



Europe Economics

The Economic Impact of Improved Financial Capability

Final report

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1 Executive Summary

1.1 Introduction

The Money Advice Service has led the development of a Financial Capability Strategy for the UK. A better understanding of the potential economic impact of improving financial decision-making, either overall or to some minimum level, could feed into the effective prioritisation of activities within the Strategy. Europe Economics was contracted to develop an analysis of this potential.

This study was not intended to, and does not, set out policy proposals. It is not concerned with *how* financial capability can be improved. Nor is it an Impact Assessment. Instead we describe the model that we have developed which shows the potential economic value of improved financial decision-making.

1.2 Approach

Our starting point was to consider how different attitudes and behaviours feed into decision-making in the financial sphere by reviewing the economic literature around the interaction of financial capability and various dimensions of consumer behaviour. This draws on both the standard economic model and insights from behavioural economics, and is described in more detail at Chapter 3.

Based on this literature, we identified the following traits, which we have incorporated into our simulation of consumer behaviour and decision-making:

- **Better budgeting capability**, leading to improved consumer credit and mortgage credit management (e.g. limitations on the scale of the build-up of credit levels) and the development of increased precautionary savings.
- **Reduced search costs** leading to enhanced search (i.e. greater shopping around for a wide range of financial products).
- **Enhanced allocative efficiency**, i.e. where people have savings, choosing better-suited investment products, and achieving a better risk-return mix could be important.
- Enhanced ability to identify opportunities to make better financial decisions, e.g. **enhanced self-direction** in an individual's financial affairs, or, alternatively, **better appreciation of when to involve a financial adviser**, and to appreciate the nature of the advice (i.e. whether the adviser is independent of the providers of the products and services being advised upon).
- Enhanced **ability to limit the influence of behavioural biases** on consumption choices.
- Greater accumulation of savings over time in preparation for such life events (such as marriage, buying a house and so on) and, in consequence, have **increased precautionary savings** to absorb unexpected income and expenditure shocks.
- Greater likelihood of **planning for retirement** (e.g. entering a pension scheme or increasing contributions).
- More **rapid and effective management of such difficulties** (e.g. more actively managing consumption expenditure downwards).
- More **effective actions to reduce indebtedness**.

In these ways, increasing financial capability can be seen as (partially) addressing some market imperfections. Our model simulates consumer behaviour and how this interacts with variable financial capability factors. We use descriptive facts drawn from the Financial Capability Survey 2015 (FCS 2015) to represent a sample of over 3000 agents over their remaining lives. The model captures the expected behaviours described above through multiple modelling assumptions and conditions to describe the role of financial capability in their budgeting, credit and saving decisions. We have used an index of financial decision-making (FDMI), which

allocates a score to each individual ranging from 0 (lowest possible score) to 15 (highest possible FDMI score), again drawing upon the FCS 2015. The modelling framework is described at Chapter 4.

We then compare the status quo, where individuals have a financial capability corresponding to what can be inferred from their answers to the FCS 2015 study, and a “policy-on” case where that capability has increased.

1.3 Modelling results

The model works deterministically, i.e. capability (being an amalgam of having particular knowledge, attitudes and skills, and also the ability to deploy these effectively) essentially drives behaviour, abstracting from anything else. If full rationality by individuals is assumed, this makes sense (if an agent has an incentive to act, she should do so) but there is an evident tension with the persistent existence of behavioural biases — whilst increased capability should be conducive to minimise and alleviate these, it may not in fact fully resolve them. Even so, this is, of course, a simplification of reality. Capability is not wholly set at some level but will interact with an individual’s education and experience. On the other hand, the scale of the improvements that we model as flowing from higher quality decisions has itself been constrained.

We set out below the results of our core model. This improves the quality of decision-making across all agents in our model, showing how the modelled behaviours around widespread enhanced capability would translate into monetary gains for consumers — in terms of both increased wealth and increased consumption from better cash and credit management, and better saving and investment decisions, allowing consumers to generate utility gains through increased (future) consumption. This looks at the first 30 years of the lifespan of the agents in the model (less if the agent dies before those 30 years are up). The pecuniary results have been scaled to the UK population (including re-weighting where the sample’s characteristics diverged). The £ figures presented are 2015 £ values, i.e. we discount future monetary figures back to today using the discount rate recommended by HM Treasury’s Green Book.¹ These results do not take into account any countervailing strategies by the supply-side, which we discuss discretely below.

The greater gains are generated by those age cohorts with a greater part of their working lives within the model’s timeframe. This is in large part driven by increased retirement saving — indeed the relatively small changes in consumption spend within the youngest cohorts reflect the impact of foregoing current consumption to increase future access to savings, as well as off-setting changes due to consuming some part of the gain on reduced financial product prices. Inequality in retirement incomes is slightly reduced by increasing capability in our model.

¹ https://data.gov.uk/sib_knowledge_box/discount-rates-and-net-present-value.

Table 1.1: Potential financial impact of changing financial capability

Age Group	Increase in 30 year wealth, %	Wealth effect (30-year UK figure), £bn	Increase in 30 year consumption, %	Consumption effect (30-year UK figure), £bn	Combined effect (30-year UK figure), £bn
75+	0%	2.8	0%	-	2.8
65 - 74	1%	10.3	0%	-	10.3
55 - 64	2%	8.5	1%	6.7	15.2
45 - 54	3%	14.6	0%	8.5	23.2
35 - 44	3%	9.9	0%	8.1	18.0
25 - 34	5%	21.0	0%	4.7	25.7
18 - 24	3%	12.4	0%	0.9	13.3
Total		79.6		28.8	108.4

Source: Europe Economics.

Given the importance of the model's triggers for behavioural change, we have also sensitivities adjusting those triggers by one 'notch' (up and down) on the FDMI scale from those used in the core model. The results are non-symmetric, i.e. increasing and decreasing the triggers by one does not generate the same scale of divergence from the base case, reflecting the differences in the distribution of the FCS 2015 sample. These sensitivities give a 30 year PV gain of £105–127 billion.

In our model, capability can influence the incidence, duration and severity of over-indebtedness. This is because more capable agents adapt their consumption behaviour in anticipation of particular life events. They also adapt more strongly than less capable agents if and when they become over-indebted. The latter trait reduces the severity of the debt problem, and potentially can shorten the duration of the period spent as an over-indebted agent.

Overall our model shows a reduction in the incidence and level of over-indebtedness, and of the consequent debt write-offs, amongst consumers of about 9–13 per cent due to improved financial decision-making.

Over and above this, by reducing the episodes of being over-indebted, increased capability would also lead to some avoidance of mental health episodes correlated with the state of over-indebtedness. Using conservative assumptions on the value of this, our base model implies an approximate £0.23 billion saving over a 30 year time horizon. This effect is not part of the model. Other non-modelled impacts include corollary impacts on productivity stemming from such enhanced health.

1.4 Supply-side factors

Our model's results show that increased capability, by triggering a series of changes in decision-making, could result in significant gains to consumers. However, in the event of a widespread change in capability, it is also necessary to question whether such gains would be fully realisable, or whether the supply-side's strategic reactions would dampen these gains. There are various ways in which the supply-side's strategic reaction can be considered (see Chapter 6).

One scenario could see enhanced competitiveness in the industry as it responds to enhanced consumer search, and hence increased price competition, by increasing efficiency. In this way increased capability should contribute towards better-functioning markets. Holding all else constant, an apparent impact of improved financial capability would be a shift in revenues from certain providers (with a higher price) to other providers

that offer better value for consumers. Overall, *for a given volume*, industry revenues should fall.² If this effect was sufficiently large it could encourage additional entry by more efficient (or at least better value) market participants, though this would depend in part on the extent of barriers to entry in the sector.

Similarly there could be increased product innovation in response to new opportunities (e.g. greater recognition amongst low income earners of building savings could mean — at least — the supply of suitable savings products in response to such novel demand).

