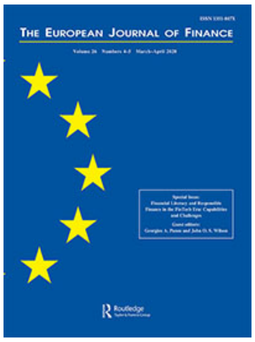

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# Financial literacy and responsible finance in the FinTech era: capabilities and challenges

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# Financial literacy and responsible finance in the FinTech era: capabilities and challenges

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**ABSTRACT**
A growing body of evidence suggests that financial literacy plays an important role in financial well-being, and that differences in financial knowledge acquired early in life can explain a significant part of financial and more general well-being in adult life. Financial technology (FinTech) is revolutionising the financial services industry at an unrivalled pace. Views differ regarding the likely impact that FinTech is likely to have on personal financial planning, well-being and societal welfare. In an era of mounting student debt, increased (digital) financial inclusion, and threats arising from instances of (online) financial fraud, financial education and enlightened financial advising appropriate policy interventions that enhance financial and overall well-being. This special issue engages in this important academic and policy agenda by presenting a set of seven new papers emanating from four parallel streams of literature related to financial literacy and responsible finance.

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A growing body of evidence suggests that financial literacy is among the most important determinants of financial well-being.[1] Informed financial decisions have been shown to be a key factor in making effective financial choices (Lusardi and Mitchell 2014). Differences in financial knowledge acquired early in life explain a significant part of wealth inequality during retirement (Lusardi, Michaud, and Mitchell 2017).

Financial technology (FinTech) is revolutionising the financial services industry at an unrivalled pace (Frost et al. 2019). From mobile payments, robo-advising, app-based investing platforms, to online banking solutions, FinTech developments have impacted upon financial planning, financial well-being and economic inequality (Frame, Wall, and White 2019). FinTech has the potential to enhance financial capability. Start-ups and platforms using technology to simplify personal finance and streamline financial planning processes are not only building the next generation of financial tools, but also encouraging and facilitating financial education. Improved financial and other (technological, political health, environmental) literacies enable individuals to better engage with artificial intelligence (Aun 2017). Moreover, the role of financial institutions, corporations and entrepreneurs is important for the formation of supply-side solutions that enhance financial literacy and reduce inequalities across demographic groups. Lusardi et al. (2015) argue that financial literacy research and practice should seek to understand how to make financial education more effective via improved design and delivery. In the wake of the FinTech era, visualisation and accessibility/user-friendliness are important for financial inclusion. Indeed, the presentation format of financial information has been shown to affect choices made by individuals with low financial literacy (Hastings and Tejeda-Ashton 2008; Hastings and Mitchell 2018).

FinTech developments may also damage financial well-being by triggering impulsive consumer behaviour when interacting with financial technologies and platforms. For example, mobile apps could attract impulsive and unsophisticated individuals, who lack the necessary skills to forecast future preferences. As such, mobile apps can lead to individuals making faulty decisions in 'hot' states or under sales pressure. In such cases, the

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reduced time between the purchase and ultimate consumption of financial services is likely to be detrimental to consumer welfare. Hundtofte and Gladstone (2017) provide evidence that mobile users are more likely to engage in impulsive purchasing behaviour and more likely to use payday loans. Mobile loan products are often *too accessible* and allow fleeting preferences to be acted upon. This suggests that mobile apps and platforms should be complemented by training. In a recent cross-country study, Panos and Karkkainen (2019) find that financial literacy is negatively related to cryptocurrency ownership. This suggests that less financially literate consumers have a limited understanding of the greater risk and reward trade-offs of cryptocurrencies relative to alternative asset classes. The domination of the market by largely unsophisticated investors is a likely factor driving the volatility of cryptocurrencies.

The papers in this special issue of the *European Journal of Finance* inform the current educational and policy agenda regarding developments in financial-literacy research, and the role of financial technology in enhancing financial capability within a responsible finance framework.[2] They cover four broad themes related to financial capability, namely FinTech apps and financial capability (McKillop, French, and Stewart 2020); financial inclusion and financial well-being (Shaban, Girardone, and Sarkisyan 2020; Urban and Collins 2020; Philippas and Avdoulas 2020); student financial literacy and financial outcomes (Philippas and Avdoulas 2020; Artavanis and Kara 2020); and knowledge, financial advice and fraud detection (Migliavacca 2020; Engels, Kamlesh, and Philip 2020).

