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Banks Versus FinTech: At Last, it's Official

Sinziana Bunea, Benjamin Kogan, David Stolin

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Banks Versus FinTech: At Last, it's Official

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Abstract
In recent years, we have witnessed a substantial amount of discussion, but little empirical evidence, about the threat that financial technology ("FinTech") firms pose to the established banking sector. We seek to contribute such evidence by analyzing explicit mentions of competition from FinTech in U.S. banks' annual reports. Surprisingly, there were no such mentions prior to 2016. We identify 14 banks that acknowledge being threatened by FinTech companies. These banks represent only 3% of the banking sector by count but nearly a third of its assets. While this FinTech-mentioning group is skewed toward large banks, its characteristics and valuation differ little from those of other banks of comparable size. On the other hand, there is some evidence that banks that have expressed concern about FinTech competition are more likely to be involved in the FinTech space themselves. Overall, banks that have formally voiced their concern about FinTech competition seem, if anything, to be better equipped to weather it.

1 We are grateful to Frank Dierick, David Le Bris, Yuliya Snihur, and Maxim Zagonov for comments. All errors are ours.

INTRODUCTION

Interest in financial technology, or "FinTech," has been growing almost exponentially since the last financial crisis. It has been accompanied by predictions of severe disruption of traditional banking. Headlines such as "Banks are right to be afraid of the FinTech boom" [Hart (2015)] have become commonplace. Concern has also come directly from bank executives. In a widely quoted comment, JP Morgan's CEO James Dimon said in early 2014 "[w]hen I go to Silicon Valley… they all want to eat our lunch. Every single one of them is going to try" (Krouse, 2014). The Economist (2015) states that 54% of the senior bankers it surveyed believe that "banks are not meeting the challenge" posed by FinTech. More recently, PWC (2016, p.19) reports that 95% of the banks that it surveyed "believe that part of their business is at risk of being lost to standalone FinTech companies." Given such sentiment, one would expect FinTech disruption risk to feature prominently in risk disclosures among U.S. banking institutions, and to have done so for some time.

In this study, we examine explicit references to potential competition from FinTech in annual SEC filings of U.S. bank holding companies (for brevity, we use this term interchangeably with "banks"). Surprisingly, only 14 banks, or 3% of the total, acknowledge FinTech as a competitive risk – a far cry from the majority of bankers that express concern in anonymous surveys. No less remarkably, not a single one of these 14 banks formally considered FinTech to be a competitive risk prior to 2016.

Are the 14 banks particularly vulnerable to the FinTech threat, as taking the disclosure at face value would suggest, or are they simply more aware of it? Does it make a difference whether a bank discusses the FinTech threat explicitly or implicitly? While definitive answers to these questions are elusive, some preliminary insights can be gleaned from the data.

BACKGROUND

All public U.S. corporations are required to file annual reports by the Securities and Exchange Act of 1934. Since the 1990s, these reports have had to be filed electronically through the so-called Form 10-K.[2] Competition the company faces is typically discussed either in Item 1 ("Business description") or in Item 1A ("Risk factors"). In Mirakhur's (2011) random sample of 122 filings, 83% included a discussion of competitive risks. Campbell et al. (2014) found risk disclosure to be informative of actual firm risk levels. Johnson (2010) states that the SEC had been pushing for greater specificity in risk factor disclosure. IRRC Institute's (2016) study of risk disclosures reports that "competition, global market factors and regulatory matters are the most common risks cited by all companies but are often discussed generically. This suggests an opportunity for companies to reconsider existing generic discussions" (p. 3). Cohen et al. (2016) show that firms are very slow to change the wording of their quarterly and annual SEC filings – but when they do so, the changes are highly informative (especially in "Management discussion and analysis" (MD&A) and "Risk factors" sections).

Technology has always played an important part in the financial services industry, be it the arrival of the internet, the telephone, or the telegraph [Garbade and Silber (1978)]. In recent years, technology-driven innovation in finance has accelerated to a point where the terms "financial technology" or "FinTech" are commonly understood to be shorthand for technological innovations in finance and/or for the business sector comprised of firms that enable such innovations.[3] Accordingly, the term "FinTech" has become accepted within the banking industry as well, with numerous senior industry figures employing it in speeches and interviews.[4] In light of this, and with numerous reports and surveys pointing to FinTech having the potential to disrupt traditional banking, one could expect banks' risk disclosure to address FinTech competition by its name.