There could also be reduced incentives to run with certain ‘exploitative’ strategies (because increased capability should reduce the pay-offs to firms, or at least increase the uncertainty around the net pay-offs as to make them insufficiently attractive). This could result in exit of ‘bad’ firms.

This type of impact should not be over-stated as people will stay people, remaining prone to various behavioural biases. Indeed, there are also scenarios whereby revenue losses resulting from improved financial capability are recouped from other — less capable — customers. This would apply if any existing incumbency advantages persisted for these latter groups.

In particular, if financial capability were to improve equally across all individuals then the number of “sophisticated” customers would grow — but less capable customers would still persist. So, whilst amongst the increased cohort of “sophisticated” customers the greater engagement in the market and active searching and switching by these customers would lead to revenue losses from these customers, banks (or whatever other market participant) with incumbency advantages may seek to increase fees for inactive (or “naïve”) customers that do not switch providers. This pessimistic scenario would be supported by work from academics such as Gabaix and Laibson, whereby shrouding effects (real prices are greater than the perceived price) result in exactly this scenario.³ Whether such price shrouding exists in the personal accounts markets (or in banking services more generally) remains unclear — however, we find a natural interpretation of low financial capability to be that, for such consumers, there is scope for less than transparent pricing (whether this is primarily due to the consumer’s lack of observation, or to the firms’ practices, or both is less apparent). However, regulatory policy can provide protection against the adoption of some such strategies, and could be deployed to limit whatever such negative impacts arise.

This leads to a further thought, namely whether greater availability of ‘simpler’ products could have an equivalent impact as improved capability. Whilst full analysis of this is outside the scope of our work, we believe it likely that the right kind of simpler, e.g. a product or service fulfilling well a customer’s need without exposure to unknowable adverse outcomes, could help in those areas where such products can be found or innovated — but would not fully substitute for growing the financial capabilities of UK citizens.

1.5 Conclusions

Our analysis suggests that changes in consumer behaviour driven by increasing capability would, all else being equal, have significant positive consequences both in terms of wealth effects and also non-pecuniary impacts.

Whilst at an individual level the impacts do not generally appear dramatic, an increase in capability across the UK population could generate significant wealth transfers for consumers, with the more capable being likely to benefit most. The potential causes for concern that we have identified above (and in more detail in Chapter 6) do not mean that seeking to enhance capability is not a worthwhile goal — the potential gains to consumers clearly indicate otherwise. Instead, we consider it suggestive of two thoughts:

² It is possible that as consumers become more financially capable, they switch to a better product with the same provider, rather than another provider, but in this set up the overall effect would still be the same.

³ Gabaix, X. and D. Laibson (2006) "Shrouded attributes, consumer myopia, and information suppression in competitive markets", *The Quarterly Journal of Economics*.

- First, that a measures to improve financial capability should primarily be focused on levelling up capability to some level rather than a blanket improvement, i.e. making those with lower capability less vulnerable.
- Second, the outcomes of such measures would more likely be beneficial when coordinated with the strategies around the regulation of financial services and the enforcement of competition in that sector.

2 Introduction

The Money Advice Service has led development of a Financial Capability Strategy for the UK, the delivery of which a wide variety of organisations are involved in. A better understanding of the potential economic impact of improving financial decision-making, either overall or to some minimum level, could inform effective prioritisation of efforts to deliver the Strategy, and build support for improved financial capability among policy makers, regulators, and the financial services industry.

Europe Economics was contracted to develop this analysis. This report is structured as follows:

- Chapter 3 summarises the conceptual framework within which the analysis has been conducted and which underpins our assessment of the impacts of improving financial capability.
- Chapter 4 introduces our economic model, describes the modelling framework we have adopted and how this has been enriched by access to the Financial Capability Survey (FCS) 2015. This focuses on the behavioural and monetary impacts expected to flow from improving financial capability and on how the data contained within the FCS 2015 have been used to model these. These are of primary importance as they are effectively the ‘fuel’ for all of the analysis (with our model as the ‘engine’).
- Chapter 5 sets out the outputs of the model on a number of bases, quantifying the potential impacts arising from enhancing financial capability across the UK population.
- Chapter 6 describes the impact on the supply-side (i.e. the financial services industry), and in particular its potential response to such an increase in capability.

This study was not intended to, and does not, set out policy proposals. It is not concerned with how financial capability can be improved. Nor is it an Impact Assessment. Instead we describe in this report the model that we have developed which shows the potential economic value of improved financial decision-making.

3 Analytical Framework

This chapter aims to shed light on the motivation underlying the modelling approach that we use. First, we set out more fully the objectives of the analytical framework, before describing how economic thought considers financial behaviour and decision-making. We use this to highlight critical analytical issues that needed to be considered in the modelling. The modelling itself is described in subsequent chapters.

3.1 Objectives

The primary objective of the study is to understand how financial capability affects an individual, and therefore, the economic impact that improving financial capability might have. In order to develop a model that is capable of reflecting and assessing these impacts, we first need to understand:

- Factors which might affect an individual's financial capability and the impact of improving that financial capability, or some aspect of it. These factors may need to be modelled in some way, either by including exogenous assumptions related to these factors, or endogenising certain behaviours within the modelling.
- Factors other than financial capability affecting an individual's financial position and decision-making. These represent constraints on the modelling, and the inferences that can be drawn from its results.

In our view, other impacts due to improving financial capability, e.g. health impacts due to reducing the incidence of financial distress, can be seen as stemming from these changes in decision-making behaviour. Equally, any impacts on the financial services sector originate in the modelled changes in consumer behaviour (although there are likely to be also feedback loops from the financial services sector). In this sense, these impacts are secondary to the behavioural impacts experienced by consumers. We consider those impacts separately, drawing on the results of this "micro" modelling of individuals' behaviour (in Chapter 6).

3.2 Financial capability and its impacts

Financial capability is about the ability to make good quality decisions in the financial sphere. In its ideal form this might require a multi-faceted and comprehensive set of knowledge, motivations, and behaviours. It would also be about anticipating future events with a financial impact, planning for them and maintaining the matching of future actions to those original intentions when faced by competing desires for more immediate gratification (i.e. it is about exercising self-control with one's finite resources).

In this section, we draw on the academic literature to describe those behaviours and financial decisions that financial capability can have an impact on, how financial capability can best be understood to have such impacts, and what outcomes are observable from these changed behaviours.

We note that the majority of the empirical work relates to studies outside the UK (mostly the USA). This places some limitations on the read-across of such empirical results to UK experience and, to an extent, motivates the modelling approach adopted.

3.2.1 The Money Advice Service's Financial Capability Strategy for the UK

The recent 2007-2009 financial crisis imposed considerable financial strain on a significant portion of the UK population. Whilst economic recovery continues, some of these strains remain — and it is not yet fully clear whether BREXIT will add to such strains (or not). Overlaid on this macroeconomic scene are various financial scandals, such as the mis-selling of Payment Protection Insurance (PPI), and certain controversial financial

innovations (such as payday lending, at least prior to the increased effort made by the Financial Conduct Authority to regulate it effectively). Accordingly, there is considerable political interest in the emerging Financial Capability Strategy for the UK. This aims at equipping the people of the United Kingdom with the skills, knowledge, attitudes and motivations to act in a financially capable way, and to influence the external factors that support or undermine financial capability.⁴

Greater financial capability can have several beneficial effects on economic agents' outcomes.⁵ Such individuals are more likely to participate in formal financial markets, rather than informal sources of borrowing, and face successfully unexpected macroeconomic and income shocks.⁶ Greater financial knowledge can also enable individuals to better allocate resources over their lifetime: Lusardi et al. (2016) claim that 30–40 per cent of retirement wealth inequality in the USA is due to differences in financial knowledge.⁷

The Money Advice Service has created a working definition of financial capability based upon three key behavioural domains:

- Managing money well day-to-day.
- Preparing for and managing life events.
- Dealing with financial difficulties.

