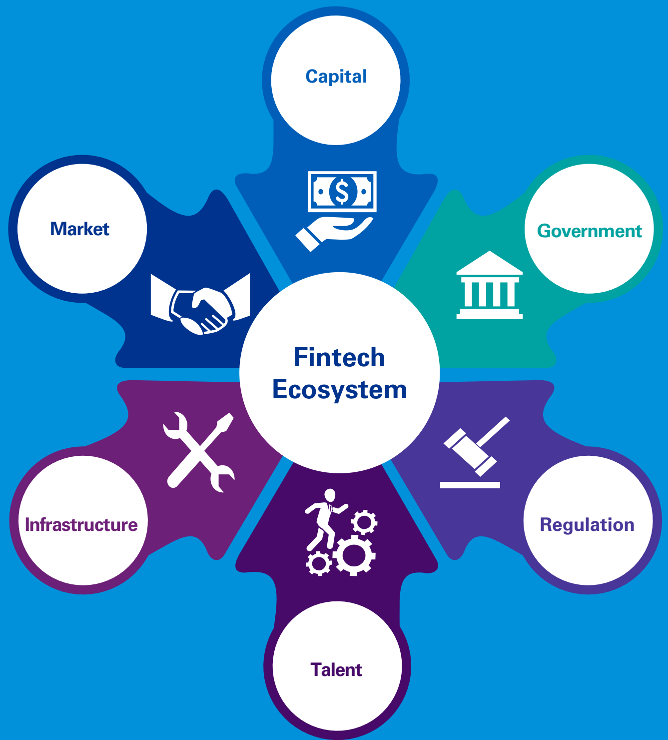
Actions from fintechs

Fintechs need to enhance risk prevention mechanisms in their products / offerings in order to protect customers, as well as develop risk management capabilities to manage operational risks.

Support from governments

The Government would need to play a key role in raising awareness of potential risks, and invest in improving the overall environment for data protection, cyber security and financial stability. This could be achieved through providing an educational programmes, sponsoring academic research, etc.

04. London and UK as a fintech hub



The fintech ecosystem

A vibrant and successful fintech ecosystem requires six key components to be attractive to fintechs and other players.

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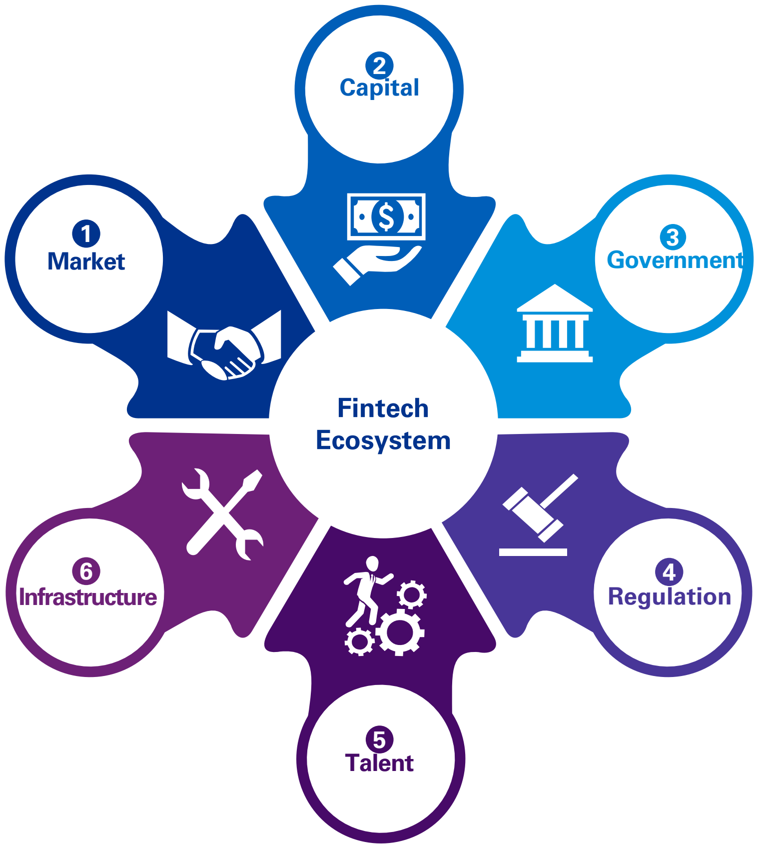


Page 45-50 illustrate examples of fintech hubs which have good capabilities across the six components followed by a qualitative view of how the UK performs (Page 51-56).

Components

1	Market	Demand for fintech, and appetite and adoption rates from financial institutions, SMEs and retail customers.
2	Capital	Availability of funding for fintechs at different stages of maturity and through various funding sources such as seed, private VC funding, government-backed schemes etc.
3	Government	Government participation and openness to fintech development through progressive policies, tax incentives and programmes to attract and support start-ups.
4	Regulation	Capability of regulators, friendliness of regulatory environment and the level of progressiveness and support for fintechs.
5	Talent	Availability and access to technology, financial services and entrepreneurial talent, including existing and pipeline of talent.
6	Infrastructure	Quality of affordable infrastructure appropriate for start-ups with innovative and flexible business models, including hard infrastructure such as office space and soft infrastructure such as industry standards.

1 Key attributes of fintech hub - Market

Strong market demand is a fundamental driver for fintech growth. Successful fintech hubs will be those that strategically leverage local demand or provide a gateway to a bigger market.

Demand from financial institutions and customers are both critical for the growth of fintechs.

Leading or growing fintech hubs around the world have **local markets or access to a large financial services market**. Successful fintech hubs or regions **leverage market demand** to drive growth.

For example, Singapore has used its role as a financial centre to drive demand for fintech collaboration from the incumbents despite its relatively small size. China, on the other hand, has benefited from its large addressable market, driving growth around the payment and lending space.

Singapore

Singapore is a large financial services centre with over 200 banks present with many headquartered there. The local fintech sector has benefited from the collaborative attitude and active involvement of the local banks and insurers. It hosts more than 200 fintechs dominated by payments and wealthtech.[56]

Financial institutions have established accelerators and corporate venture funds (CVC) for investing in fintechs. For example:

- United Overseas Bank (UOB) started Tag. Pass accelerator program and launched a UOB Mighty mobile wallet.
- Oversea Chinese Banking Corporation launched an accelerator program "The Vault", investing S$100 million in building data capabilities.
- MetLife LumenLab was established to develop disruptive new business models in wellness, wealth and retirement areas.