THE CHARACTERISTICS OF FINTECH-WARY BANKS

We start our investigation by identifying all depository institutions (i.e., corporations whose standard industrial codes (SICs) start with "60") whose 10-K filings from 2013 onward mention the term "financial technology" or "FinTech." We retain those filings where the above terms occur i) in Item 1A ("Risk factors") or ii) under the

2 According to the SEC, "The annual report on Form 10-K provides a comprehensive overview of the company's business and financial condition and includes audited financial statements. Although similarly named, the annual report on Form 10-K is distinct from the "annual report to shareholders," which a company must send to its shareholders when it holds an annual meeting to elect directors." (https://www.sec.gov/answers/form10k.htm)

3 It is a little-known fact that the earliest mention of the term "FinTech" in a peer-reviewed journal far predates its mention in the popular and business press. Bettinger's (1972) report in Interfaces starts as follows: "Over the last four years Manufacturers Hanover Trust Company's Operations Research Department has developed approximately 100 models that are currently used throughout the bank. A group of 40 models has been set aside and designated as FinTech. **FinTech is an acronym which stands for financial technology, combining bank expertise with modern management science techniques and the computer**" (our emphasis). While this decades-old definition has unmistakable parallels with common understanding of today's FinTech sector, modern academic journals have yet to embrace FinTech as a distinct field of study. It also is interesting to note that Manufacturers Hanover was one the constituent parts of today's JP Morgan. For more detail about FinTech, see Gardiner (2016). For a broad historical perspective on FinTech, see Goetzmann (2016).

4 Note also that American Banker magazine's "FinTech 100" survey was first published in November 2004.

Ticker	Company	State	CIK	MV ($m)	Assets ($m)	Rank	Employees	MV/Assets	MV/Emp
BK	Bank of New York Mellon Corp.	NY	1390777	45,367	385,303	5	50,300	0.118	0.902
BBT	BB&T CORP	NC	92230	28,028	186,814	9	33,400	0.150	0.839
BNCL	Beneficial Bancorp Inc.	PA	1615418	923	4,752	114	830	0.194	1.111
STL	Sterling Bancorp	NY	1070154	1,070	7,337	81	836	0.146	1.279
CSBB	CSB Bancorp INC/OH	OH	880417	58	621	351	186	0.094	0.313
UNB	Union Bankshares Inc.	VT	706863	106	624	350	186	0.170	0.569
FIBK	First Interstate Bancsystem	MT	860413	1,274	8,610	68	1,705	0.148	0.747
UBSI	United Bankshares Inc./WV	WV	729986	2,595	12,329	56	1,703	0.210	1.524
HBK	Hamilton Bancorp Inc./MD	MD	1551739	47	303	404	58	0.154	0.803
CFBK	Central Federal Corp.	OH	1070680	19	316	402	62	0.061	0.311
HBNC	Horizon Bancorp/IN	IN	706129	241	2,077	186	448	0.116	0.538
BMTC	Bryn Mawr Bank Corp.	PA	802681	431	2,247	176	444	0.192	0.971
HBAN	Huntington Bancshares	OH	49196	8,537	66,298	21	11,873	0.129	0.719
KEY	Keycorp	OH	91576	11,946	93,821	18	13,853	0.127	0.862
IBKC	IberiaBank Corp.	LA	933141	2,169	15,759	48	2,825	0.138	0.768
MBFI	MB Financial Inc./MD	IL	1139812	2,457	14,602	53	2,839	0.168	0.865
JPM	JPMorganChase & Co.	NY	19617	232,471	2,573,126	1	241,359	0.090	0.963
BAC	Bank of America Corp.	NC	70858	188,141	2,104,534	2	223,715	0.089	0.841
PNC	PNC Financial Services Group Inc.	PA	713676	47,713	345,072	6	53,587	0.138	0.890
USB	U.S. Bancorp	MN	36104	80,275	402,529	4	66,750	0.199	1.203
SIVB	SVB Financial Group	CA	719739	5,911	39,345	23	1,914	0.150	3.088
COLB	Columbia Banking System Inc.	WA	887343	1,586	8,579	69	1,844	0.185	0.860
UMBF	UMB Financial Corp.	MO	101382	2,590	17,501	43	3,592	0.148	0.721
FULT	Fulton Financial Corp.	PA	700564	2,212	17,125	44	3,560	0.129	0.621
UMPQ	Umpqua Holdings Corp.	OR	1077771	3,745	22,613	34	4,569	0.166	0.820
SNV	Synovus Financial Corp.	GA	18349	3,688	27,051	29	4,511	0.136	0.817
ZION	Zions Bancorporation	UT	109380	5,788	57,209	22	10,462	0.101	0.553
CMA	Comerica Inc.	TX	28412	8,385	69,190	20	9,115	0.121	0.920

This table gives the identities and characteristics of our sample and control banks. Sample banks are unshaded. Each sample bank is followed by its matching control bank (shaded). Sample banks are U.S. headquartered public companies whose SIC begins with "60" and which explicitly refer to competition from the FinTech sector in a 10-K filing. Control banks do not explicitly refer to competition from the FinTech sector, but are otherwise similar to sample banks. Specifically, for each bank in our sample, we identify its control bank as another U.S. headquartered bank with the same 4-digit SIC for which a 10-K form with completed Item 1 and Item 1A is available for the most recent fiscal year, and with the closest number of employees to that of the sample bank. All data are from Compustat as of the end of the 2014 fiscal year.