We organise our presentation of the key findings of academic and other research studies according to the above behavioural domains of financial capability.

3.2.2 How is behaviour affected by financial capability?

We have noted above that financial capability relates to the knowledge, beliefs and behaviours that promote and sustain good financial decision-making and economic behaviour and citizenship. Behavioural economics has a rich and immediate vocabulary for discussing what can adversely affect such decision-making:⁸

- **Projection bias** describes the extension into the future of the current state of affairs, failing to reflect the potential for negative shocks.
- **Present bias** promotes the immediate gratification of desires.
- **Hyperbolic discounting** extends this idea whereby a consumer's preferences are dynamically inconsistent. A consumer will apply different discount rates to short-term and more distant cash flows — but when this future period arrives, he will apply the short-term rate. This impacts on planning: an individual might self-promise to save more a few months into the future, but in that future period immediate gratification through consumption will (still) be preferable.
- **Decision-making heuristics** may be applied resulting in overly simplified and sub-optimal outcomes.

Increased financial capability would need to limit the adverse effects associated with such behavioural biases — or it could provide people with tools to help combat behavioural biases. Decision-making can also be conceptualised where people find it costly to access and process information, and determine its adequacy and saliency — and, knowing this, may choose not to do so. Capability here would lower such search and processing costs, enabling more effective decisions to be made. The latter might include knowing when to seek financial advice and where to seek it, i.e. it is not simply about individuals taking on greater responsibility in isolation.

⁴ Money Advice Service (2015) "The financial capability strategy for the UK".

⁵ Sherraden, M. S. (2010) "Financial capability: What is it, and how can it be created?" Center for Social Development

⁶ Klapper, L., Lusardi, A. and Panos, G. (2012) "Financial literacy and the financial crisis" The World Bank Policy Research Working Paper 5980.

⁷ Lusardi, A., Michaud, P. and Mitchell O. (2016) "Optimal Financial Knowledge and Wealth Inequality" Forthcoming Journal of Political Economy

⁸ See for example Financial Services Authority (2008) "Financial capability: A behavioural economics perspective".

Managing money well day-to-day

We explore in this sub-section the link between how individuals or households manage their financial resources on a daily basis and the extent of their financial capability.

The extent of an individual's financial knowledge is a factor influencing daily financial management. Hilgert, Hogarth and Beverly (2003) show that households classified by the authors as having low cash flow management capability had lower average financial knowledge scores than those households classified as having medium or high cash flow management capabilities.⁹ The low-knowledge group was also found to perform less well in terms of capabilities in credit management, saving, investment and mortgage payment. This pattern suggests that (a) weak performance in one area of financial capability can often be associated with weak performance in other capabilities, and (b) that — at least potentially — increases in financial capability through increased knowledge and experience could lead to improvements in money management practice. Thaler and Johnson (1990) postulate a “house money effect”, whereby current budgeting is highly dependent on past outcomes.¹⁰ Prior gains induce people to be willing to take more risks, whereas, prior losses decrease willingness to take risks and outcomes which offer the opportunity to break even become more attractive. However Ulkumen et al. (2008) found that participants persistently underestimated their expenditures for the next month, with people often failing to incorporate lessons from past experiences into their predictions.¹¹ There is an anchoring bias whereby the initial estimates made by consumers are too low. This paper identifies an adjustment mechanism dependent on the degree of confidence and the availability of cognitive resources, i.e. individuals displaying greater financial capability should be better able to incorporate lessons learned from the past, and adjust for budgeting mistakes, more effectively than others.

Budgeting capability is not the only dimension of managing money well day-to-day: enhanced financial capability should better prepare an individual to search for and more easily execute quotidian financial services transactions. This can be seen as capability reducing search and transaction costs. Indeed, experimental studies in Mexico and Chile have illustrated that more financially literate individuals are more likely to choose pension accounts with lower administrative fees, i.e. to shop around more effectively prior to executing a transaction (Hastings and Tejada-Ashton, 2008; Hastings and Mitchell, 2011).^{12,13} Similarly, Engström and Westerberg (2003) examine the links between elements of financial literacy and individuals' active participation in saving, and provides a precedent for how financial capability leads to better returns on investments.¹⁴

People have been observed to behave as if their money resides in different compartments, referred to as “mental accounts”.¹⁵ Although in general mental accounts support self-control, sometimes they can influence additional spending through “creative bookkeeping”.¹⁶ For example, consumers may be flexible (or inconsistent) in classifying ambiguous expenses into different mental accounts and also in constructing mental

⁹ Hilgert, M., Hogarth, J. and Beverly, S. (2003) “Household financial management: The connection between knowledge and behaviour” *Federal Reserve Bulletin*. P. 309-322.

¹⁰ Thaler, R. and Johnson, E. (1990) “Gambling with the house money and trying to break even: the effects of prior outcomes on risky choice” *Management Science* Vol 36, No 6, p.643-660.

¹¹ Ulkumen, G., Thomas, M. and Morwitz, V. (2008) “Will I spend more in 12 months or a year? The effect of ease of estimation and confidence on budget estimates” forthcoming *Journal of Consumer Research*.

¹² Hastings, J. and Tejada-Ashton, L. (2008) “Financial literacy, information, and demand elasticity: Survey and experimental evidence from Mexico” NBER Working Paper 14538.

¹³ Hastings, J. and Mitchell, O. (2011) “How financial literacy and impatience shape retirement wealth and investment behaviors” NBER Working Paper 16740.

¹⁴ Engström, S., and Westerberg, A. (2003) “Which Individuals Make Active Investment Decisions in the New Swedish Pension System?” *Journal of Pension Economics and Finance*, 2: 225-245.

¹⁵ Thaler, R. (1990) “Saving, fungibility and mental accounts” *Journal of Economic Perspectives*, Vol 4, No 1, p.193-205.

¹⁶ Cheema, A. and Soman, D. (2006) “Malleable mental accounting: The effect of flexibility on the justification of attractive spending and consumption decisions” *Journal of Consumer Psychology*, Vol 16, No 1, p.33-44.

accounts to accommodate unclassified expenses. As a result, one might borrow at high interest, say to buy a consumer item which may have been introduced to the market recently, whilst simultaneously saving at lower interest rates, say for a child's college fund. Evidently, increased financial capability should act to curtail such creative mental accounting, increasing an individual's self-control and, ultimately, the efficient allocation of resources.

Daily financial decisions can also be inhibited by "recency" bias, i.e. people's tendency to overweight whatever information they have received most recently.¹⁷ This can generate more urgent or excessive desire for products and services — or particular features of products and services — that one has been informed about more recently.

The extent of finance-relevant cognitive skills are also important. Moore (2003) points to the importance of the understanding of compound interest as a fundamental financial factor in understanding how interest rate changes affect savings and can generate wealth.¹⁸ Understanding compounding is also critical to appreciating the true cost of borrowed money. Many individuals do not understand loans and interest rates well, i.e. consumers enter into loan agreements without understanding how much they would be paying for borrowed money or the opportunity cost of the money they were investing.

It is unsurprising then that consumer credit management is often weak. For example, how consumers respond to different credit card rates highlights limitations in the efficacy of consumer search and planning behaviour. Shui and Ausubel (2004) show how consumers can prefer credit card contracts with low initial rates (which subsequently rise steeply) to ones with more stable rates that are higher than the initial rates on the other cards but ultimately more beneficial *ex post*.¹⁹ Agarwal et al. (2007) identify a complementary finding that consumers are reluctant to switch contracts.²⁰ Indeed, DellaVigna and Malmendier (2004) theorized that financial institutions set the terms of credit card contracts to reflect consumers' poor forecasting ability over their future consumption.²¹

Within this context, the UK Competition and Markets Authority (CMA) noted recently that consumers could save up to £70 per annum by switching bank current accounts (and that heavy overdraft users could save up to £260 per annum). Substantial inertia here was attributed by the CMA to consumers' beliefs that the process would be complicated, time-consuming and risky. Surveys conducted for BACS suggest that, whilst a substantial proportion of the UK population have heard of the Current Account Switching Service, only a minority expect it would be error free.

