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2020 Promoting monetary  
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# Covid-19 and cyber risk in the financial sector

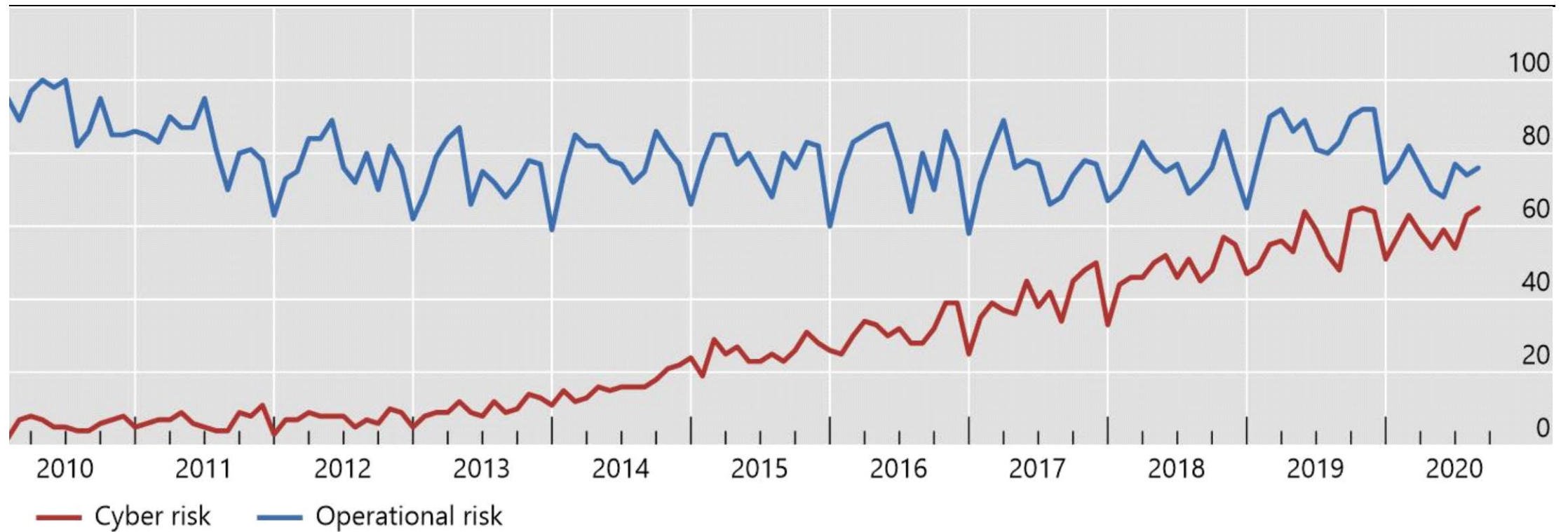
Leonardo Gambacorta

Cyber Risk to Financial Stability State of the Field Conference – Panel 1 “What we’re learning?”, 14 December 2020

\*The views expressed here are those of the presenter and not necessarily the Bank for International Settlements

# Interest in cyber risk is on par with operational risk

Search interest, index



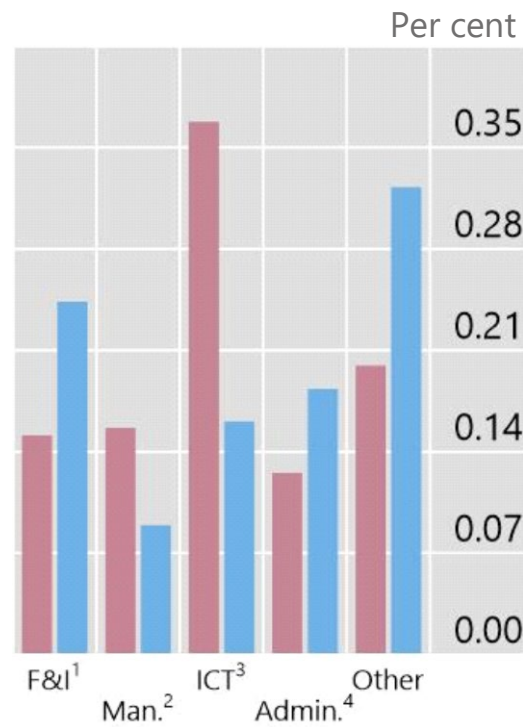
Number of worldwide searches for “cyber risk” and “operational risk” relative to the highest point (=100). Data accessed on 20 Aug 2020.