Table 1 – Descriptive statistics of sample and control banks

heading "Competition" or iii) in the same or the following sentence as a word including the string "compet" (such as "competes," "competition," or "competitive") but not "competen" (such as "competent" or "competence").

Our final sample comprises 14 banks, representing 3% of the population of U.S. listed bank companies. All of these banks explicitly mention competition from FinTech in their 2016 filings, and not in the previous years. These banks are listed in the left column of Table 1.

Further, for each of these banks, we scan their 2016 and the previous year's 10-K filings for indirect mentions of competition with financial technology companies. To do so, we follow the same criteria as described in the paragraph above, but replace the search terms "FinTech"/"financial technology" with "online"/"internet"/"e-commerce"/"technology."[5]

5 The relevant text is presented in Appendix 1 of www.fintxt.com/s/FinTech.pdf

Although our sample is small, we nonetheless will seek to understand whether officially FinTech-wary banks are different from their peers. To this end, we construct a peer group of comparable banks to use as a benchmark. Specifically, we first identify, using the Compustat database, the eligible population of U.S.-headquartered depository institutions with SEC filings in 2015 and 2016: this results in a total of 418 banks. Then, for each bank in our sample, we identify its control bank as the bank with the same 4-digit SIC and with the closest number of employees[6] to that of the sample bank. We then scan their most recent and previous years' 10-K filings for mentions of technology and competition in the same manner as we did for sample banks, and record the relevant text.[7]

Table 1 presents our 14-bank sample together with the 14 matching banks. For each bank, it shows its identifying information: its stock ticker, name, state of incorporation, and its SEC-assigned central index key (CIK). It also shows bank characteristics as of the end of the 2014 fiscal year, obtained from Compustat: market value, assets, and the full-time equivalent number of employees. Additionally, it presents the bank's rank by assets within the group of 418 banks meeting our eligibility criteria,[8] and the ratios of the bank's market value to its assets and to its employee count.

The distribution of FinTech mentions by bank size is heavily skewed toward larger banks. Three of our 14 banks are among the six largest by assets: JPMorgan (1st), PNC (5th), and Bank of New York Mellon (6th). The other eleven are substantially smaller, with none exceeding U.S.$100 billion in assets or U.S.$10 billion in market capitalization. However, these banks are still large relative to the 418-member U.S. banking sector as defined in our study: only two (CSB and Hamilton) are in the bottom quartile by assets, two (Beneficial and Horizon) are in the second quartile, and the remainder of the sample (which includes Huntington, Zions, SVB, Umpqua, UMB, IberiaBank, and First Interstate) are all in the top one-sixth.

Looking at bank size another way, the distribution of FinTech-mentioners is quite intriguing. 30% of the top ten banks by assets have admitted to being exposed to FinTech risk, as did 7% of the next 100 banks – and only 1% of the remaining 308 banks. On the surface of it, one could argue that bigger banks have less to worry about as they have greater resources with which to resist competition from FinTech – whether through competing with FinTech firms for talent, signing partnership agreements with them, or even buying them outright. By contrast, smaller banks are often considered to be particularly vulnerable [Antonakes (2015), Arora (2015)]. Perhaps the greater likelihood of large banks acknowledging competition from FinTech simply reflects their greater familiarity with that sector rather than their greater fear of it – with possible clues to be found in the banks' own words and in their actions.

WHAT DO BANKS ACTUALLY SAY ABOUT FINTECH?

Beyond the mere fact of banks mentioning FinTech by name, it is informative to examine these mentions in context. Six of the 14 banks in our sample simply mention FinTech as part of a list of competitor types ranging from five (CSB Bancorp, Umpqua Bank) to 18 (JPMorgan) in number. The other eight banks make an effort to explain how they are threatened by FinTech. These points are generally widely known, such as PNC's "banks generally are facing the risk of increased competition from products and services offered by non-bank financial technology companies, particularly related to payment services." Two excerpts, however, evoke lesser-known aspects of the bank-FinTech dynamic. Thus, Horizon Bank raises the possibility of competing with FinTech companies for talent, while IberiaBank suggests that trying to keep up with FinTech firms could result in an increased likelihood of cyber-attacks.