Various studies estimate the quantitative impact of low capability (or, at least, dimensions of it). A recent study by the ECB, using Danish data, found heterogeneity in the returns achieved on savings accounts could at least be partly explained by differences in financial literacy levels. A one-standard deviation increase in the study's financial literacy measure was associated with a 12 per cent increase in performance compared to the median. Whilst financial literacy is a narrower concept than capability, and that the study draws on non-UK experience, it nevertheless provides evidence that enhancing capability can drive real-world benefits (i.e. the rationale for the modelling exercise). The use of technology (e.g. online accounts) was identified as an

¹⁷ Kennedy, J. (1993) "Debiasing audit judgment with accountability: A framework and experimental results" *Journal of Accounting Research*, Vol 31, No 2, p.231-245.

¹⁸ Moore, D. (2003) "Survey of financial literacy in Washington state: Knowledge, behavior, attitudes, and experiences" Washington State University Social and Economic Sciences Research Center Technical Report 03-39.

¹⁹ Shui, H. and Ausubel, L. (2004) "Time inconsistency in the credit card market" in 14th Annual Utah Winter Finance Conference, ed. Avner Kalay, and Jim S. Schallheim.

²⁰ Agarwal, S., Chomsisengphet, S., Liu, C., and Souleles, N. (2006) "Do consumers choose the right credit contracts?" Unpublished manuscript.

²¹ DellaVigna, S. and Malmendier, U. (2004) "Paying not to go to the gym" *American Economic Review*, Vol 96, No3, p.694-719.

important channel through which financial literacy achieved this (e.g. by facilitating search).²² Nolte and Schneider (2015) examine the effects of financial literacy on the probability of surrendering (i.e. cancelling) a life insurance policy in Germany (and, in consequence, suffer significant monetary losses).²³ This research suggests that greater financial literacy reduces the surrender probability, whereas a tendency to rely on heuristics has the opposite effect.

Calvet, Campbell and Sodini (2006)²⁴ note that predictors of financial sophistication, such as wealth, income and educational level, predict higher levels of participation, higher volatility of risky portfolios and higher Sharpe ratios.²⁵ Similarly, Klapper, Lusardi and Panos (2012) find that financially literate individuals are more likely to participate in formal rather than informal sources of borrowing.²⁶ Moreover, during the 2007–2009 crisis, more financially literate individuals were likelier to report greater levels of precautionary saving, i.e. safeguarding themselves from the adverse consequences of the credit crunch.²⁷ Wealthier and more financially sophisticated households tend to invest more efficiently — e.g. increasing investment exposure to global assets — they also tend to take on more risk, enabling the potential achievement of higher returns. This also highlights a constraint in considering the impact of improving financial capability — i.e. that it is linked to other factors, a wealthier household would have greater incentives to invest in acquiring financial domain skills, and also increased opportunities to actively acquire such skills from their own experience of investing (i.e. learning by doing).

Managing money well day-to-day — conclusions for modelling

Better day-to-day financial management would allow people to keep track of money more efficiently and to have a more effective budgeting system, thus increasing allocative efficiency. The types of behaviour that we would expect to see would include:

- Better budgeting capability, leading to improved consumer credit and mortgage credit management (e.g. limitations on the scale of the build-up of credit levels) and the development of increased precautionary savings.
- Reduced search costs leading to enhanced search (i.e. greater shopping around for a wide range of financial products).
- Enhanced allocative efficiency. Where people have savings, choosing better-suited investment products, and achieving a better risk-return mix could be important.
- Enhanced ability to identify opportunities to make better financial decisions, e.g. enhanced self-direction in an individual's financial affairs, or, alternatively, better appreciation of when to involve a financial adviser, and to appreciate the nature of the advice (i.e. whether the adviser is independent of the providers of the products and services being advised upon).
- Enhanced ability to limit the influence of behavioural biases on consumption choices.

²² Deuffhard, F., D. Georgarakos and R. Inderst (2015) ECB Working paper 1852, "Financial literacy and savings account returns". <http://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1852.en.pdf>.

²³ See Nolte, S., and Schneider, J.C. (2015) "Don't lapse into temptation: A behavioural explanation for policy surrender" University of Muenster Working Paper.

²⁴ Calvet, L., Campbell, J. and Sodini, P. (2007) "Down or Out: Assessing the welfare costs of household investment mistakes" *Journal of Political Economy*, Vol 115, No 5, p.707–747.

²⁵ The Sharpe Ratio is a measure of risk-adjusted return and is calculated as the average return earned in excess of the risk-free rate per unit of volatility or total risk.

²⁶ See Klapper, L., Lusardi, A. and Panos, G. (2012) "Financial literacy and the financial crisis" The World Bank Policy Research Working Paper 5980.

²⁷ See Klapper, L., Lusardi, A. and Panos, G. (2012) "Financial literacy and the financial crisis" The World Bank Policy Research Working Paper 5980.

Preparing for and managing life events

A saving decision reflects an individual choosing future over current consumption. Theoretical models of saving traditionally link current consumption to a long-term estimate of income rather than current income by itself. In the life-cycle theory of Modigliani and Brumberg (1954) utility depends both on current and future resources.²⁸ Friedman's permanent income hypothesis relates consumption to an individual's estimate of a discounted stream of future income.²⁹

However many observers (e.g. Deaton 1992) have argued that these models overestimate the extent to which consumption is detached from income.³⁰ Similarly, Johnson, Kotlikoff and Samuelson (1987)³¹ assess the life-cycle model's assumptions and find substantial deviation between theory and empirical results. They find a widespread inability to make coherent, consistent spending and saving decisions, with a sizeable fraction of test subjects undervaluing future earnings relative to present assets (i.e. over-discounting of future earnings). We have noted above that individuals can often overvalue the present relative to the future. The consumer can later regret such choices, i.e. these preferences are 'time inconsistent'. The result can be failures in self-control, leading to prioritising immediate gratification and, subject to circumstances, over-borrowing.³² Similarly, rational people can still take decisions that appear irrational, when the cost of being rational is high due to the increased effort required to process information, or else if the information available is inadequate or believed false. Limited foresight constrains classical economic assumptions about an individual's capability to see into the future is limited, meaning that individuals no longer understand how their consumption decisions affect their entire lifetime. Such an individual will tend to over-consume and under-save. There can also be market failures, e.g. restricted access to pension or other institutionalized retirement savings programs could restrict a consumer's ability to shift consumption to the future.

Auerbach and Kotlikoff (1985)³³ highlight individuals' inadequate planning for life events such as retirement and death. They analysed life insurance holdings, finding that combined private and public insurance were inadequate for a significant minority of elderly households, with private insurance holdings barely adequate for almost half of households, and that households did not significantly offset provisions of survivor insurance by reducing life insurance cover.³⁴ More optimistically, Thaler (1990) suggests that mental accounting can be exploited to overcome people's impulsiveness or their tendency to neglect the long term and reserve money for retirement and other life events.³⁵

The (in)ability of agents to plan ahead has been directly linked to financial literacy (which can be seen as an aspect of financial capability, or even a pre-condition of it). Lusardi and Mitchell (e.g. 2011)³⁶ show that the more financially literate are more likely to undertake retirement planning as well as to accumulate more

²⁸ Modigliani, F. and Brumberg, R. (1954) "Utility analysis and the consumption function: An interpretation of cross-section data," in Kurihara, K. ed., *Post Keynesian Economics*, New Brunswick, NJ. Rutgers University Press.

²⁹ Friedman, M. (1954) "A Theory of the Consumption Function" Princeton: Princeton University Press.

³⁰ Deaton, A. (1989) "Savings in Developing Countries: Theory and Review" *Proceedings of the World Bank, Annual Conference on Development Economics*. Washington, DC.