Source: [Google Trends](#).

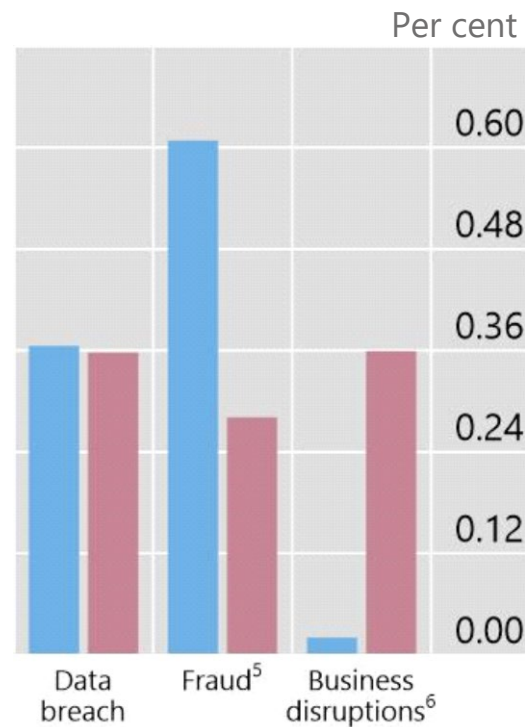


# Cyber events and losses across sectors: is the financial sector different?

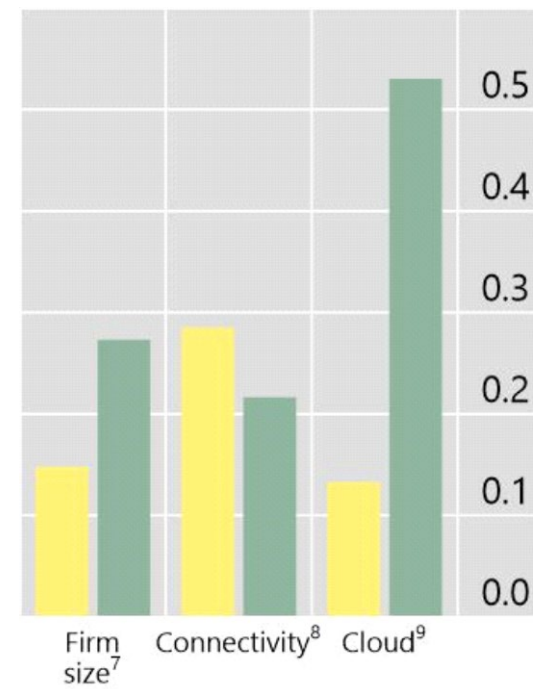
Losses frequent in F&I<sup>1</sup>



Cyber incidents in F&I<sup>1</sup>



Drivers of cyber costs



■ Gross loss

■ Frequency

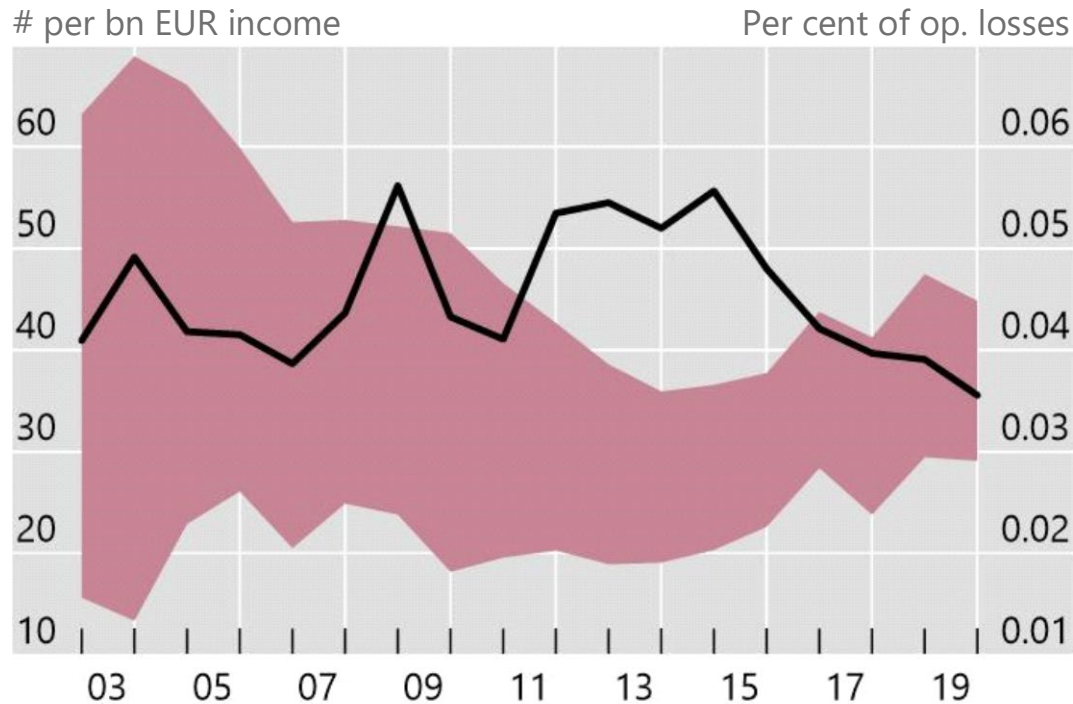
■ F&I<sup>1</sup>

■ Other sectors

<sup>1</sup> Finance and insurance. <sup>2</sup> Manufacturing and retail trade. <sup>3</sup> Information and Communications, and Professional, Scientific and Technical Services. <sup>4</sup> Administration and Support. <sup>5</sup> Phishing/skimming