The prize for the depth of disclosure with respect to FinTech competition would have to go the pioneer. Huntington Bancorp, the first-ever U.S. depository institution to mention FinTech in its annual report, also goes the furthest in discussing its competitive strategy in this regard: "we are monitoring activity in marketplace lending along with businesses engaged in money transfer, investment advice, and money management tools. Our strategy involves assessing the marketplace, determining our near term plan, while developing a longer term approach to effectively service our existing customers and attract new customers. This includes evaluating which products we develop in-house, as well as evaluating partnership options where applicable."

Interestingly, Hamilton Bancorp, by far the smallest and the most recent filer, comes the closest to Huntington in deviating from boilerplate language in discussing FinTech and provides perhaps the most revealing disclosure of all: "They offer user friendly front-end, quick turnaround times for loans and other benefits. While Hamilton is evaluating FinTech companies with the possibility of developing relationships for efficiency in processing and/or as a source of loans and other business, we cannot limit the possibility that our customers or future prospects will work directly with a FinTech company instead." It will be interesting to see whether Hamilton's text foreshadows much more widespread and informative discussion of FinTech in the next filing season.

6 We use the number of employees because it is a reasonable proxy for bank size and the data are consistently available on Compustat.
7 The relevant text is presented in Appendix 1 of www.fintxt.com/s/FinTech.pdf
8 Note that Citigroup, for example, has Standard Industry Code of 6199 (which otherwise mainly includes closed-end funds and ETFs) and as such is not in our eligible population. For the record, Citigroup does not mention FinTech in its 10-K statements.

We also note that whereas five of the banks mention FinTech competition in the "Risk factor" (Item 1A) section of the annual report, seven do so under "Business description" (Item 1), one under MD&A (Item 7), and one in its the letter to shareholders.

Lastly, comparison with previous year's filings shows that overwhelmingly the FinTech-related text has been an addition to rather than replacement of earlier text. In other words, these banks have tended to talk about technology competition risk already, but in 2016 they added specificity with their FinTech mentions.

WHAT DO CONTROL BANKS SAY ABOUT THE COMPETITIVE IMPACT OF TECHNOLOGY?

Since control banks, while presumably operating in a similar competitive environment to that of sample banks, did not mention FinTech, this raises the question: did they eschew the topic altogether, or did they simply phrase things differently? After all, as Shakespeare's Juliet noted, "that which we call a rose by any other name would smell as sweet."

Examining the relevant text shows that the three top-ten banks in our control group prepared disclosures that were indeed informative about the threat from FinTech in spite of not mentioning the term directly. Thus, BB&T, the 9th largest bank by assets, is unmistakably speaking of FinTech in spite of omitting the term itself: "technology companies have begun to focus on the financial sector and offer software and products primarily over the Internet, with an increasing focus on mobile device delivery. These companies generally are not subject to the comparable regulatory burdens as financial institutions and may accordingly realize certain cost savings and offer products and services at more favorable rates and with greater convenience to the customer. For example, a number of companies offer bill pay and funds transfer services that allow customers to avoid using a bank. Technology companies are generally positioned and structured to quickly adapt to technological advances and directly focus resources on implementing those advances." The same can be said of Bank of America (the second largest by assets), which writes that "technological advances and the growth of e-commerce have made it easier for non-depository institutions to offer products and services that traditionally were banking products, and for financial institutions to compete with technology companies in providing electronic and internet-based financial solutions including electronic securities trading, marketplace lending, and payment processing." Similarly, U.S. Bancorp, the third largest by assets, mentions competition from "technology companies" and elsewhere warns of "innovative ways that customers can make payments or manage their accounts, such as through the use of digital wallets or digital currencies."

In a more limited way, Union Bankshares mentions "competition by out-of-market competitors through the internet" and Fulton notes that some of its competitors "conduct business primarily over the internet," although they do not offer more detail. Along similar lines, Bryn Mawr speaks of "on-line banking enterprises" and Columbia of "Internet-based banking institutions." Internet banks, however, are not synonymous with financial technology companies, and it is not clear that the phrasing of these disclosures would help their readers grasp the breadth of the potential threat that these banks face from FinTech.

Sterling, United Bankshares, Central Federal, Keycorp, Synovus, and Comerica offer boilerplate language such as "The financial services industry is undergoing rapid technological change" and "some of our competitors have substantially greater resources to invest in technological improvements" but, unlike the two categories of banks above, do not specifically warn their investors about the possible impact of new entrants in the financial technology space – the phrasing they use could be referring to competition from better funded and/or more tech-savvy traditional banks.