"In Singapore financial institutions have maintained customer trust and therefore do not see fintechs as a threat. The banks and fintechs are working in a collaborative model."

– Tek Yew Chia, Head of Fintech, KPMG Singapore

China

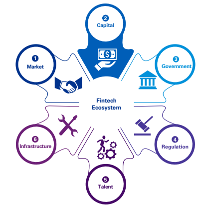
China has a very big addressable market with a digitally savvy population and a less developed financial services industry open to innovation.

- With a population of approximately 1.4 billion, China is leading fintech adoption around the world with over 80% of consumers using at least one non-traditional financial services firm in 2016.[12]
- Payments and lending have already passed the tipping point of disruption in the Chinese market. For example, its peer-to-peer cumulative lending volume is expected to account for 9% of total retail loans by end of 2018.[9]
- China has nurtured several fintech "Unicorns" each with valuation over $1 billon, including Ant Financial, Lufax, Qufengqi and Jimubox.

"If we put customer driven and government led models at the two ends of the spectrum, China is definitely at one end of it, where market is driven by large consumer base"

– Tek Yew Chia, Head of Fintech, KPMG Singapore

2 Key attributes of fintech hub - Capital



Ability to provide funding at all stages of fintech development from a variety of sources (seed, VC, government) is critical to nurturing a successful fintech ecosystem.

Access to funding is one of the crucial ingredients for a fintech hub. Companies require different types of capital depending on the stage of their development.

Early stage investment such as seed and crowd funding will attract new businesses but to ensure sustainability there should be sufficient **growth capital** for example, well established VC sector.

Where private investments may be insufficient or additional stimulus is required **government backed** schemes and tax incentives can help create favourable conditions for fintech hubs.

Silicon Valley

Silicon Valley is known not only for its strong association with innovation and technology but also for the amount of capital it is able to attract

VC investment reached $4 billion (232 deals) in 2015 in Silicon Valley, with $2.4 billion (192 deals) invested in 2016.[1]

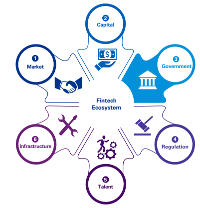
- Many fintech start-up investors providing both early-stage and growth capital are based in Silicon Valley, for example, 500 Start-ups, Andreessen Horowitz, Sequoia Capital, Google Ventures etc.
- Private accelerator programmes such as Y-Combinator and Plug and Play offer funding, 3 months of support and mentoring and demo days to investors.

Singapore

The vast number of VC investors in Southeast Asia as well as multiple government funding schemes make Singapore an attractive location for fintechs

- VC investments in Southeast Asian fintech start-ups totalled approximately S$150 million in 2015, with Singapore contributing a significant share.[8]
- Local investor presence. For example, Life SREDA, Golden Gate ventures, makes it easier to access VC funds
- Innovation & Enterprise Office runs a number of programmes supporting fintechs.[8]
  - Early-Stage Venture Fund (ESVF): invests S$10 million on a 1:1 matching basis to seed several VCs.
  - Proof Of Concept Grants (POCG): up to S$250k for technology projects.
  - Technology Incubation Scheme (TIS): up to 85% co-investment Singapore-based start-ups.

3 Key attributes of fintech hub - Government



Success of many fintech hubs has been driven by government initiatives such as financial incentives, collaboration platforms and innovation programmes.

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Fintechs are attracted to locations with governments that stay open, are willing to collaborate and incentivise innovation and entrepreneurship.

Government programmes designed to increase competition and promote innovation together with financial incentives play a key role in building a successful fintech hub.

Some governments have taken a very active role in fintech development (for example, Australia, Singapore) by creating funding schemes, effective tax breaks and making it easy to set up and navigate complex governing systems. These regions have managed to grow the fintech market in a very short time.

Singapore

Various government agencies support the Singapore innovation ecosystem by providing mechanisms such as government grants, tax incentives and other support available to fintechs

- The Monetary Authority of Singapore (MAS) continues to drive the majority of fintech activity, shifting the focus in early 2017 from education and innovation to promoting technology adoption and attracting companies in Singapore.[8]
- MAS is committed to establishing a smart financial centre and has committed $225m to fintech growth.
- MAS has set up a Fintech Office to serve as a one-stop shop for all fintech matters which enables a whole-of-government approach to the fintech ecosystem.
- MAS is also organising Fintech Festivals and events to boost fintech Innovation in Singapore.

Hong Kong

Increasing government focus, support and co-funding, for example IP Trading Hub, Innovation and Technology Venture Fund (HK$5 billion), Cyberport, Accelerator programme.

Australia

The Government has entered into multiple international cooperation agreements, launched innovation programmes with funding, tax and infrastructure support.

France

Growing government support includes investments through La French Tech, incentives to relocate to/set up in Paris and industry events such as Paris Fintech Forum.

Germany

Finance Ministry's FinCamp encourages collaboration between FIs and fintechs. There are support options for start-ups to help navigate legal and tax processes.

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4 Key attributes of fintech hub - Regulation

Regulatory complexities can be challenging for start-ups and countries with more flexible approaches seen to be attractive to the fintech players.

Regulators have a key role in protecting the stability of financial markets. With the rapid development of fintech, regulators need to stay alert of new risks while providing an environment that **supports innovation and competition**.

While some regulators are staying cautious, others are taking a more **active and collaborative** approach.

Countries like Australia and Singapore are proactively helping fintechs navigate complexities of regulations, allowing fintechs to test their products through Regulatory Sandboxes under limited and more relaxed regulatory standards.

Australia

Australian government and regulators have started taking an active interest in fintech development and provide support through a number of initiatives:

- The number of fintech start-ups has increased from 100 in 2014 to more than 500 in 2017 with $0.7 million invested in 2016.[8]
- National Innovation and Science Agenda committed approximately $500 million to promote innovation and offers tax incentives, talent initiatives, access to crowdsourced equity funding and an incubator support programme.
- Developed innovation hubs to help fintechs navigate the regulatory landscape which includes senior staff being available at open events and industry hubs to respond to questions.
- Australian Securities and Investments Commission Regulatory Sandbox allowing fintechs to test certain services for up to 12 months without an Australian Financial Services or Credit Licence.

Examples of Regulatory "Sandboxes"

Singapore

Fintechs can offer their solution to targeted groups of customers for a period of time under certain MAS conditions. They are tested in a safe environment before mass deployment.