³¹ Johnson, S., Kotlikoff, L. and Samuelson, W. (1987) "Can people compute? An experimental test of the life cycle consumption model," NBER Working Papers 2183.

³² Financial Conduct Authority (2013) Occasional Paper 1 "Applying behavioural economics at the Financial Conduct Authority" <https://www.fca.org.uk/static/documents/occasional-papers/occasional-paper-1.pdf>.

³³ Auerbach, A. and Kotlikoff, L. (1985) "Life Insurance of the elderly: Adequacy and determinants" NBER Working Papers 1737.

³⁴ Adequacy of life insurance is assessed in terms of the ability of surviving spouses to maintain their previous living standard.

³⁵ Thaler, R. (1990) "Saving, fungibility and mental accounts" *Journal of Economic Perspectives*, Vol 4, No 1, p.193-205.

³⁶ Lusardi, A. and Mitchell, O. (2011) "Financial literacy and retirement planning in the United States" *Journal of Pension Economics and Finance*, Vol 10, No 4, p.509-525.

wealth. This result was robust even with different measures of financial literacy (Lusardi and Mitchell, 2009),³⁷ different planning measures (Alessie, van Rooij and Lusardi, 2011),³⁸ in different country settings³⁹ and when using different control factors.

Bernheim et al. (2003) build on Auerbach and Kotlikoff (1985) and examine life insurance holdings and financial vulnerabilities⁴⁰ among couples approaching retirement age.⁴¹ In evaluating the financial vulnerabilities of each household, the authors employ a life cycle model that accounts for a broad array of demographic, economic, and financial factors. In so doing they are able to quantify the financial vulnerabilities that would have existed without insurance, and evaluate the extent to which actual insurance addressed those vulnerabilities. Their results suggest significant mismatches:

- households with greater underlying vulnerabilities were not more likely to have life insurance protection and did not purchase more insurance on average resulting in substantial uninsured exposures; and
- the magnitude of uninsured financial vulnerabilities, as well as the tendency to address them by purchasing life insurance, varied systematically with individual and household characteristics and displayed a systematic gender bias.

The authors conclude that a low proclivity to address exposures can coincide either with lower income households or older individuals, whose financial capability are likely to be lower. Overall, these studies speak to how financial capability (or the lack thereof) can impact upon preparation for and the financial management of life events such as retirement and death — and, by inference, events such as marriage, birth of a child, and so on.

Of course, not all such events can be planned for — and not every consumer has adequate precautionary savings. Where the life event results in a short-fall in cash, the consumer would need to seek out consumer credit. We have discussed how capability interacts with accessing and managing credit in the previous subsection.

Preparing for and managing life events — Conclusions for modelling

Better preparation and management of life events would allow people to expand their horizon of foresight, ultimately resulting in:

- Greater accumulation of savings over time in preparation for such life events (and, in consequence, have increased precautionary savings to absorb unexpected income and expenditure shocks).
- Greater likelihood of planning for retirement (e.g. entering a pension scheme).

³⁷ Lusardi, A. and Mitchell, O. (2009) "How ordinary consumers make complex economic decisions: Financial literacy and retirement readiness" NBER Working Paper 15350.

³⁸ Alessie, R., van Rooij, M. and Lusardi, A. (2011) "Financial literacy and retirement preparation in the Netherlands" *Journal of Pension Economics and Finance*, Vol 10, No 4, p.527–45.

³⁹ Klapper, L., and Panos, G. A. (2011) "Financial literacy and retirement planning: The Russian case" *Journal of Pension Economics and Finance*, Vol 10, No 4, p.599–618.

⁴⁰ Financial vulnerability is defined as the percentage decline in an individual's sustainable living standard that would result from a spouse's death in the absence of life insurance. To calculate this decline, the authors make use of an elaborate life cycle model. The model is embodied in financial planning software, Economic Security Planner (or ESPlanner). Economic Security Planning, Inc. provides free copies of the software for research and is made available at www.ESPlanner.com.

⁴¹ Bernheim, B., Forni, L., Gokhale, J. and Kotlikoff, L. (2003) "The mismatch between life insurance holdings and financial vulnerabilities: Evidence from the health and retirement study" *American Economic Review*, Vol 93, No 1, p.354–365.

Dealing with financial difficulties

Financial innovation has, *inter alia*, resulted in people have gained unprecedented access to credit. For example, high-cost methods of borrowing (e.g. payday loans) have proliferated.⁴² Much of this has been beneficial, but some of these innovations — in combination with the credit crunch — saw large numbers of individuals in financial difficulties and unable to pay down debt. The reasons why people experience problems with debt are complex. For example:⁴³

- Kober (2005) points to negative income shocks such as job loss, divorce or illness/disability that may result in a sudden decrease in income and/or increased expenditure relative to what was (even rationally) expected.⁴⁴ From the latter shocks, Kempson (2002) points to job loss as the most significant factor contributing to debt problems.⁴⁵ A recent study by YouGov conducted for the homelessness charity Shelter found that 37 per cent of UK households could not afford to pay their rent or mortgage for more than a month if their income was lost. This is linked to the other financial capability themes (i.e. the presence or absence of adequate precautionary savings and the preparation for particular life events), as well as factors that do not directly relate to capability (although they may be correlated with it). Low precautionary savings are also highly associated with low incomes.
- Day, Collard and Hay (2008) suggest that increased indebtedness may be non-exclusively related to poor money management, lack of financial knowledge and/or building up of credit.⁴⁶

Overall, financial difficulty is partly predictable — people can over-borrow (or face overly lax lending criteria), or it can be driven by largely unpredictable life events, such as loss of a job or divorce — or any other income or expenditure shock. A recent Financial Conduct Authority (FCA) paper trawled through the Wealth and Asset Survey, identifying high debt-to-income ratios as a key predictor of future financial distress.⁴⁷ Other researchers have focused on the tendency of people to make “financial mistakes” that may ultimately lead them to being confronted with significant difficulties in fulfilling their debt obligations. In a cross-section of prime borrowers, Agarwal et al. (2009) found that middle-aged adults make fewer such mistakes than younger and older adults.⁴⁸ The authors concluded that financial mistakes follow a U-shaped pattern, with the cost-minimizing performance occurring around the age of 53. The authors suggest that whilst relatively young borrowers have low levels of experience albeit a high degree of analytic function, older borrowers have high levels of experience but relatively lower levels of analytic function — and that this explains the U shape of the ‘financial mistakes’ curve.

The ability of individuals to deal with financial difficulties is also influenced by their ability to manage money well on a daily basis. Thus, efficient money management should address more effectively financial difficulties, should they arise, or even reduce the probability of them from arising. For instance, the limitation by financially capable individuals of the effects of recency bias and their more efficient use of mental accounts should heighten their ability to allocate resources, thus lowering their indebtedness or even preventing them from becoming over-indebted.

⁴² In the US alone, the Federal Deposit Insurance Corporation estimated in 2009 the alternative financial services industry to be worth at least \$320 billion in terms of transactional services.

⁴³ Social Market Research (2010) “Research on Helping Customers to Avoid/Manage Debt”.

⁴⁴ Kober, C. (2005) “In the Balance: Disabled people’s experiences of debt” Leonard Cheshire.

⁴⁵ Kempson, E. (2002) “Over indebtedness in Britain: A report to the Department of Trade and Industry” Personal Finance Research Centre.

⁴⁶ Day, L., Collard, S. and Hay, C. (2008) “Money advice outreach evaluation: Qualitative outcomes for clients” Legal Services Research Centre.

⁴⁷ Financial Conduct Authority (2016) “Can we predict which consumer credit users will suffer financial distress?” Occasional Paper 20.

⁴⁸ Agarwal, S., Driscoll, J., Gabaix, X. and Laibson, D. (2009) “The age of reason: Financial decisions over the life cycle and implications for regulation” Brookings Papers on Economic Activity, p.51–101.