Lastly, our textual filters have not identified any technology competition-relevant text for MB Financial, even though this bank, according to its 10-K filing, offers both internet and mobile banking to its customers. We note that with the exception of BB&T, which significantly expanded its discussion since the previous filing, there has been virtually no change in the relevant passages of the other control banks.

The takeaway from the above textual comparison of sample and control banks is nuanced. Among top-ten banks, it is hard to argue that those citing FinTech by name offer much more informative warnings about the threat they are facing from technology firms than do their non-FinTech-citing counterparts. Smaller banks, on the other hand, clearly do a better job of informing their investors about this threat when they specifically mention FinTech. This suggests that the choice to mention FinTech explicitly is more than just a question of semantics.

BANKS' FINTECH-RELATED ACTIONS

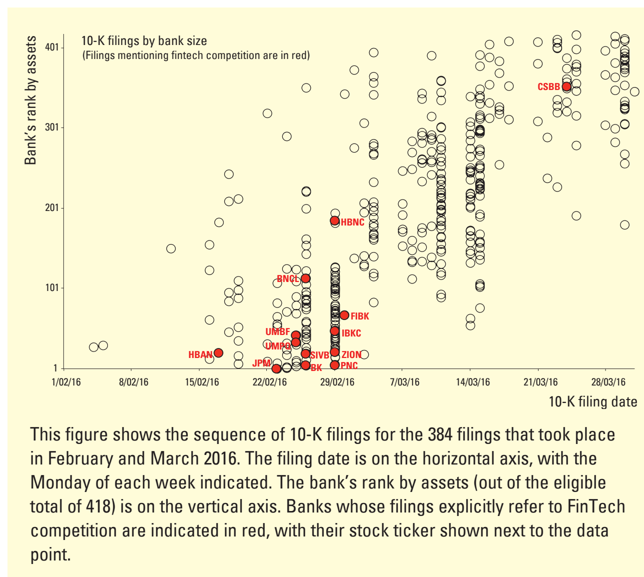
Actions speak louder than words, so a natural way to assess banks' FinTech-awareness is to examine their past actions in the FinTech space. However, doing so thoroughly is a non-trivial undertaking. For example, former S&P President, Deven Sharma, categorizes possible FinTech-facing actions by a financial services incumbent as follows[9]: 1) create accelerator program for FinTech startups; 2)

9 See https://vimeo.com/getsmarter/review/172078632/239ed4ba11.

set up venture funds for FinTech companies; 3) partner with FinTech companies; 4) buy out FinTech startups; 5) launch own FinTech subsidiary; 6) create an industry consortium.

On these measures, our FinTech mentioners appear to be rather more proactive than non-mentioners. JP Morgan has launched a residency program for FinTech firms and is a partner in Financial Solutions lab that runs a FinTech competition, has invested in FinTech firms such as Motif, and formed a partnership with OnDeck. BNY Mellon has created several innovation centers, including in Silicon Valley. PNC (along with JP Morgan and several other leading financial institutions) invested in Digital Asset Holdings, a blockchain technology company subsequently named by Fortune as one the "five hottest FinTech companies."[10] SVB, which stands for "Silicon Valley Bank," after its geographical location, is historically innovation-focused, has equity investments in such FinTech companies as Lending Club and Nvoicepay, and hosts a FinTech conference. Umpqua is establishing a FinTech subsidiary, also in Silicon Valley.

By contrast, among control banks, the most notable FinTech activities are Bank of America's annual Innovation Summit in Silicon Valley and US Bancorp's and BB&T's participation in INV FinTech accelerator.



This figure shows the sequence of 10-K filings for the 384 filings that took place in February and March 2016. The filing date is on the horizontal axis, with the Monday of each week indicated. The bank's rank by assets (out of the eligible total of 418) is on the vertical axis. Banks whose filings explicitly refer to FinTech competition are indicated in red, with their stock ticker shown next to the data point.

Figure 1 – The timing of banks' 10-K filings with and without mentions of FinTech competition

THE BANK THAT DIDN'T BARK

Of the top six U.S. banks by assets, we have so far examined five: three (JP Morgan, PNC, and BNY Mellon) are in our sample, and two (Bank of America and US Bancorp) are among the control banks. This leaves out Wells Fargo, the third largest – and a particularly curious case, given its well-known and far-reaching activity in the FinTech field through its FinTech Group, its accelerator, its participation in ClearXchange network, and numerous other initiatives. How does Wells Fargo, then, talk about FinTech competition in its annual report?