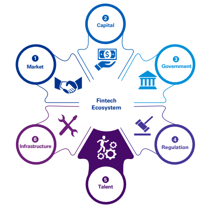
Hong Kong

Following Singapore's example, Hong Kong introduced Regulatory Sandbox for fintechs in 2016 to allow institutions to gather data and feedback on new products before meeting regulatory standards[57].

Canada

The Canadian Securities Administrators (CSA) launched its Regulatory Sandbox Initiative in early 2017 which will allow fintechs to operate in all Canadian jurisdictions once approved by one of them.

5 Key attributes of fintech hub - Talent



Fintech hubs need to be able to attract good tech, financial services and entrepreneurial talent.

Fintech growth is dependent on the availability of technical and financial services expertise and the **strength of entrepreneurial environment**. Well known technological or financial centres such as Silicon Valley or New York benefit from good access to one or all of the skills.

For countries without such unique advantages, government policies around mobility and **education system** are important to attract foreign talent and train the local work force. Countries like Israel and Germany have grown their start up and fintech base rapidly due to the local skills and culture, strong education systems delivering a sustainable talent pipeline as well as access and incentives to attract foreign entrepreneurs and expertise.

Israel

Israel has a strong technical talent pool fuelled by highly regarded universities, strong R&D programmes as well as a young army trained workforce who find fintech environment a comfortable "home" for their innovative and entrepreneurial nature.

— Israel has the largest R&D spend per capita in the world with 20% of its GDP generated by high-tech industry with more than 8,500 companies and 35 global R&D centres.[58]

— Many tech giants such as Google, Intel, and Microsoft have branches in Israel, and claim that the key to success lies with the country's local talent.[58]

— Israel has a successful STEM education system and its mandatory military service provides early training in sophisticated technologies.[58][59]

— "Innovation visas" and expert visas allow local companies including start-ups to hire foreign talent and attract entrepreneurs wanting to set up in Israel.[60]

Germany

Germany's solid foothold in financial services, excellent school and higher education systems and entrepreneurial culture provide essential skills and a strong talent pipeline for fintechs.

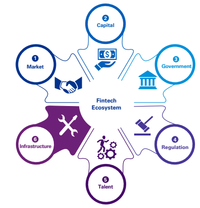
— Germany's educational system is internationally recognised with nine universities ranked within the top 100 in the world. Subjects such as mechanical, electrical and information engineering are becoming increasingly popular among students.[58]

— Berlin has developed as an innovation hub with 1,200 start-ups which attracted €1.1 billion external capital with 1 in 8 jobs in Berlin being created by the digital sector.[61]

— Existing banking expertise in Frankfurt and Berlin from established FS players provides access to FS talent.

— Visa-free access can attract talent across the wider EU.

6 Key attributes of fintech hub - Infrastructure



The quality of digital and physical infrastructure plays a key role in creating the innovation demand and opportunities for rapid fintech sector development.

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Access to a quality infrastructure, such as fast internet speed, and **affordable office space** tailored to start ups is a key enabler for fintech hub success.

Advanced digital and financial infrastructure, such as digital identity and real time payment systems, also create more opportunities for innovators. For example, Australia is taking very clear steps in digitalising their economy and financial services.

Australia

Australia has taken a particularly proactive approach in improving its digital infrastructure as well as creating physical hubs offering support specifically to fintechs.

- National Broadband Network (NBN), to be completed by 2020, is replacing the telephony networks and is expected to significantly improve internet speeds and coverage.
- New payment platform (NPP), a new national, open access infrastructure facilitating fast, versatile and data-rich payments, is expected to ramp up innovation.
- Digital Transformation Office is expected to help enhance the digital identity processes to improve efficiency and security across the digital economy.
- Real estate is affordable when compared to other regional financial peers such as Seoul, Tokyo and Hong Kong or London and Paris.[62]
- Physical locations such as the Stone & Chalk and the Tyro Fintech Hub: purpose built to support fintech ventures to start and grow combined with education events and accelerator capabilities.[63]

Regional examples in the UK

Manchester

Shed and Innospace run by Manchester Metropolitan University offer graduates and entrepreneurs office space. Two new technology hubs are being developed by Allied London and Manchester Science Partnerships.

Leeds

The first UK fintech start-up hub outside London, Dotforge, was established in 2015 in Leeds and offers financial support, office space and networking opportunities for fintech start-ups.

Edinburgh

CodeBase in Edinburgh is the largest technology incubator in the UK and one of the fastest growing in Europe[64]. Another organisation, Creative Exchange and Techcube offers business space for technology and innovation start-ups.

The UK fintech environment - Market

The UK has strong demand for fintech from its large financial services sector and sophisticated customer base. It will require more collaborative and open culture to take demand to next level.

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Performance (qualitative)

Benefiting from the large financial services sector, the UK has the advantage to drive growth of fintechs from institutional demand. However, large corporates are still relatively conservative in collaborating with fintechs, with a lot of players taking the “wait and see” or “self-build” approach.

On the consumer end, the UK consumers have good digital skills and are willing to adopt new fintech products. However the market size is moderate and Brexit may bring additional challenges for UK fintechs to expand their consumer reach to the EU.

Current initiatives

Demand from the financial services sector

The UK, particularly London, benefits from the large financial services sector.

— The financial sector in UK earned approximately £200 bn in revenues (11% of GDP) in 2015.[65]

— As the leading financial services centre (ranked No.1 in the Global Financial Centre Index)[81], London provides a strong institutional customer base for fintechs.

Financial institutions in the UK see the value of fintech and actively work with fintechs.

— The UK’s fintechs have received CVC investments from 48 corporates in 2016, totalling $499 million across 42 deals.[66]

— However, financial institutions are relatively cautious in bringing fintech propositions into their core business processes. A lot of large companies may choose to build their new technology propositions internally, rather than directly purchase from or integrate with fintechs.

“We are competing with companies’ self-built services. At the moment we have seen a 50/50 split between those who self-build and those who use fintech solutions.”

– B2B fintech solution provider

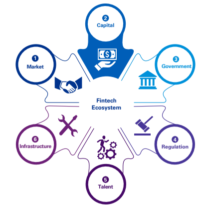
“Large corporates are confident with their capabilities and prefer to build by themselves.”

– Fintech player

Consumer demand

— 2/3rds of adults have mortgages and >95% have at least one bank account with a total of over 140 million current and deposit accounts with high street banks and 50 million customers registered for online banking.[67]

— Adoption of digital is very rapid, for example, use of mobile banking has tripled in 4 years reaching 27% in 2014.[68]



The UK fintech environment - Capital

The UK has good availability of capital for early-stage companies and could do more to provide access to capital for more mature fintechs.