In the first study in this issue, McKillop, French, and Stewart (2020) assess whether smartphone apps can be utilised to improve desirable financial capability. The authors provide four smartphone apps, (packaged together under the title 'Money Matters') to working age members (16–65 years) of the largest credit union in Northern Ireland. These comprise a loan interest comparison app; an expenditure comparison app; a cash calendar app; and a debt management app. In a randomised control trial, the authors find significant improvements in 'financial knowledge, understanding and basic skills' and 'attitudes and motivations' for the group of individuals that used the apps. Those using the apps were more likely to keep track of their income and expenditure and proved to be more resilient when faced with a financial shock.[3]

In the second study in this issue, Shaban, Girardone, and Sarkisyan (2020) use six indicators drawn from the International Monetary Fund Financial Access Survey to construct a multidimensional financial inclusion index across 95 countries. They present evidence for the period 2004–15, which suggests an overall increase in the access and use of financial services. At a macroeconomic level, the authors find that financial inclusion is positively associated with economic development, banking system conditions, human development, and internet usage and government integrity. Based upon these findings, the authors suggest that policies to boost financial capability should account for the level of economic development.[4]

In the third study in this issue, Urban and Collins (2020) assess the importance of financial well-being within overall well-being. Using a large US cross-sectional dataset, the authors find that a standardised financial well-being score generally tracks income, wealth, and participation in investment markets. However, financial well-being measures are distinct from general subjective well-being and financial literacy measures over the life course.[5]

In the fourth paper in this issue, Philippas and Avdoulas (2020) examine the relationship between financial literacy and financial well-being using a primary dataset of Greek university students who lived through the financial crisis.[6] The authors find that male students are more financially literate than female students. They also find a relationship between student financial literacy and parental education and income. Their findings suggest that students who are more financial literate are better equipped to cope with unexpected financial shocks. Overall, financial literacy is a key driver of financial well-being among Greek University students.

The fifth study in this issue by Artavanis and Kara (2020) engages in the theme of student debt by utilising a novel dataset of US students, from a major, land-grant, public university in Massachusetts. Here the authors examine the level of financial literacy of college students, and its implications on the repayment of student debt. They find low levels of financial literacy (39.5%), particularly among female (26%), minority (24%) and first-generation (33%) students. Moreover, students with a deficit in financial literacy are more likely to underestimate future student loan payments. Specifically, 38.2% of low-literacy students underestimate future annual payments by more than $1000. High financial literacy reduces the probability of significant payment underestimation by 17–18 percentage points. The authors also uncover a financial literacy wage gap; students with low financial literacy expect significantly lower starting salaries than their high-literacy counterparts. Consequently, low-literacy students are more vulnerable to unexpected, adverse shocks on their payment-to-income ratios, which in turn impairs future creditworthiness and ability to service debt post-graduation.

In the sixth study in this special issue, Migliavacca (2020) examines financial advice.[7] The author asserts that the readiness, effectiveness and impact of educational programmes aimed at increasing financial literacy are yet largely undocumented. Her findings suggest that financial advisors are an effective mediator of the increase in investors' financial awareness. She establishes this relationship using three measures of financial literacy (basic, advanced and overall), and also tests distinctive typologies of advisors. She finds that the presence of independent financial advisors tends to increase the 'advanced' financial literacy skills of their respective clients. Based on these findings, the author highlights the important role of enlightened financial advising as a complement to financial education programmes.