Surprisingly, the Business Description section contains only a passing reference to "online lending companies," while "Risk factors" offers boilerplate: "Continued technological advances and the growth of e-commerce have made it possible for non-depository institutions to offer products and services that traditionally were banking products, and for financial institutions and other companies to provide electronic and internet-based financial solutions, including electronic payment solutions." It is worth noting that the deeply FinTech-involved JP Morgan, in spite of its mention of FinTech, is similarly taciturn on the subject. It may be that particularly extensive ongoing involvement with the FinTech sector makes some banks feel less threatened by it or at least feel less need to officially express their concern.[11]

THE TIMING OF FINTECH MENTIONS

Having discussed the nature of banks' disclosure on the subject of FinTech competition, it is worth addressing the suddenness with which banks began to acknowledge it by name in their annual reports. The fact that the number of officially FinTech-concerned banks went from zero to 14 in a single year is rather suggestive of copycat behavior in banks' decisions to mention FinTech. As a simple calculation, taking 3% as the probability of FinTech mentions (based on 14 mentioners out of 418 banks in the most recent 12-month period), if FinTech mentions were random then the chance that none of the 418 banks would have mentioned FinTech the year before is 0.97^{418}, or about three in a million.

10 See http://fortune.com/2016/06/27/five-hottest-FinTechs/.

11 Readers are free to form their own opinion on whether such insouciance is justified. We do note that CB Insights' striking "Unbundling of a bank" graphic (https://www.cbinsights.com/blog/disrupting-banking-FinTech-startups-2016/) is based on a screenshot of Wells Fargo's online service. Wells Fargo's well-known aggressive focus on sales means it has both more to gain from successfully taking on or co-opting FinTech firms, and more to lose if it fails to do so. The sudden collapse of its partnership with Amazon in an attempt to take on FinTech student loan lenders (http://www.wsj.com/articles/wells-fargo-amazon-end-student-loan-partnership-1472681989) is an indication that even for a bank of its resources and know-how, there are obstacles in implementing FinTech-like solutions.

The above insight makes it interesting to examine the sequence of FinTech mentions in more detail. To aid in this, Figure 1 focuses on 10-K filings in February and March 2016, the period when 92% of the eligible 10-Ks were filed, including those by all but one of the FinTech-mentioning banks (as pointed out earlier, Hamilton's filing took place in June of this year). Specifically, the chart plots the filing bank's rank by assets (so that largest banks are at the bottom) against the day of the filing. Banks that mentioned FinTech are marked in red.

Several things stand out immediately. First, regardless of FinTech mentions, larger banks file earlier in the season. Second, as discussed previously, banks that mention FinTech tend to be larger. Third, with the exception of the tiny CSB, all the filings took place in the span of less than two weeks, from 17 February through 1 March 2016, having stopped (or at least paused) even more suddenly than they started.

The first-ever mention of a competitive threat from FinTech on 17 February 2016 was by one of the first ten filers of the season: Huntington, a 150-year-old institution headquartered in Columbus, Ohio, and ranking only 21st by assets. Why would Huntington be the first bank in the nation to officially raise the issue of competition from FinTech? A possible clue lies in its acquisition of FirstMerit, another Ohio bank with smaller assets but an even longer history, which Huntington announced three weeks earlier and which was largely motivated by geographic synergies. It is conceivable that the FinTech threat would have come up as an issue during merger discussions and/or due diligence work and as a result attracted senior management's attention – perhaps sufficiently so to make Huntington the first bank to acknowledge competition from FinTech in a 10-K filing. On the other hand, the depth of Huntington's FinTech-related disclosure suggests that it may have been seriously contemplating the FinTech landscape for some time.

Whatever was Huntington's motivation, it was shared by none of the following 16 filers. This changed on February 23rd, when one of the seven banks filing that day did mention financial technology companies as competitors – and that bank was none other than JPMorgan, the nation's largest bank and one whose CEO's concern about FinTech competition had made a considerable impression on the media and, arguably, on the industry back in 2014. It is not entirely clear why JPMorgan did not concede the threat of FinTech competition in its February 2015 10-K filing, given that its CEO did so publicly, albeit in different words, almost a year earlier. It does seem possible, however, that JPMorgan's passing mention of FinTech competition in its February 2016 filing had something to do with Huntington's earlier declaration, and with JPMorgan not wishing to fall a full year behind the disclosure pioneer. It is, of course, also possible that the timing was merely coincidental. But the subsequent sequence of ten FinTech mentions over the following one-week stretch (out of 86 total filers) seems likely to have been triggered, at least in part, by JPMorgan's precedent.