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Performance (qualitative)

The UK provides sufficient access to capital for early-stage fintechs, supported by an active angel investor network, and government initiatives. Tax incentives have encouraged investors to invest in fintechs. Fintechs and entrepreneurs also benefit from tax incentives.

However, there is limited capital available for companies at later stages of growth due to the relatively conservative appetite of local capital. There is also concern around the withdrawal of the EIF, which currently plays an important role in providing fintechs with capital.

Current initiatives

Seed funding

The UK market has a **strong seed funding landscape**, supported by active investor networks.

There is a supportive environment created by the government.

— Schemes such as Seed Enterprise Investment Scheme (SEIS), Enterprise Investment Scheme (EIS) support high growth firms at the early-stage.

— The FCA supports British Business Bank's Business Finance Program which offers innovative financing solutions and considers applications even with minimum funding requirement of £800 million.

— Other funding programmes include start-up loan scheme, enterprise capital fund program and UK angel co-funding.

Investors and entrepreneurs benefit from fintech specific tax benefits.

— **Small Business Rate Relief will be doubled from 50% to 100% in April 2017** in order to foster fintech start-ups in the country.

— **SEIS (2012)** – tax relief for investors in high risk start-up projects.

— **Entrepreneurs Relief (2008)** – capital gains tax relief for entrepreneurs when they sell business assets.

Growth capital

However, there is limited growth capital in the UK to support late-stage/mature fintechs.

— Interviewees commented that they have seen less capital available for companies once they move from seed funding to a more mature stage.

— It requires a long term liquidity market to support and retain good fintechs. It was noted by several interviewees that some companies receiving US investment had to go through a process of restructuring and registration in the US.

— Concerns are expressed among interviewees around the uncertainties of Brexit and implications of the withdrawal of the EIF. The EIF has been key provider of finance to fintechs. The likely withdrawal of this fund from UK fintech funding market will impact funding availability.

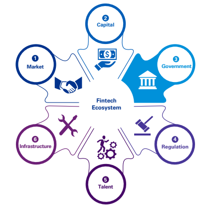
"Local capital seems to be more conservative compared to US capital and we had to go to the US to raise funding even though we are based in the UK"

"UK is fine on seed funding but there are gaps in Series A funding. Not enough VC talent in the UK"

"UK government may need to consider developing a UK version of EIF post Brexit, investing in a longer horizon"

– Fintech player

The UK fintech environment - Government



The UK government has actively supported fintech growth by creating an open market environment and promoting engagement around fintech.

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Performance (qualitative)

The UK Government has been supportive of fintech growth. It has mobilised resources among government bodies, regulators and public organisations to raise awareness and promote discussion on fintech. It also backs a wide range of initiatives to support fintech growth such as the Fintech Delivery Panel, TechCity, investment and tax incentive schemes. It has driven the industry to create an open environment and supported regulators to develop a more open approach to fintech.

However, there are concerns from market players whether the Government can retain focus and deploy sufficient resource to support fintechs. There is also a call for the government to have a common policy position and message around the fintech evolution.

Current initiatives

Communication and discussion

— **FinTech Delivery Panel (2016)** – a forum for fintech, supported by HM Treasury, to drive forward collaborative initiatives to improve and nurture the fintech landscape.

— **Financial Services Trade and Investment Board (FSTIB) FinTech Steering Group** – supported by HM Treasury and run by TheCityUK, the Steering Group focuses on issues impacting the attractiveness of the fintech ecosystem for incumbent companies and those seeking to invest in the UK.

— **All Party Parliamentary Group on FinTech** was set up to raise awareness in Parliament of the importance of fintech to the UK economy.

— **FinTech Bridges**: a framework for enhanced cooperation which will help fintechs in their overseas growth plans. The UK Government has set up fintech bridges with South Korea, Singapore and Hong Kong.

"Fintech is a great economy opportunity and UK has the best platform to take it to next level. The government should have a role in taking this to the rest of the world, e.g. Africa, South America"

– Fintech player

Open banking framework

The Government is driving the **Open Banking Standards** to promote openness and competition in banking [69]

— This will allow fintechs to access bank data and initiate payments via APIs and support a host of lower cost and innovative services.

— Open Banking will be delivered from January 2018.

Other initiatives

— The Government has established various **investment schemes** and **tax measures** to support high growth firms and encourage investors (see previous page).

— The Government has supported the FCA in **driving international collaboration** with regulators in other countries (for example, Australia, Canada and China).

— **Innovative Finance ISA** – introduced by the FCA for loans arranged via P2P platforms in FY16.

"The Government's focus on fintech may get diverted considering the current challenges around Brexit"

– Fintech player

The UK fintech environment - Regulation

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The PRA and the FCA have taken open and practical approaches to support fintech growth. They could further enhance their role by providing more forward thinking rules and guidance.

Performance (qualitative)

The UK regulators have taken a proactive approach and launched a number of initiatives for fintech regulation. UK leads on a number of new regulatory considerations. The FCA Regulatory Sandbox has helped to create an open field for both fintechs and other players to try and learn in a more relaxed regulatory environment. The Bank of England has a fintech accelerator to work with firms to explore innovation.

The fast pace of fintech development requires the regulator to move quickly, develop new rules / provide guidance around new technologies (P2P, blockchain, Initial Coin Offerings (ICOs), IoT) and clarify regulatory perimeters.

Current initiatives

Regulatory initiatives

The UK regulators have been **leading the fintech agenda**, with an **open and practical** approach.

— **Project Innovate** was launched in 2014 by the FCA to facilitate the introduction of innovative financial products and services.

— **Regulatory sandbox**, introduced in 2015, provides an environment for fintechs to test new products, services, business models with extra support adhering to regulatory processes. There have been a total of 55 firms selected by the programme.

— **Fast-track authorisation** (under consideration) – businesses that have engaged with the FCA Innovation Hub will subsequently be assisted through a fast-track authorisation process with specific help to internationalise their business.

— The PRA and FCA have established **New Bank Start-up Unit** to support new bank authorisations.

Development areas raised by the interviewees include:

— Being **more forward thinking** to develop rules for new fintech propositions, keeping up pace with fintech development.

— Being more **prescriptive to define parameters** of measuring good/bad practices, providing clear guidance.

— **Supporting internationalisation** of the regulatory frameworks and helping firms to grow globally.

New regulations under consideration

Digital currencies: the Anti-money Laundering (AML) regulation is expected to be applied to digital currency exchanges as per Budget 2015.

