Perceptions of financial security in a shifting world

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Abstract

In the past few years, two things have happened, in
parallel, which have changed how much of the world
interacts with money. First, money and banks have shifted
to a more online world. Cashing a check, paying the
babysitter, and disputing a charge can all happen within a
phone app. But at the same time, large corporations are
announcing security breaches at an alarming rate. In this
short paper we discuss perceptions of security, online (and
offline) purchasing, and some of the problems facing the
industry moving forward.

Author Keywords

Security, perceptions of security, online payments, offline
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Introduction

In the past year, at least three major chains have
announced that they've had security breaches that have
allowed thieves to gain access to people's credit card
information. These headlines have raised consumer
awareness of security issues, heightened consumer fear,
and lowered consumer trust, but often consumers seem to
focus on invalid details. While stolen information from
Target, Home Depot, and Michael's was all from in-store
purchases, consumers we've talked to all seem to be
concerned about online security and give little thought to

offline security. We're interested in learning more about why online and offline security are considered so disparate. Specifically, what are peoples' perceptions and concerns and how can we alleviate those concerns.

Below we outline related work and our work as it relates to this topic. We close with some final thoughts.

Related Work

Related work on this topic falls into two groups. First, research on perceptions of security (both around money and in other areas). Second, research tied to the differences between physical and digital money, or if you were, offline vs. online money.

Perceptions of Security
As researchers in the field, we know that a number of decisions people make are not made based on fact, but rather on their personal perceptions. For example, Lee et al. found that trust in offline banks influences the extent of use and customer satisfaction in the banks' online system [4].

In 2004, researchers were starting to try to figure out what people would tie Internet security problems to, expecting to see them tied to internet based fraud. Instead they found that people were much more concerned with the notion that "inadvertent information disclosure online could create a threat offline" [1]. In 2005, researchers found that online purchases were still perceived as riskier than offline purchases, despite the fact that offline fraud existed [3].

Vines et al., in their work on checks and the elderly also found that the perception of the users was that checks were safe, when in fact they are incredibly insecure. Stolen checks can be filled out and cashed and even filled checks can be altered to change the amount or the recipient [7].

Finally, Nepomuceno et al. studied the relationship between intangible goods (such as those sold online) and perceived risk. They found that a number of factors are at play. One is that familiarity and experience with internet helps determine online shopping comfort. For students and others familiar with the internet, perceived risk of online shopping is generally lower than for people who are less familiar with the internet. Concerns about privacy, general security, and system security make it more likely that intangibility of goods has an impact on perceived risk. In addition, perceived risk is greatest when people are concerned about system security and mental intangibility [6].

Physical vs. Digital Money
Multiple researchers have found that users have different issues with digital money depending on the demographics of the users. People under 50, while they may like some of the benefits of mobile payment systems are generally concerned about trust. This can include concerns about hacking (my account is tied to my email and my email was hacked, is my account safe?), insecure networks (e.g. public Wi-Fi), and a general dislike of fragmented payments solutions (Google Wallet and Venmo and my bank accounts) [2]. In contrast, Vines et al. interviewed people over 80 and found that writing checks helped support financial collaboration, provided control, and required documentation, all positives among participants. Checks, cards, and cash involved different levels of trust in institutions and people, but in general checks and cash were preferred [7].

Mainwaring et al. researched the adoption of digital money in Japan. They found that two principles were key to understanding digital money in Japan, the first was

meiwaku, annoyance or causing a disturbance. The goal in Japan is to avoid *meiwaku*, so you wouldn't pay with credit card for a small transaction in a store. But in a situation such as the subway, where everyone pays with cash cards, it would cause a commotion to pay with cash. However digital money can also cause frustrations and inadvertent *meiwaku* because if you don't know that your cash card is empty, you could sound alarms and cause flashing red lights [5].

Our Work
Much of our work involves one-on-one interviews and in the past six months, we've noticed a trend as we've talked to dozens of people. While some people have had their credit card stolen in the past, many are concerned about digital security. In fact even the physical breaches are translated to online concerns, not offline. Several people stated that they've been more cautious about online transactions since the Target (offline) breach and yet few have changed their offline purchasing behaviors. In addition, we conducted a survey that showed that regardless of the price of the online transaction, over 40% of users say they care most about security (vs. speed of transaction, knowledge about information storage, ability to review transaction, etc.) ($n = 500$).

In interviews, we've asked explicitly when users feel safe making online purchases. Some people can't say for sure, but others mention encryption, signals from their browser, prior experiences with the site, or a positive reputation online. However people seem to know what drives them away from making purchases. Often, they say, sites just look sketchy or perhaps like they were designed in the mid 1990s. For some people the payment process seems off or that they don't know or trust the site.

And yet, if the world of online payment security seems murky, offline security is rarely even thought about. Generally people don't ever think about not handing over their credit cards in a store. Usually this is because they can see the person handling their card, so it seems safe. In addition, they feel they can always return to the store if they have a problem. To this end, one of the few exceptions was temporary setups (e.g. booth at a festival) where people can't return to the physical location if they encounter a problem. Of 17 people asked about offline security, only one said they occasionally wouldn't hand over their physical card because a store was sketchy. Instead, they would choose to pay in cash.

Final Thoughts
Since beginning this line of research, we've started a growing list of related questions. How does this perception of online insecurity impact online merchants? What are possible implications for digital and crypto-currency? What are other options that may protect users but not impact sales? And finally, what can be done to change these perceptions other than behind the scenes work on better security?

Unfortunately, this is a hard problem that will likely take years to completely fix. We're still in a place of transition from offline financial transactions to mixed on and offline transactions, to, perhaps, online only transactions.

In the future, we're planning to explore these issues further with surveys to better understand people's concerns about online security and more interviews to better understand barriers to card usage (on and offline). We also plan to conduct some ethnographic research to better understand the differentiation of on and offline security issues at the time of purchase.

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