Likewise, greater financial capability should enhance the ability of people to make informed decisions about financial products. To be able to make informed decisions about financial products individuals must have a sound financial knowledge and reasoning which are heightened under increased financial capability.⁴⁹

Dealing with financial difficulties — Conclusions for modelling

Again, better ability to deal with financial difficulties should result in:

- More rapid and effective management of such difficulties (e.g. more actively managing consumption expenditure downwards).
- More effective actions to reduce indebtedness.

A knock-on effect of these relates to the social and health impacts associated with being heavily in debt, and the potential for debt advice (whether free-to-client or paid) to mitigate at least some of these impacts, as well as helping consumers to manage their debts better and to reduce their financial difficulties.

3.2.3 Constraints on the modelling

It is of course critical to recognise that improving financial capability does not resolve every problem. There are various constraints that the modelling work needs to be mindful of in considering the responsiveness of consumers and the extent to which actual behaviours might be expected to change.

Some of these constraints are fundamentally conceptual. Our focus in this study is the potential that could accrue from UK citizens achieving enhanced financial capability. As such it is important to note that it abstracts from an important question, i.e. how do people become capable? This is a critical operational question for the Money Advice Service, but one which is outside the scope of this project.

Other constraining factors are also outside the scope of our work. For example, Roman and Vogler (1999) suggest that economic and cultural factors are interrelated in determining a household's financial management. This extends resource theory (Blood and Wolfe, 1960; Blumstein and Schwartz, 1983), which suggests that the partner with the higher income tends to play a more dominant part in decision-making due to the influence exerted by ideological or cultural factors.^{50,51} In a somewhat similar vein, Apps and Rees (1988) extend the seminal work of Becker (1974) which suggests that the household utility function is that of the head.^{52,53} Dobbelsteen and Kooreman (1997) investigate the inner workings of the household economy, and find evidence for a bargaining power model between the household's members, consistent with earlier results from Pahl (1980).⁵⁴

However, there are other constraints that we have not been able to reflect in our modelling of financial outcomes:

- People will remain people. An individual saving money on her home insurance or mortgage (or whatever) may not translate that into formal savings — instead it may be treated as a windfall gain and consumed. There is potential 'leakage' from the system. This can be explained as due to bounds (or constraints) upon the rationality of agents or else attributed to the effect of various psychological or behavioural biases being at work. Other factors will constrain someone's ability to make and maintain good decisions (e.g. stress at work, a death in the family, an episode of mental ill health, etc.) — and decisions need not make sense solely on pecuniary terms. An individual might be strictly better off in monetary terms

⁴⁹ Johnson, E., Hershey, J., Meszaros, J. and Kunreuther, H. (1993) "Framing, probability distortions, and insurance decisions" *Journal of Risk and Uncertainty*, Vol 7, No 1, p.35-51.

⁵⁰ Blood, R. and Wolfe, D. (1960) "Husbands and Wives: The Dynamics of Married Living" Macmillan, New York.

⁵¹ Blumstein, P. and Schwartz, P. (1983) "American Couples: Money, Work, Sex" William Morrow, New York

⁵² Apps, P. and Rees, R. (1988) "Taxation and household" *Journal of Public Economics*, Vol 35, p. 355-369.

⁵³ Becker, G.S. (1974) "A theory of social interactions" *Journal of Political Economy*, Vol 82, No. 6, p.1063-1093.

⁵⁴ Pahl, J. (1980) "Patterns of money management within marriage" *Journal of Social Policy*, Vol 9, p. 313– 335.

participating in a car-sharing scheme but prefers to buy (or rent) a car. The telling decision variable might be personal status (or the value placed upon that), or something else entirely. A fully satisfying model of human decision-making is not an obtainable goal.

- Changing financial capability will not alter the fact of low incomes from employment. And low incomes during your working life are associated with low or non-existent saving levels, and therefore greater exposure to getting into financial difficulties.
- The role of learning. In other words, what is the motivation for investing in the knowledge and skills necessary to become capable, and would someone become (stay?) capable without an appropriate motivator? Individuals can acquire financial capability skills through life experience. For example, individuals who have already experienced financial difficulties could be expected subsequently to display improved credit and budget management skills. Similarly, the experience of investing can improve capabilities around applied numeracy and increased understanding of the investment arena. The model does not contain such learning effects. Primarily, this is because the objective of this exercise is to model the impact of increasing capability without such learning effects, i.e. we simply increase capability across all agents, or some sub-section of them. The interaction between such an increase and learning effects is not clear (e.g. whether it should be considered additive or not).
- The structural context affects the financial decisions people make, regardless of capability — in particular, the generosity (or otherwise) of the welfare state alters incentives around the build-up of household wealth.⁵⁵ ⁵⁶ Similarly, certain behaviours may be rational given a particular product mix's availability (or absence) in the market.
- Equally the supply-side response is of critical importance: a number of potential responses by different parts of the industry are possible, particularly if the consolidated effect of the incremental impacts attributable to enhanced capability are significant. These are considered at Chapter 6.

⁵⁵ See for example Fessler, P. and M. Schürz, ECB Working paper 1847 (2015) "Private wealth across European countries: the role of income, inheritance and the welfare state".

<http://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1847.en.pdf>.

⁵⁶ Montagnoli, A., Moro, M., Panos, G.A., and Wright, R.E. (2016) "Financial literacy and attitudes to redistribution" IZA discussion paper (forthcoming).

4 Modelling Framework

We have discussed in the previous chapter our framework for analysing the economic impact of making improvements in financial capability. In this chapter, we discuss how we operationalise this. To do so we extend the discussion to also include:

- The timeframe over which financial capability affects individuals, and therefore, the most appropriate timeframe that should be covered by the modelling.
- Data that are available in the FCS 2015. This represents a rich source of data, and underpins the Money Advice Service's strategy documents. It therefore made good sense to incorporate some of these data into the modelling structure. (Where there were gaps in the FCS 2015's coverage that could have created constraints to the modelling, we sought to fill these through other sources. This is discussed further below).

In this chapter we describe the modelling framework we have adopted and how this has been enriched by access to the FCS 2015. First we describe what our model sets out to do.

4.1 What does our model do?

Before going on to set out the modelling framework, we first summarise what our model does: it simulates how the world changes compared to a given counterfactual based upon an assumed change in a given variable (in this case, financial decision-making capability). Such an economic simulation is an analytical technique that produces quantitative results (simulation results) based on a pre-determined mathematical structure (the theoretical model, or modelling framework). The theoretical model is designed to provide a credible representation of the phenomenon under investigation. Unlike empirical quantitative techniques (e.g. statistical and econometric analysis) which aim at explaining phenomena from observation and the analysis of empirical data, in a theoretical simulation the choice of the stylised conceptual or analytical framework describing how the world works is the pre-requisite for quantifying the phenomenon of interest. In this case, econometric analysis was not well-suited to investigating the FCS 2015 dataset. It is not constructed as a panel (i.e. following the same people over time), which would have enabled the identification of within-individual effects from changes at the level of financial capability.

Once a theoretical framework has been developed, particular parameters within it are populated with data, such as the survey data on several thousand individuals and pricing data. The purpose of this process (model calibration) is to make the outcomes and behaviours generated by the theoretical model to be as close as possible to observed data.

4.2 What is the appropriate timeframe for modelling improvements in financial capability?

We have established above the key ways in which financial capability can affect individuals' behaviour and how this might affect certain cash flows, and how the FCS 2015 might be used to support quantitative modelling of such effects. The next step in our analytical framework is to assess the timeframe over which financial capability affects individuals, and therefore, the most appropriate timeframe that should be covered by the modelling.

In this section, we consider two aspects in relation to the most appropriate timeframe:

- Static impacts, i.e. the impact of improving financial capability at the single point in time at which capability improves.
- Lifecycle impacts, i.e. the impact of improving financial capability over the remaining time period over which an individual is financially active after financial capability improves.