In the final study of this special issue, Engels, Kamlesh, and Philip (2020) examine financial fraud, which is likely to induce major losses in terms of consumer morale and the essential trust in financial institutions.[8] The authors find that more financially knowledgeable individuals have a higher propensity to detect fraud. A one standard deviation increase in financial knowledge increases the probability of detecting fraud by three percentage points. The result is not driven by higher financial product usage and is moderated by individual subjective well-being. Interestingly, prudent financial behaviour relating to basic money management is found to have negligible effects for detecting fraud. The findings confirm that fraud tactics are increasingly complex, and it is greater financial knowledge rather than basic money management skills that provides the degree of sophistication necessary to detect fraud. The paper draws policy implications for consumer education programmes to go beyond cultivating money management skills, and provide advanced financial knowledge necessary for tackling fraud.

## Notes

1. The growing interest in this area is related to concerns that some financial institutions mis-sell products and services to their clients or engage in other negative practices that take advantage of uninformed (less financially literate) consumers.
2. The papers were presented at the 3rd International Workshop on the Internet for Financial Collective Awareness & Intelligence (http://ifin-workshop.iti.gr/), with the theme 'Financial Literacy and the FinTech Era: Capabilities and Challenges'. The two-day workshop was hosted by the Adam Smith Business School at the University of Glasgow on 12th–13th November 2018. The workshop was organised by the EU-funded PROFIT project (Promoting Financial Awareness and Stability: http://projectprofit.eu), as part of the events of the UK Talk Money Week 2018 (https://www.fincap.org.uk/fincap-week). The organisers and supporters of the workshop were: the Centre for Research & Technology, Hellas; the Adam Smith Business School and the Wards Trust Fund of the University of Glasgow; the Centre for Responsible Finance of the University of St. Andrews; the Democritus University of Thrace and the Hellenic Financial Literacy Institute in Greece. The host academics were Sotirios Diplaris (CERTH-ITI), Georgios A. Panos (University of Glasgow), John O.S. Wilson (University of St. Andrews) and Robert Wright (University of Strathclyde). The keynote address was delivered by Michael Haliassos (Goethe University, Frankfurt).
3. In a related inquiry, Carlin et al. (2018) examine how a new technology (which provides better access to financial information) changes financial behaviour. The authors exploit the introduction of a smartphone application for personal financial management as a source of exogenous variation in access to financial information. The find that FinTech adoption reduces financial fee payments and penalties, but differs cross-sectionally. After adopting the new technology, Millennials and members of Generation X incur fewer financial fees and penalties, whereas Baby Boomers do not benefit.
4. In a recent quasi-experimental study examining the impact of Congressional legislation inducing unintended differences in financial market development across Native-American reservations, Brown et al. (2019) show that, by increasing financial literacy and financial trust, early life exposure to local financial institutions increased household financial inclusion and induced long-term improvements in consumer credit outcomes.
5. van Praag et al. (2003) and van Praag and Ferrer-i-Carbonell (2004) find that health shocks impact more on individual well-being than financial shocks. Lusardi et al. (2017) suggests that differences in financial literacy can explain some 35–40% of retirement wealth inequality in the US. The ability of individuals to assess financial risk and make optimal financial decisions entails vast implications for the portfolio allocation, wealth accumulation (Behrman et al., 2012), and ultimately financial well-being.
6. Mueller and Yiannelis (2019) show that shifts in the composition of student loan borrowers and the collapse in house prices during the global financial crisis account for approximately 30% of the rise in student loan defaults in the US.
7. Low financial-literacy has been associated with mistaken perceptions and beliefs regarding the attributes of financial products and less willingness to accept financial advice (Anderson et al., 2017). Von Gaudecker (2015) posits that households that score high on financial literacy or rely on professionals or private contacts for advice achieve reasonable investment outcomes. Household investment mistakes are common and pose major threats in household finance. Portfolio under diversification ranks

among those mistakes that are potentially most costly. The author finds that households with below-median financial literacy that trust their own decision-making capabilities realize large losses in their investment portfolios and all group differences stem from the top of the loss distribution. Collins (2012) shows that financial literacy and financial advice are complementary rather than substitute. Evidence suggests that the more financially literate have access to better financial information and financial advisors (Calcagno and Monticone 2015; Stolper 2018).
8. Much financial fraud occurs in three ways: account takeovers, synthetic ID use, and business e-mail compromise, and the number of successful attempts has risen 34% from 2013 to 2016 (Hasham et al., 2018).

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