and privacy violations. <sup>6</sup> IT implementation errors, security incidents and other. <sup>7</sup> Elasticity of cyber costs with respect to the log of firm revenues. <sup>8</sup> Marginal effect. Connectivity refers to the number of cyber incidents connected to any given cyber event. <sup>9</sup> Cloud refers to reliance on cloud services at the industry level. For presentational purposes, coefficients have been multiplied by minus one and represent marginal gains. Sources: Aldasoro et al. (2020b); Advisen.

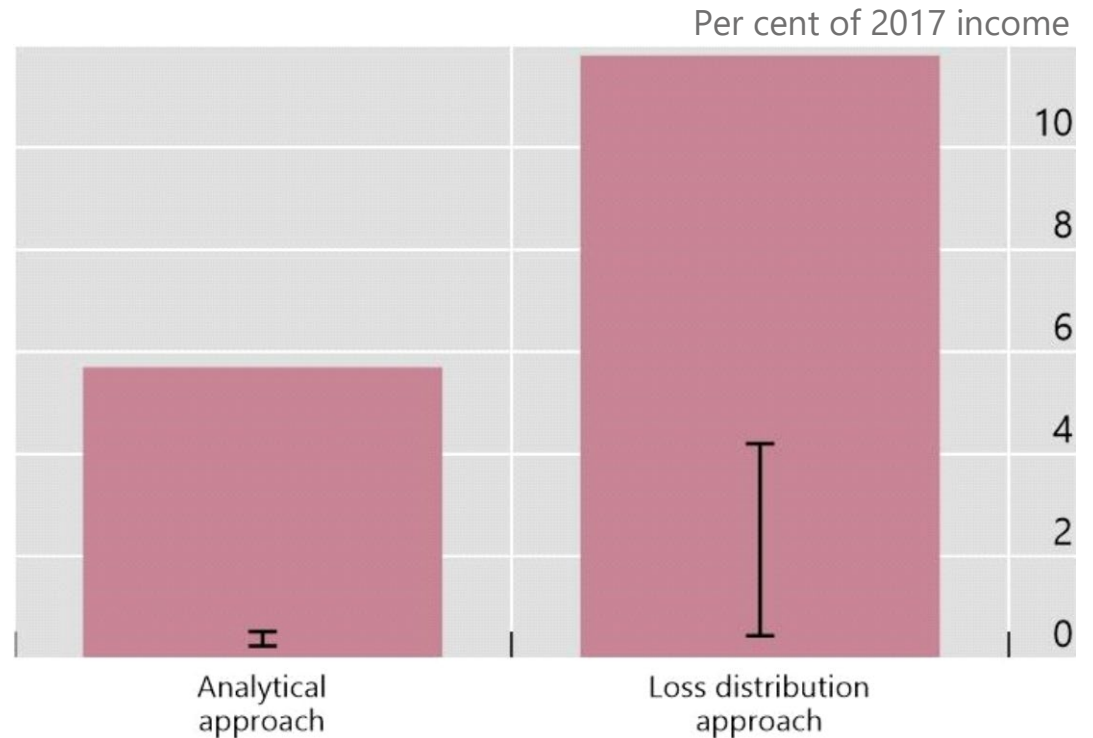
# Cyber risk in the financial sector small but growing relative to operational risk