"Regulator's initiatives have created an open conversation, which allow us to learn and try."

– Head of Innovation at a major bank

"Regulator needs to be nimble. Currently they may not have sufficient resource to support the number of new business"

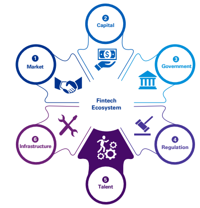
– VC investor

"It should go beyond interpreting the rules relevant to fintech within the old framework. New rules need to be developed."

– Fintech player

"Regulators may have a role to play in supporting fintech's internationalisation."

– Fintech player



The UK fintech environment - Talent

The UK has a good talent pool for financial services expertise, however, the depth and sustainability of talent requires improvement.

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Performance (qualitative)

Market participants indicated the UK has strong talent around financial services but lack depth of tech and entrepreneurial skills compared to some leading tech hubs such as California and Israel.

There is limited level of support around tech education with few or no training schemes and courses. Lack of local talent will require the UK to consider how to retain and attract foreign expertise. Uncertainties exist around the labour market post Brexit, and the Government needs to consider how any emerging talent gaps can be addressed.

Current initiatives

Regulatory initiatives

The UK has a good existing talent pool in both financial services and technology

— **The UK fintech industry has over 60,000 employees**, larger than those in Singapore, Hong Kong and Australia combined.[69]

— **The UK employs over a million people in the financial services industry** and enjoys an unrivalled lead in financial expertise.[3] It also has over a million tech workers.

However, **the depth and pipeline of talent** in the UK needs to be improved. Our interviewees expressed concerns around:

— **Lack of entrepreneurs** to start-up companies.

— Significant **gaps in technology skills** compared with some other fintech centres such as Israel and California.

Fintechs interviewed **expect Brexit may impact availability of talent** to some extent and look forward to government's actions on this.

"London still has its charm to the fintech community due to the good infrastructure, attractive market and English speaking environment."

– Fintech player

"A lot of Fintech players like myself may have to consider relocating after Brexit, which we certainly don't want to"

– Fintech player

Academic networks and Tech Education

— **Government STEM policy paper "2010 to 2015"** – outlines actions to support and grow STEM in schools.

— **ELITE Programme (2014)** – 14 month programme run by the London Stock Exchange in partnership with Imperial College to provide education, mentorship and funding to start-ups.

— **Tech City UK's Digital Academy (2014)** – provides online courses on business acumen.

— **The ICT Curriculum Review (2013)** – introduced computer science and coding courses in school in order to develop talent in the UK.

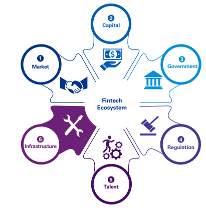
Visa scheme

— **Tech Nation Visa Scheme – Tier 1 Exceptional Talent (2015)** – aims to attract tech experts, academics and start-ups.

— **Graduate Entrepreneur Visa (2012)** – Enables exceptional overseas graduates to stay in the UK if they possess sought-after entrepreneurial skills or have genuine, innovate business ideas.

"We are hoping that the government would have some sort of arrangements to mitigate the impact"

– Fintech player



The UK fintech environment - Infrastructure

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Soft infrastructure for fintech in the UK is adequate while more support is needed in providing affordable office spaces.

Performance (qualitative)

The UK Government has taken initiatives to develop leading infrastructure in both technology and financial services. Investment in cloud computing capability can provide best-in-class tech infrastructure that fintech can use to create their products, conduct analysis and deliver services. Development of financial services infrastructure such as payment standards of distributed ledger, would clear barriers for fintech to innovate.

The industry is expecting the Government to play a greater role in identifying and providing office space, as well as industry wide standards such as digital identity to facilitate the further disruption.

Current initiatives

Office space for fintech

— Fintechs face **challenges in accessing low cost office space**.

— Start-ups have started working from co-working spaces which provides flexibility and low cost office space. In 2016, flexible office take-up amounted to 8.8% of total office take-up.(70)

— However, London is still an expensive place to rent compared with other regions. Prime rental cost of office space in London is more than twice the cost of other major cities such as Manchester and Birmingham.(71)

Support to fintechs could be in the form of providing office space and other soft infrastructure.

— It is noted that some regional hubs are doing well in this respect. The Welsh Government has created Cardiff Central Enterprise Zone, with 560,000 sq.ft. of new office space and offering additional business support package for companies in the Enterprise Zone.(72)

"Space is seen to be an issue especially in the 2nd year of a fintech's life cycle."

"Provision of space is important to create cluster. City of London is a great location to provide the base for the cluster"

– Fintech observer

Infrastructure supporting cloud computing

— **G-Cloud Framework**: A UK government programme to promote government-wide adoption of cloud computing.(73)

— **Business–led digital skills programme**: Trainings launched by companies like Microsoft and Amazon to upskill people on cloud computing technology.(74)

— **Investments in cloud data centres** to support UK firms to work faster and in a smarter way.(74)

Initiatives around payment & distributive ledger

— **Payment Systems Regulator**: Launched in 2015 to ensure that payment systems promote the interests of businesses and consumers through effective competition and innovation.

— Initiatives taken by the Bank of England:

  — Widening **access to RTGS payment** to include non-bank Payment Service Providers (PSP).(75)

  — Upgrading the RTGS system which will be compatible with distributed ledger.(76)

05. Recommendations

Recommendations : Secure a fintech sector deal

1 **Secure a sector deal for fintech to reinforce and cement the UK and London as a leading global hub for fintech**

The UK is considered a global hub for fintech with the UK government and the financial services regulators perceived as very proactive in supporting the evolution of fintech. Other countries such as China, Korea and India are keen to partner with the UK through fintech bridges to learn and encourage developments in their own markets.

However, there is a need for the UK to establish a single and consistent position on fintech which will further enable the overall sector to effectively market itself as a good destination for fintechs and as a source of fintech services.

We believe that **the fintech ecosystem, coordinated by the City of London Corporation and other organisations such as Innovate Finance and FinTech Delivery Panel, should secure a fintech sector deal** as set out in the Government's Industrial Strategy Green Paper (January 2017). This will further cement the UK as a global leader in fintech.

Within the purview of the sector deal, the following initiatives need to be undertaken:

— The fintech industry and the key players should **collaborate with each other and commit to develop and implement initiatives** aligned to the objective of the Government's industrial strategy to improve living standards and economic growth by increasing productivity and driving growth through the following:

  — **Support the government in implementing initiatives** such as developing a single public policy, vision and strategy for fintech and driving harmonisation/equivalence of international standards and regulations (for example, data protection and privacy) for fintechs, and engaging emerging markets such as China through the fintech bridges initiative to explore export opportunities for the UK.