Static impacts

Modelling of static impacts would involve taking the starting point of an individual (e.g. in terms of his/her age, income, current levels of debt, etc.) and assessing the immediate impact of improving financial capability. While this has the advantage of avoiding the need to make assumptions about the future, it does not in our view provide a very satisfactory assessment of the impact of improving financial capability, since financial capability has an impact on events that happen over the course of an individual's life. Further, this approach would entail making assumptions about the extent to which the improvement in financial capability has an immediate impact on behaviour. This may mean that many of the benefits which occur in the future are ignored.

Lifecycle impacts

The alternative — and our selected — approach would be to model the impact of improving financial capability over an individual's lifecycle (i.e. until death). While this makes the modelling more complex and requires a greater number of assumptions to be made, we believe that this form of modelling would provide a much more comprehensive analysis of the impacts of improving financial capability.

There is also a question as to whether to incorporate dynamic elements over the lifecycle. The key aspect to consider here is likely to be whether improvements in financial capability are able to increase earning power. The literature has shown that improvements in financial capability may well generate pecuniary savings through the purchase of financial products or other assets or by reducing liabilities. There is limited evidence to suggest that improved financial capability improves income from employment. It is therefore appropriate to assume an exogenous income trajectory i.e. that is not a function of financial capability.

4.3 Overview of modelling framework

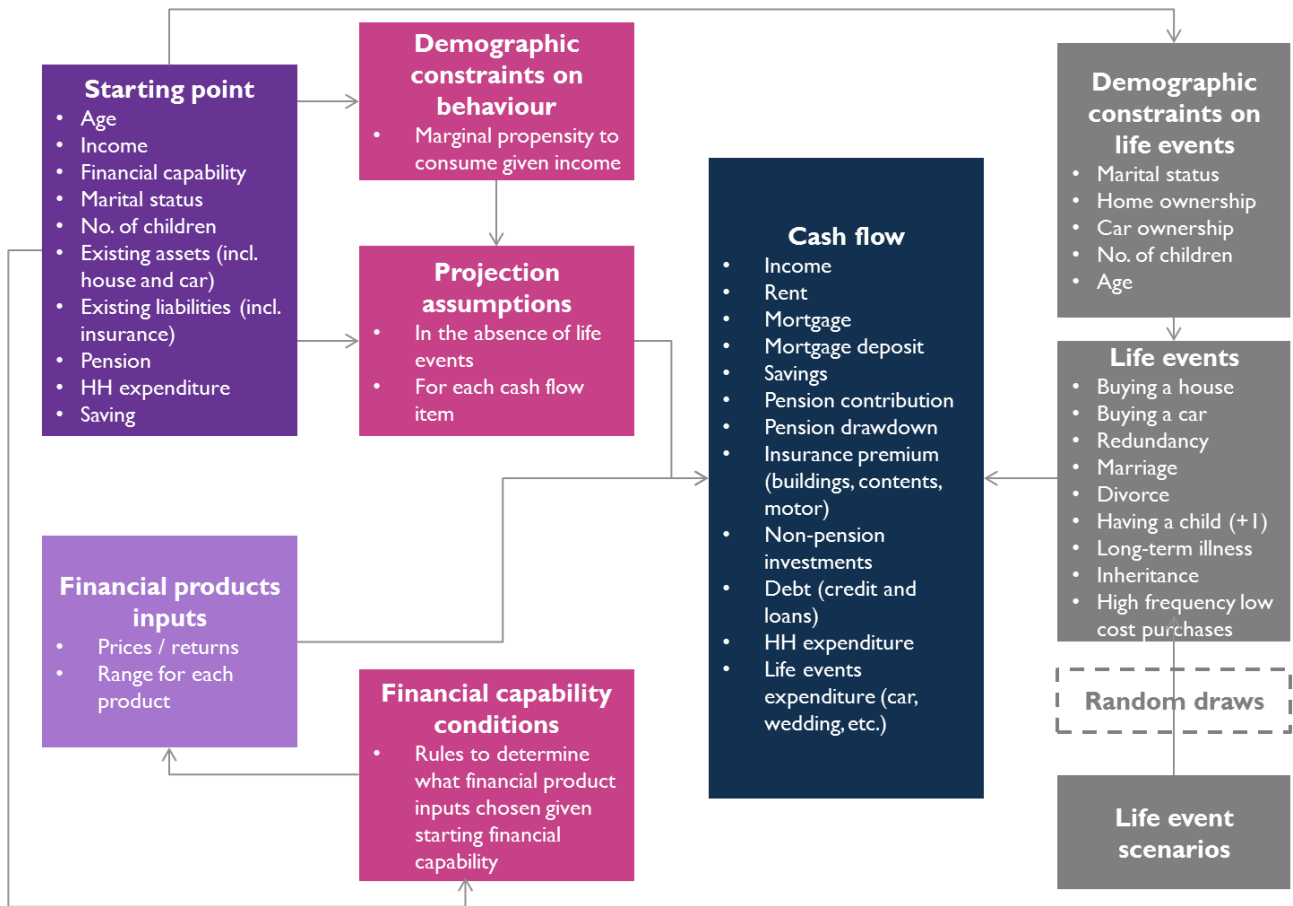
Drawing on the previous chapter, we present below the effects we wish to capture in our modelling framework.

- Better budgeting capability, leading to improved consumer credit and mortgage credit management (e.g. limitations on the scale of the build-up of credit levels) and the development of increased precautionary savings.
- Reduced search costs leading to enhanced search (i.e. better/more efficient search and matching for a wide range of financial products).
- Enhanced allocative efficiency. Where people have savings, choosing better-suited investment products, and achieving a better risk-return mix could be important.
- Enhanced ability to identify opportunities to make better financial decisions, e.g. enhanced self-direction in an individual's financial affairs, or better informed choice of when to seek financial advice — and from whom.
- Enhanced ability to limit the influence of behavioural biases on consumption choices.
- Greater accumulation of savings over time in preparation for such life events (and, in consequence, have increased precautionary savings to absorb unexpected income and expenditure shocks).
- Greater likelihood of planning for retirement (e.g. entering a pension scheme).
- More rapid and effective management of negative income shocks (e.g. more actively managing consumption expenditure down).
- More effective actions to reduce indebtedness.

We show below a simplified, visual representation of the model. The colour-coding in the picture below is as follows:

- Inputs are in purple (with FCS inputs in dark purple and other inputs in light purple);
- Assumptions are in pink;
- Life events are in grey; and
- Cash flows (which everything feeds into) are in blue.

Figure 4.1: Illustration of the modelling framework



In the following sections we set out the approach taken for each of the elements in the diagram above and we set out the data we have used (to calibrate the model) and the assumptions we have made.

4.4 Starting point for individuals in the model

4.4.1 What factors affect an individual’s starting position?

An individual’s “starting position” will clearly have an effect on the impact of financial capability and therefore the impact of improving financial capability. For example, somebody who improves their financial capability at age 25 will have a longer time period over which to reap the rewards of their improved capability than somebody whose starting position is aged 65; somebody who is already financially capable is unlikely to improve their position further; or a person with a low income may not benefit from improved financial capability as all of their income is consumed; etc.

Based on our analysis, we expect that the following variables in relation to an individual's starting point are relevant:⁵⁷

- Financial decision-making capability.
- Age.
- Employment.
- Starting income.
- Marital status.
- Number of children.
- Starting savings level.
- Tenure (of home).
- Any existing liabilities.