Frequency of cyber incidents



— Total (lhs)    ■ Cyber incident range (rhs)<sup>1</sup>

Operational and cyber value-at-risk<sup>2</sup>

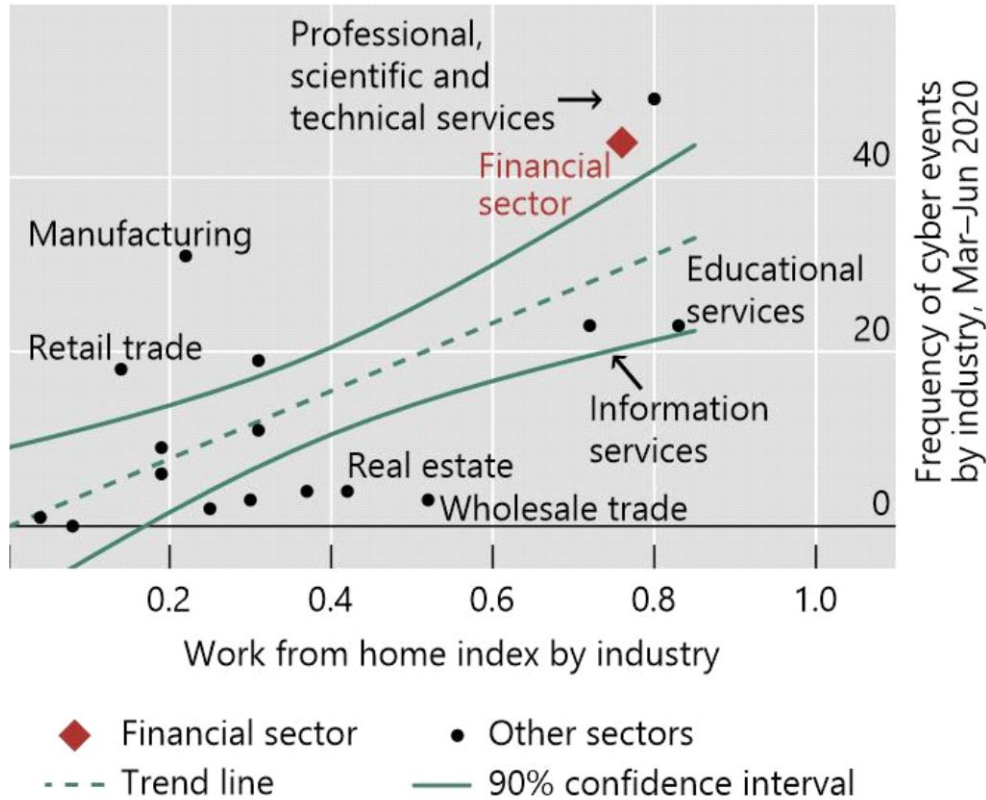


■ Total operational risk    I Cyber risk range<sup>1</sup>

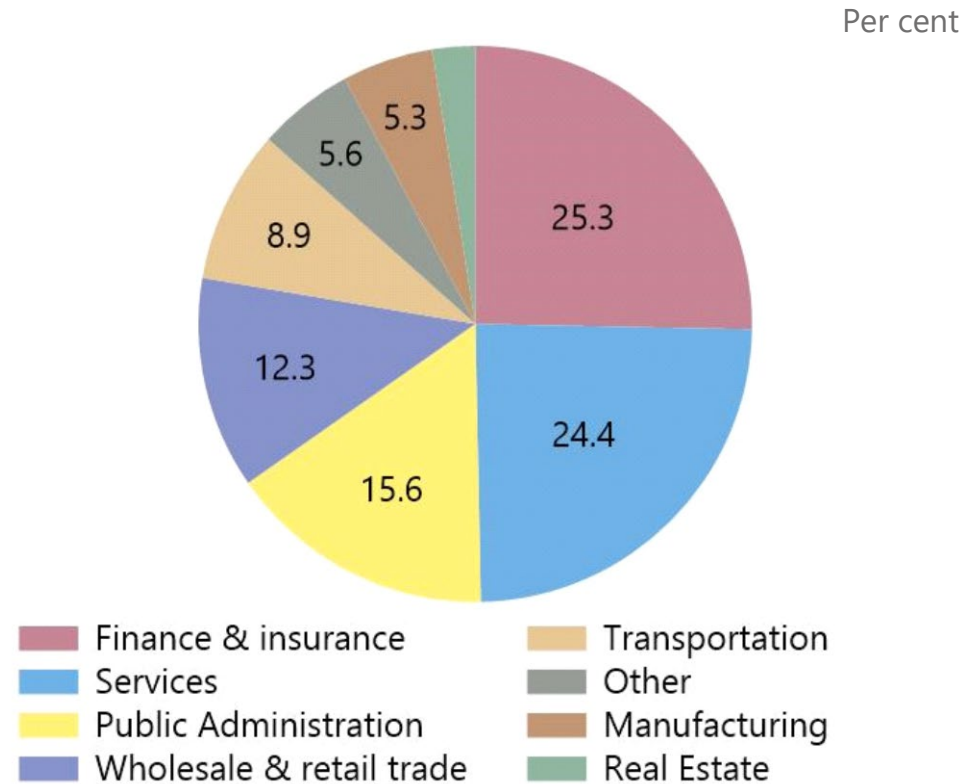
<sup>1</sup> Min-max range as a percentage of total operational risk.. <sup>2</sup> Losses are extrapolated from the tail (99.9th percentile of the distribution) based on the parameters of an assumed probability distribution over one year. The analytical approach is based on the internal measurement of losses and allows the VaR to be derived analytically. The loss distribution approach takes