  — Along with the government, **coordinate the development of open standards** relevant to fintech (for data, technology and processes) by building on the Government's Open Standards Principles and the Technology Code of Practice. This will enable the UK to drive consistency across fintech services.

  — **Develop standards / guidelines** that will enable incumbents and wider industry to identify high potential fintechs / technologies.

  — **Enhance regional engagement and integration** by locating in and sourcing capabilities and expertise from the regions.

  — **Support talent development** through training and apprentice schemes targeted at fintechs.

— **The Government should support the development of fintech through initiatives focused on policy and regulations, funding and capital, infrastructure and talent** (elaborated in the pages that follow).

Recommendations : Policy and regulations

Based on interviews and analysis of the market, we have identified four recommendations focused on policy and regulations.

The UK government and the financial services regulators (the PRA and the FCA) are perceived as proactive in supporting the evolution of fintech through a wide range of initiatives such as the FinTech Delivery Panel, Tech City UK, New Bank Start-up Unit and the FCA's Project Innovate and regulatory sandbox. While these initiatives position the UK favourably, there are significant opportunities to further support fintech, expand its economic reach and accelerate growth of the fintech ecosystem.

2 Provide clarity on the regulatory perimeter applicable to fintechs and the underlying technologies they employ (for example platforms AI and machine learning, p2p and crowdsourcing) and clarify requirements that fintechs need to fulfil

The PRA and the FCA, as the regulators of the financial services industry, have defined regulatory perimeters as it applies to financial stability and services that financial services provide.

With the development of fintech, the traditional practices in the provision of banking, insurance and asset management services are changing due to the use of innovative technologies (for example, telematics, IoT, ICOs, AI and DLTs) and analytical tools. Fintechs also provide non-standard products to previously underserved and unserved customers. The PRA (through the New Bank Start-up Unit) and FCA (through regulatory sandbox and Project Innovate) have provided support and guidance to fintechs.

However, fintechs would benefit from more clarity on what compliance looks like and what the key conduct, operational, risk, data security and management requirements are for the fintech industry.

In order to clarify the regulatory perimeter and key requirements, we recommend the following:

— **Develop and issue regulatory perimeter guidance specific to fintech activities**, aligned to the existing PRA and FCA regulatory perimeter guidance. This will build on and further supplement existing guidance (for example, FCA handbook) and that provided by the FCA through Project Innovate and PRA initiatives.

— **Provide clarity on the operational requirements** (for example, across risk, processes, business plan, IT and data) for fintechs to be authorised (see recommendation 3).

— **Assess developments in fintech together with the industry** to identify and prioritise the pipeline of regulatory initiatives. The pipeline can be shared with the wider fintech community to enable them to understand regulatory intent.

3 Build on the successes of the PRA and the FCA initiatives and establish procedures to support fintechs around regulatory requirements

FCA launched Project Innovate in 2014 with the aim of helping fintechs tackle regulatory barriers to innovation. Since its inception, it has assisted over 350 firms resulting in 29 authorisations and 11 additional applications.[79] Project Innovate also supports the development of regtech.

FCA also launched the Regulatory sandbox to enable fintechs to test innovative products, services and business models. The PRA has implemented a fintech accelerator and partnered with the FCA on the New Bank Start-up Unit.

These initiatives have firmly established the UK's regulatory environment as very open to innovation.

To further cement the UK as the global hub for fintech, we recommend the regulators to consider the following initiatives:

— **Simplify authorisation for the FCA regulatory sandbox participants** by requiring minimum but critical information and documents to enable the FCA to make authorisation decisions quicker. This could also be achieved by further embedding the authorisation process within the sandbox and **identifying opportunities to support/engage with fintechs** early in their development so that they understand the requirements for authorisation.

— **Provide support around regulatory issues** by having dedicated fintech capability/teams around sectors (for example insurtech, peer-to-peer, on-demand insurance)/specialisms (for example robotics, telematics) and manage outreach activities to the broader fintech ecosystem. **Replicating the success of the current sandbox through additional sandboxes** at the FCA/PRA could also broaden support to the increasing number of fintechs.

— While the PRA is engaged in fintech through the accelerator and the New Bank Start-up Unit, the **PRA should work towards providing more clarity around prudential and solvency requirements for fintechs as they grow bigger**.

Recommendations : Policy and regulations

Based on interviews and analysis of the market, we have identified four recommendations focused on policy and regulations.

4 Identify and support UK regions to become regional hubs and enablers of the growth of the wider fintech ecosystem

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The UK financial services industry is spread across the UK, with London and Edinburgh as the major centres. A number of financial services companies such as Nationwide, NFU Mutual, Admiral Insurance and LV= are based outside London and Edinburgh. The regions also provide operational capabilities such as customer, marketing and technology support to these financial centres.

The development of fintechs aligns to the distribution of financial services and regions continue to play an important role in the development of fintech. For instance, successful fintechs such as Atom Bank and Crowdcube are based outside London.

There are significant benefits to the UK economy and the wider financial services by supporting growth of fintechs in the regions. Fintechs could provide opportunities for the UK to drive growth and integration of the regions into the overall fintech and financial services ecosystem. This could be achieved through the following:

— **Ensure fintech is a priority agenda on the plans of regional and local governments, and the LEPs**. For instance, ensure that the development of the financial services industry and fintech is a key component of the regional and local government initiatives such as the Northern Powerhouse. The Government can leverage the existing network for fintech envoys for some regions and the FCA's engagement framework with the regions.

— **Identify regions and cities as focus areas for fintechs** and provide (infrastructure and financial) support **to develop them into fintech clusters/hubs** (for example, leverage the financial services cluster in Leeds City Region). Collaborate with industry associations such as the ABI, BIBA, UK Finance and regulators such as the PRA and FCA.

— **Explore opportunities to identify and agree focus areas** of fintechs in the regions and **allocate funding and capital / provide incentives** to local and regional government and qualifying start-ups**.** Encourage financial services companies and Fintechs to consider regions and cities for their fintech hubs and in sourcing capabilities such as talent and technology.

5 Support fintechs in developing partnerships with the financial services incumbents

A key challenge for the existing fintechs is their inability to get traction with incumbents who bring financial services expertise, customers and data to test their ideas and scale up. While Open Banking and similar innovations provide better access to fintechs, partnerships with and access to incumbents in the financial services industry will accelerate how fintechs develop.