From March 2nd until the 31st, however, only one of the 258 filers mentioned FinTech. Why? One possibility is that, once the dust settled, it became clear that although several of the nation's largest banks indeed followed Huntington's and JP Morgan's lead, many did not. Yet this does not satisfactorily explain the extreme reticence of post-March 1st filers to mention FinTech. Another possible reason is that, March filers being substantially smaller, they did not feel that the actions of large banks were of relevance to them. While CSB is an exception, it is tempting to conjecture that it may have taken its clue from Huntington, a dominant bank in CSB's region. But then why didn't other regional banks mentioning FinTech, such as Zions or IberiaBank, inspire local followers?

An alternative interpretation is that FinTech-mentioning banks are simply those that have existing or future FinTech activity on their mind. Viewed in this light, the clue to tiny Hamilton Bancorp's mention of FinTech is in the filing itself: it talks about possible collaborations with FinTech firms (and speaks about the sector in unmistakably positive terms). If so, and in the spirit of Cohen et al. (2016), these FinTech mentions will begin to make sense in the near future.

We stress that the above are no more than speculations about the mechanisms underlying the patterns we observe. New data and analyses may shed light on how accurate these speculations have been. In the meanwhile, we now attempt some preliminary analyses with the quantitative data we have at this time.

A QUANTITATIVE STUDY

Generally, an empirical researcher would be ill-advised to undertake a cross-sectional analysis with only 14 observations. As data availability leaves us no choice, we undertake this exercise nonetheless, in order to try and glean some early insights into the bank-FinTech dynamic. To do so, in Table 2 we present a number of characteristics for 1) 14 sample banks, 2) 14 control banks, and 3) all 418 banks, and we report on differences between the first group and the other two.

The first few rows of Table 2 focus on the full-time equivalent number of employees, with the medians of 3,209 and 3,200, respectively, for sample and control banks being very close. This is not surprising, since sample and control banks were matched on the employee count. Accordingly, parametric and non-parametric tests for differences between sample and control banks' employee counts produce insignificant p-values. By contrast, and as noted earlier, the

		Banks			Differences			
		Sample	Control	All	Sample - Control		Sample - All	
Employees	**median**	3209	3200	354	9	**0.385**	2855	**0.000**
	average	27408	25916	3580	1492	**0.474**	23828	**0.000**
	N	14	14	411				
	% of total	26.1	24.7	100.0				
Assets (U.S.$ mln)	**median**	20057	15863	1595	4194	**0.761**	18462	**0.000**
	average	252756	210507	26589	42249	**0.265**	226167	**0.000**
	N	14	14	418				
	% of total	31.8	26.5	100.0				
MV (U.S.$ mln)	**median**	3168	2526	226	642	**0.808**	2942	**0.000**
	average	25488	23638	3217	1850	**0.672**	22271	**0.000**
	N	14	14	406				
	% of total	27.3	25.3	100.0				
MV/Employees	**median**	786	861	728	-75.6	**0.865**	58.1	**0.047**
	average	924	892	621	32.4	**0.391**	302.9	**0.135**
	N	14	14	401				
MV/Assets	**median**	0.138	0.148	0.132	-0.010	**0.268**	0.006	**0.473**
	average	0.135	0.149	0.125	-0.014	**0.298**	0.009	**0.877**
	N	14	14	406				
Monthly stock return	**average 2013**	3.13%	2.92%	2.93%	0.21%	**0.508**	0.19%	**0.638**
	average 2014	0.57%	0.65%	0.68%	-0.08%	**0.787**	-0.11%	**0.849**
	average 2015	0.43%	0.55%	1.09%	-0.12%	**0.681**	-0.66%	**0.321**
	average 2013-15	1.38%	1.35%	1.53%	0.03%	**0.972**	-0.16%	**0.529**

This table shows the key characteristics of sample and control banks, as well as of the population of U.S. banks. Eligible banks are U.S. headquartered public companies whose SIC begins with "60" and which filed a 10-K report between July 2015 and June 2016 inclusive. Mcap (market capitalization), Employees (the full-time equivalent number of employees), and Assets (total assets) are from Compustat as of the end of the 2014 fiscal year. Monthly returns are from CRSP. Comparisons of means (respectively, medians) for descriptive variables are followed in bold by t-test (respectively, signed-rank test) p-values. Comparisons of average monthly returns are followed by Fama-Macbeth p-values.

Table 2 – Key characteristics of sample banks, control banks, and the U.S. bank population

population of banks from which our sample and control banks are drawn tends to have banks whose employee count is an order of magnitude smaller.

Similar patterns hold for banks' assets and market values: no significant difference between sample and control banks, but sample banks are much larger than the bank population on average (or median).