better account of the fat-tailed nature of operational loss data, and is estimated with Bayesian techniques. Sources: Aldasoro et al. (2020a); ORX.

# The financial sector has been hit by cyber attacks during the pandemic

WFH index versus cyber events during Covid-19<sup>1</sup>



Covid-19-related cyber events by sector<sup>2</sup>

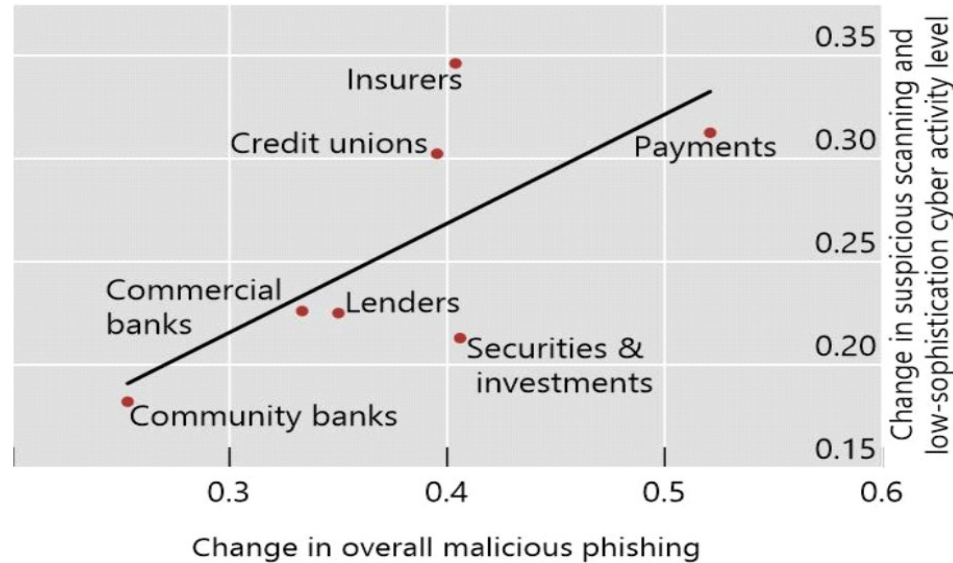


<sup>1</sup> Excludes the health sector. <sup>2</sup> Based on cases classified by Advisen as Covid-19-related. Includes data up to 9 September 2020. The sample in the graph excludes the health sector (57 Covid-related cases) and affecting health-related items of the manufacturing sector (163 cases).