A challenge for incumbents in developing relationships with and investing in fintechs is in understanding whether fintechs have sufficient resources in the medium term to be sustainable.

We recommend the following:

— **The Government should explore opportunities to develop and implement a match-making scheme/programme where fintechs can get access to incumbents** (who volunteer or are selected) and test/experiment their products and business). The Government can consider incentives such as R&D tax credits for incumbents who partner and work together with fintechs to develop their capabilities / technologies.

— **Industry associations** (for example, ABI, UK Finance, BIBA, Investment Association) **should work together with Innovate Finance and some of the larger accelerators to articulate what incumbents seek from fintechs**.

— Fintechs, through Innovate Finance, **develop standards that will help incumbents and the wider industry understand fintech offerings and their business models.** This will further enable the technology divisions within incumbent firms adopt fintech.

Recommendations : Advocacy

Narratives of fintech in the market have focused on activities of the emergent fintechs and the incumbent financial institutions. Opportunities exist in the market to advocate and share positive messages on the value of fintechs with the end customers to generate demand and engage the industry.

Success stories around fintech have focused on both incumbents and fintechs, with little or no focus on how fintechs can drive benefits to the end consumers. Fintechs, the wider FS sector and the Government should share the value of fintech to the end consumers and wider society.

6 Conduct activities to advocate the benefits of fintech and drive engagement with end customers and the policy makers

Success stories around fintech have been focused on incumbents and fintechs, with little to no focus on the value fintechs deliver to the end customers. The fintechs, the wider FS sector and the Government should implement initiatives to share the value of fintech to the end customers and the wider society:

— **Successful fintechs, Innovate Finance and the FS Industry should demonstrate the benefits** that fintech can deliver to the end customers by providing new products and services, reducing costs and improving customer experience through combined or joint marketing activities and events. This will help drive adoption by individuals, SMEs and corporate clients.

— **Together with the relevant Government departments,** the fintech industry and the wider sector should also **hold information sessions to engage wider stakeholders and policy makers in the Government** on fintech and how fintech supports and enables the UK's financial services industry to remain competitive in addition to driving benefits to the wider society.

7 Promote and position the UK as a global hub for fintechs

While the UK fintech industry is reliant on the EU for access to capital funding and tech talent, it's overall economy and FS market will continue to be huge.

The UK will continue to be attractive to both incumbents and fintechs if the Government should implement the following actions to provide certainty and direction for the market players:

— **Promote and position the UK as a global hub for fintechs in the long term** by developing a single government policy position, vision and strategy for fintech. The Government can leverage the UK's leadership in fintech and the evolving fintech bridges to **drive international cooperation and inter-jurisdictional equivalence of regulations and standards** (including those for data protection and privacy).

— **Develop and implement, in the short term, a campaign to engage the fintech ecosystem** and keep them on board. This could be an initiative spearheaded by one of the Government agencies with support from the wider FS and fintech market.

— **Provide, as much as possible direction, on what Brexit will mean for the FS industry and the fintech ecosystem** (for example, harmonisation of regulations, approach to talent).

Recommendations : Funding and capital, and infrastructure

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The Government and the industry should work together to unlock funding for mature start-ups to attract and retain larger fintechs.

While the UK has a large financial services market and a favourable regulatory environment, our interviews and analysis indicate a shortfall in funding and capital for mature start-ups.

8 Identify and unlock sources of funding for late stage and mature start ups

The UK is attractive for early-stage start-ups due to availability of capital from angel investors and venture capital funds. However, as the fintechs mature and funding needs become larger, market interviews have indicated that capital is scarce, often requiring the firms to seek funding from the US and the European VC markets. Sometimes these require the fintechs to relocate to the US.

The Government is currently undertaking a review of Patient Capital to identify barriers for innovation firms to access long term finance.

To specifically support fintechs and make funding available for mature start-ups, the following initiatives should be considered:

- **Within the Patient Capital Review, the Government should assess how funding** from the institutional market, including pension funds, **can be unlocked for fintechs and late-stage and mature start-ups.**
- Following Brexit, the European Investment Fund will be withdrawn. The Government should work with **British Business Bank and other stakeholders to provide (replacement) capital or a fund into the fintech and wider start-up market** for projects that run beyond 2019 (under EIF) and for fintechs looking to UK post 2019.
- **Review the existing tax regime** (for example, Capital Gains Taxes, R&D Tax credits for incumbents and corporation tax), incentivise retail and institutional investments and benchmark against emerging financial services and fintech hubs and **assess if the taxes applicable to capital providers make the UK competitive in the long term.**

There is an opportunity to review infrastructure and ancillary services available for fintechs and implement initiatives to address any critical gaps.

Quality infrastructure and ancillary services (legal services, tax and risk support) are critical for the success of fintech hubs.

9 Review any infrastructure and ancillary services that are critical for UK fintechs and implement initiatives to address any gaps

London has around 40 accelerators and incubators and multiple co-working spaces. Leeds, Edinburgh and Manchester also have similar facilities for fintechs and start-ups.

However, our interviews indicate that the UK and London could provide support around infrastructure and ancillary services to aid the fintech market.

We believe the Government and the industry should address any emerging gaps through the following initiatives:

- **Review existing accelerator and incubator facilities in and outside London,** and **assess the availability of affordable infrastructure and ancillary services for Fintechs**. Identify gaps and work with incumbent financial services firms, property owners and City Property Association to see how the facilities can be more effectively utilised and targeted at fintechs.
- Fintechs and Innovate Finance should **collaborate with providers of ancillary services such as the accountancy firms, property services companies, legal and tax firms**. Such firms have teams dedicated to supporting the fintech sector. The Government, through the Fintech Delivery Panel and Tech City UK, could organise forums and platforms to collaborate with each other, and build a database of fintech friendly service providers.
- The UK overall lacks a specific cluster focused on fintechs (similar to Silicon Fen / Cambridge Tech cluster or the digital health cluster in Birmingham) which can accelerate growth by attracting capital, talent and specialist companies. The Government should, through consultation with the financial services industry, fintech players and other partners such as property owners and Professional Services firms, **identify potential locations for a fintech cluster in or outside London**. For instance, the Government can leverage the emerging financial services cluster in the Leeds City Region.

Recommendations : Talent

Financial services, technology and entrepreneurial talent is key to the development of the fintech market. We recommend assessing the existing talent pool and developing the future talent pipeline.