A crude but potentially effective way to assess how investors value banks that mention FinTech competition is to examine the ratio of market value to fundamental variables such as employee count and assets. As the next rows of Table 2 show, differences between sample and control banks continue to be insignificant, although this may be due to the small sample size. While market value per employee is significantly higher for sample banks as compared to the bank population, this may be due to economies of scale in the banking sector, since sample banks tend to be larger – and in fact this ratio is even higher for our size-matched control group.

Lastly, we compare monthly stock returns for all three groups of banks for the last three calendar years individually and taken together. All differences are insignificant, although once again the small sample size would naturally make any differences difficult to detect.

While the table is rich in numerical content, its main takeaways are straightforward. Although FinTech-mentioning banks are significantly different from the bank population, notably in being larger, their

stock market-derived attributes (such as valuation ratios and stock performance) are quite similar to those of their peers of comparable size. In other words, whether mentioning FinTech competition is a reflection of an innovative streak in a bank's DNA or of its genuine vulnerability in the face of such competition, these have yet to manifest themselves in a prominent way in the banks' valuations.

CONCLUSION

Having emerged in the wake of the 2008-2009 financial crisis, the FinTech sector has been increasingly attracting attention, investment, and customers ever since. Remarkably, it is only this year that U.S. banks first began to acknowledge formally competition that they are facing from FinTech. In this paper, we examine the composition of the pioneering group of officially FinTech-wary banks, as well as the timing and the nature of their disclosure and the stock market's perception of them. We propose some plausible clues explaining the composition and the timing, although much about both remains puzzling. The sample banks' disclosure is limited, although generally superior to that of comparable banks that do not mention FinTech; and (consistently with small sample size) there is no evidence that FinTech mentions are correlated with stock market valuation or performance. Overall, our investigation into the inaugural year of FinTech mentions in banks' annual reports points less to systematic patterns than to industry members taking cues from one another as to whether they should be admitting to being vulnerable to competition from FinTech firms (or, conversely, to implicitly boast about being part of the FinTech "in" crowd). This behavior may be a reflection of larger uncertainty about future competitive interaction between traditional banking and FinTech.

Our study also carries an important message for the SEC.[12] While privately the majority of bankers acknowledge the seriousness of the FinTech threat, only a small proportion do so in their annual reports, despite being compelled by SEC regulations to disclose important risks, and to do so in plain English. Is most banks' failure to mention FinTech risk a sign that the SEC's disclosure requirement lacks bite? One possible reason why a bank might not mention FinTech explicitly could be a belief that a general mention of potentially disruptive technologies would be sufficient. However, given that the terms "financial technology" and "FinTech" have become ensconced in the business lexicon (and "FinTech" has even entered the Oxford English Dictionary), avoidance of their use may appear to be at odds with the SEC's "plain English" directive.[13] An alternative explanation could be banks' belief that, on the contrary, FinTech competition risk is too generic to merit a mention, in that it is potentially applicable to all firms in the industry. The same, however, also applies (for example) to interest rate risk, which is explicitly addressed in most banks' 10-K filings. Perhaps a more plausible explanation is the notion that many bank managers feel that by being among the first to acknowledge officially the threat from FinTech, they signal to investors that they are particularly defenseless on that front. Still another possibility is that many banks may hold the view that standalone FinTech firms are not viable in the long run and will become absorbed by incumbent financial institutions. Such banks could view themselves as being vulnerable to FinTech-incited disruption without necessarily regarding FinTech firms as competitors.

Our examination of the initial, small cohort of banks to recognize formally the threat posed by FinTech can necessarily give only preliminary clues as to what sets these banks apart, and what the future will hold for them. Is it that they are especially vulnerable in the face of this threat after all, and will this be reflected in subsequent poor performance? Or are they unusually prescient, and as such will exhibit greater adaptability and resilience, accompanied by strong financial results? And, indeed, will the performance of the FinTech sector justify the concerns of our cohort of officially apprehensive banks? Will disclosures about FinTech competition continue to spread through banks' annual reports? If so, to which banks? Will most banks copy or adapt others' formulations, or will disclosures become increasingly informative? The coming years promise to shed much light on these and many other aspects of the evolving relationship between traditional banking and the FinTech sector.

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12 The SEC has increasingly been taking an interest in FinTech, most recently exemplified by its intention to hold a forum "to discuss FinTech innovation the financial services industry" (https://www.sec.gov/news/pressrelease/2016-195.html)

13 E.g., "[a] plain English document uses words economically and at a level the audience can understand" and "[w]here acronyms, such as REIT, are widely understood to the investing public, they can safely be used without creating confusion" [U.S. Securities and Exchange Commission (1998)].

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