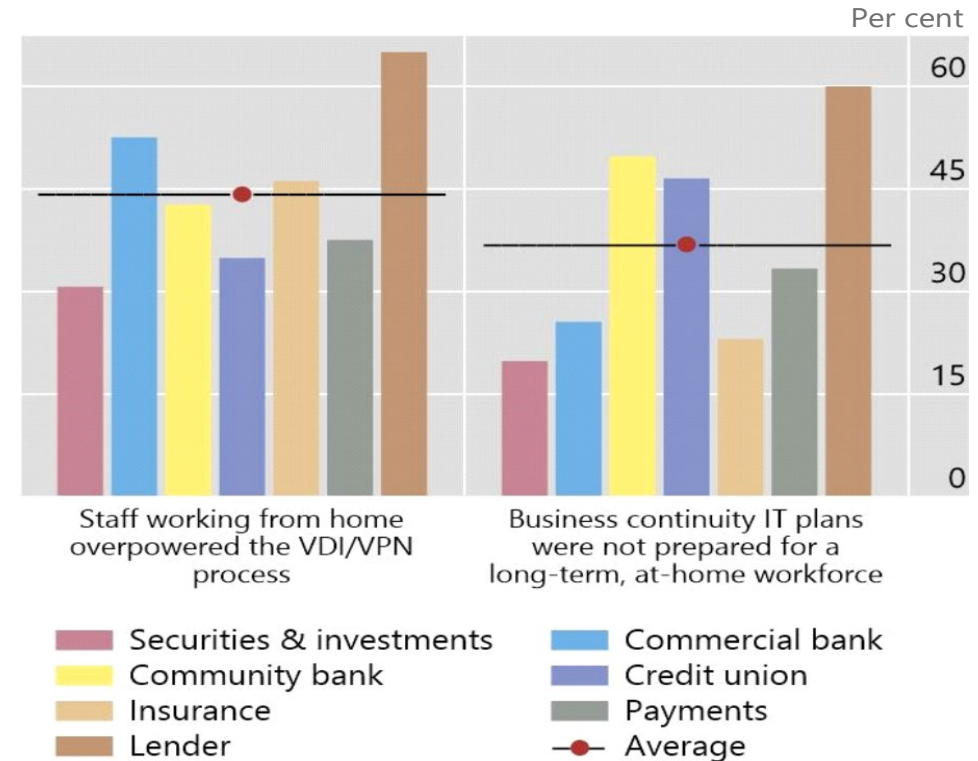
Sources: Dingel and Neiman (2020); Advisen; Aldasoro et al (2020).

# Working from home (WFH) opens up new possibilities for cyber attacks

Cyber attacks increased during the Covid-19 period, with differences across financial firm types<sup>1</sup>



WFH overpowers VDI/VPN processes and business continuity plans<sup>2</sup>



<sup>1</sup> The graphs report the results of a survey by FS-ISAC among financial institutions in April 2020. <sup>2</sup> The first question (results reported on the horizontal axis) is: "During the past few months, has your firm experienced a change in overall malicious phishing levels?". The second question (results reported on the vertical axis) is: "During the past few months, has your firm experienced a change in overall suspicious scanning or other low-sophistication cyber activity levels?". The results of the survey are summarised by a Covid-19 cyber attack diffusion index, which aggregates answers. Financial institutions that answered "considerably" are given a weight of 1; those that answered "somewhat" receive a score of 0.5. The index ranges between -1 and 1. A positive value indicates an increase in cyber attacks. <sup>3</sup> The first question (results reported on the left) is: "Did staff working from home overpower your VDI/VPN process?". The second question (results reported on the right) is: "Were business continuity IT plans prepared for a long-term, at-home workforce?". The panel gives the share of firms who answered "yes".

Source: Financial Services Information Sharing and Analysis Center (FS-ISAC), "COVID-19 effects on cybersecurity survey", July 2020; Aldasoro et al (2020).



## Conclusions

- Cyber risk is growing and is today a relevant component of operational risk.
- During the Covid-19 pandemic - in the new WFH environment - the financial sector has been hit more by cyber attacks than other sectors.
- While this has not yet led to significant disruptions or a systemic impact, there are substantial risks from cyber attacks for financial institutions, their staff and their customers going forward.
- Financial authorities need working to mitigate cyber risks, including through international cooperation. Cyber resilience is a global public good.

## References

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