Fintech is an evolution of the financial services sector and will continue to demand financial services, tech and entrepreneurial talent. Availability of talent, now and in the future, is critical to the development of fintech hubs. The UK, through its large financial services sector, has an ample supply of financial services talent. However key players in the fintech ecosystem have indicated that the UK and the London fintechs face potential talent gaps, particularly in technology and entrepreneurship, in the medium and long term.

10 **Assess talent (financial services, tech and entrepreneurial) needs within the UK fintech market, assess availability and implement short and medium term measures**

To address emerging concerns of supply of talent in the fintech industry, the government and industry should implement the following:

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— **Review the talent needs of fintechs incorporating the likely impact of Brexit**. Fintechs and investors into start-ups point to the significant proportion of talent from the EU and outside the UK. For example, approximately 30% of founders are non-British. This could be led by one of the Government-backed initiatives such as the FinTech Delivery Panel or a fintech association in partnership with financial services companies and the wider fintech participants.

— **Encourage the private sector (financial services and successful fintechs) to develop short programmes and courses** specific to fintech (for example emerging technology, coding) which aspiring graduates/individuals can pursue to develop their skills. The fintech industry should also identify relevant universities for research partnerships to support fintech development.

— **Assess the talent pipeline for the next 5-10 years and build relationships with universities** to develop specific fintech courses (for example, Oxford Business School FinTech course) to train potential science and management graduates for careers in FS and fintech. If required amend/update curriculum to align it to the overall fintech strategy.

— **Review and identify measures for how talent specific to financial services and fintech can be attracted into the UK** through further refining the current visa regime (relaxing specific requirements under the work visa scheme) and streamlining it to the fintech market needs.

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Methodology

Scope and definition

The report focuses on the value of fintech to end customers and highlights how the UK and London perform as a fintech hub against key attributes required for a successful fintech hubs.

While defining fintechs, the research excludes large incumbent technology and software companies which also participate in financial services.

Data

This report uses fintech deal data collected by Pitchbook platform up until end of August 2017. The data includes investments made by Venture Capital, Private Equity and M&A. Where the report refers to investment by specific source, it is explicitly clarified. The research also includes data from KPMG's publications in fintech such as The Pulse of Fintech. We also refer to a number of publicly available information, and complement with KPMG analysis.

Survey

The research also uses findings from KPMG's global survey of fintech activities in financial institutions. The survey studies on the role of fintech among global financial institutions, reviewing how incumbent financial services firms view and approach to fintechs. The survey involved 92 banks, 46 insurance companies and 25 asset managers across 36 countries. 58% of the respondents held a C-level position.

Interview programme

During the course of the research, we interviewed a selected number of players in the fintech ecosystem. The interviewees included fintechs, incumbent financial services companies, industry associations such as the ABI, TISA, Innovate Finance, representatives from Government agencies, and capital providers. In total, we spoke to more than 40 organisations and individuals. The interviews and discussions focused on the value of fintech and their perspectives on how the UK and London compare with other fintech hubs.

In addition, we also gathered inputs from KPMG's network of fintech hubs, focusing on the practices of other leading fintech hubs around the world.

We would like to express our sincere thanks to all interviewed participants and their contributions to this report.

Glossary

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ABI	Association of British Insurers
AI	Artificial Intelligence
AML	Anti-Money Laundry
API	Application Programming Interface
AuM	Asset under Management
BIBA	British Insurance Brokers' Associations
DLT	Distributed Ledger Technology
EIF	European Investment Fund
eIDV	Electronic Identity Verification
ESVF	Early Stage Venture Fund
ETF	Exchange Traded Fund
EU	European Union
FCA	Financial Conduct Authority
FI	Financial Institution
Fintech	Financial Technology
FS	Financial Services
FX	Foreign Exchange
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
HR	Human Resources
Insurtech	Insurance Technology
ICO	Initial Coin Offering
IoT	Internet of Things
ISA	Individual Savings Accounts
IP	Intellectual Property
IT	Information Technology
KYC	Know Your Customer
LEP	Local Enterprise Partnership
M&A	Mergers & Acquisitions
MAS	Monetary Authority of Singapore
NBN	National Broadband Network
NLP	Neurolinguistics Programming
NPP	New Payments Platform
P2P	Person to Person
PE	Private Equity
PPI	Payment Protection Insurance
PRA	Prudential Regulation Authority
PSP	Payment Service Providers
R&D	Research and Development
Regtech	Regulatory Technology
RTGS	Real Time Gross Settlement
SaaS	Software-as-a-Service
SEIS	Seed Enterprise Investment Scheme
SME	Small and Medium Enterprises
STEM	Science, Engineering, Technology and Mathematics
TIS	Technology Incubation Scheme
TISA	Tax Incentivised Savings Association
UK	United Kingdom
US	United States of America
VC	Venture Capital

Fintechs featured in this report

Cuvva
TransferWise
aire
Doreming

Funding Circle
iwoca
RightIndem
boundlss

iZettle®
Tide
SB Simply Business
BOLD PENGUIN

PensionBee
Ravelin
HS HELLOSODA

Trulioo
CoVi Analytics
neos
MYPOLICY

oval
moneybox
Wealth Wizards
nutmeg

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About The City of London Corporation

The City of London Corporation is a uniquely diverse organisation. We have a special role and wide remit that goes beyond that of an ordinary local authority with three main aims: to support and promote London as the world's leading international financial and business centre and attract new business to the capital and the whole UK; to work in partnership with local communities to increase skills, employment and opportunities for all Londoners, including through the City Bridge Trust; and to enhance the capital as a hub of culture, history and green spaces for Londoners – residents, workers, and visitors. Many of these services are funded from our own resources, at no cost to the public, and benefit London and the nation. The City Corporation also plays a key role in sustaining London's lead in international business and finance.

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About KPMG's Global Strategy Group

KPMG's Global Strategy Group works with private, public and not-for-profit organisations to develop and implement strategy from 'Innovation to Results' helping clients achieve their goals and objectives. KPMG Global Strategy professionals develop insights and ideas to address organisational challenges such as growth, operating strategy, cost, deals and transformation.

About KPMG Fintech

The Financial Services sector is transforming with the emergence of innovative products and solutions. This wave of innovation is primarily driven by changing customer expectations and continued regulatory and infrastructure cost pressures. KPMG is passionate about this transformation, working directly with emerging fintechs through 30 global fintech hubs. KPMG also brings its global fintech insight to traditional financial institutions, helping them fully realise the potential fintech has to grow their business, meet customer demands, and help them stay relevant and competitive.

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