4.4.2 Data used in the model and construction of financial decision-making index

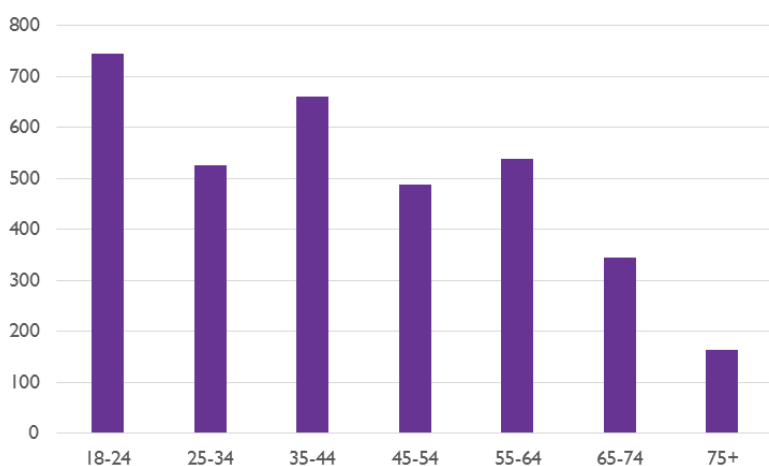
FCS 2015

The FCS provides a rich data source with 3,461 individual data points covering a very broad range of behavioural and financial indicators. The database contains a weighting variable, which ensures that the database is representative in terms of age, gender, region, working status and home tenure (e.g. owns a house with a mortgage or rent), i.e. the key socio-demographic qualitative variables.

The income in the database is broadly in line with benchmarks from the ONS (“average weekly earnings”). GfK/Money Advice Service confirmed that they had checked that the sample is representative in terms of income.⁵⁸ From a high-level perspective, patterns observable in the data look robust and conform broadly to the expectations of economic theory. For example, outstanding credit corresponds to the standard economic theory of the ‘life cycle hypothesis’: younger people have more outstanding credit than older people.

The diagram below demonstrate the distribution of individuals in the FCS sample with respect to age:

Figure 4.2: Age distribution of FCS sample used in modelling



Source: Europe Economics analysis of FCS 2015 data.

⁵⁷ See e.g. Pauly (1990), Roman and Vogler (1999), Bernheim et al. (2003), Calvet, Campbell and Sodini (2006) and Agarwal et al. (2009).

⁵⁸ The average total income in the weighted population is £25,904 and the average annual earnings (basic pay only) is estimated at £23,322 using ONS data.

The table below shows the average starting point of each age group with respect to the starting point variables outlined above. (NB This is simply to illustrate the differences across the various age cohorts in the sample — all modelling was based upon the starting position of the various individual economic agents in the sample).

Table 4.1: FCS sample distribution with respect to starting point variables

	Proportion that are employed	Average income	Proportion that are married	Proportion that have children	Average savings balance	Average debt balance	Proportion that own a home
18-24	46%	17,678	6%	12%	3,413	4,554	18%
25-34	77%	24,565	37%	27%	8,143	4,321	39%
35-44	80%	27,881	47%	35%	10,143	4,121	61%
45-54	74%	26,739	51%	33%	20,365	3,128	65%
55-64	46%	23,301	51%	17%	41,463	2,518	69%
65-74	14%	19,880	59%	6%	44,767	1,427	74%
75+	3%	15,044	35%	6%	37,110	486	59%

Source: Europe Economics analysis of FCS 2015 data.

The FCS 2015 does not contain data for people under 18 years old. In order to include a younger cohort in our model (so that we are able to capture the potential impacts of actions to improve the financial capability of those individuals that are still in secondary education), we have assumed that these younger agents would have the same starting point as individuals in the FCS sample that are aged 18 and 19. In effect, our model adds a younger cohort of 18 year olds each year (from year one onwards) to complement the population already captured by the survey.

Knowledge, behaviours and attitudes relevant to financial decision-making

The FCS 2015 provides data on a number of indicators that reflect an individual's financial decision-making capabilities. This incorporates responses to survey questions that are reflective of that individual's knowledge, attitudes and behaviours relevant to financial decision-making — but, importantly, excludes outcome variables that we are seeking to model in this exercise. There is no single statistic that measures an individual's financial capability. The indicators used are as based upon the following variables defined within the FCS 2015s:

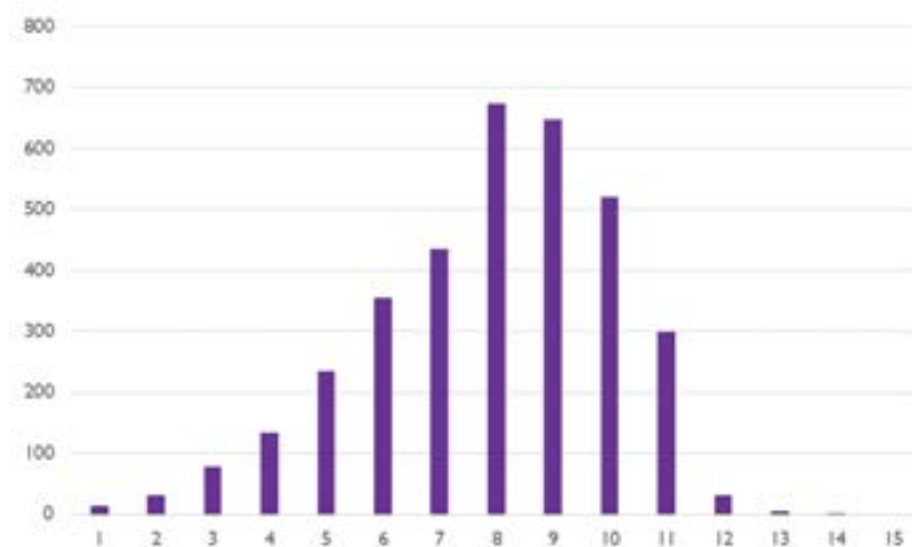
- Shopping around to make money go further.
- Demonstration of ability to understand compound interest.
- Attitude to buying on impulse (whereby buying on impulse reduced decision-making score).
- Checking of supplier/ tariffs.
- Knowledge of current account balance.
- Attitude towards planning.
- Ability to keep on top of bills.
- Having a will.
- Trying to save regularly.
- Preference for living for today rather than tomorrow (this featured negatively).
- Demonstration of understanding of how a bank statement worked.
- Demonstration of the understanding of the interaction between savings and inflation.
- Keeping track of household income and spending,
- Saving for a rainy day.
- Saving for retirement.

Our selection was constrained by the survey design of the FCS 2015 (which was completed prior to our engagement). Other topics would have been useful to have data on (e.g. risk aversion, comprehension of the relationship between risk and return) — however we worked with what we had, and we consider these variables to be sufficient for our purpose here to give an indication for our modelling of the financial knowledge, attitude and behaviour of the individuals within the FCS2015 sample.

The Money Advice Service (with input from Andrea Finney) provided a recommendation of the weighting of these indicators within our index. This work used a statistical technique known as principal components analysis (PCA). This used the underlying correlations between the individual indicators in order to weight the unique and independent contribution made by each indicator to the overall ‘universe’ set normatively by the fifteen indicators. This means that the fifteen indicators together represent the set of knowledge, attitudes and behaviours of interest, but that some indicators contribute more strongly than others — essentially because some of the indicators are correlated with each other, and such indicators say less individually. The percentage of variance that these components explained in the PCA model was used in order to determine the relative importance (weighting) of these components.

These weightings were then used to develop a single index. This index — which we call the Financial Decision Making Index — has values ranging from 1 to 15 and was used in the modelling. Due to the weighting exercise an additional ‘right’ answer to one of the questions used could increase an individual’s FDMI by more (or indeed less than) one ‘notch’ dependent on that question’s weight. This process ascribes a starting financial decision-making score to each individual in the sample. The chart below shows the distribution of this.

Figure 4.3: Distribution of starting financial decision-making score



Source: Europe Economics analysis of FCS data using weightings for different indicators of financial capability provided by the Money Advice Service.

In Kempson et al. (2014) about 30 per cent of the population was categorised as ‘generally capable’. This would equate to a score somewhere between nine and ten on our FDMI.

We show below the average FDMI score within each age cohort. This is increasing in age up to and including the 55-74 age band and then declines — quite significantly after age 75. Some of this enhancement from 18-24 through to 35-54 may be attributable to learning effects, i.e. life experience. However it is not possible to separate such a phenomenon out from other confounding effects, such as differences in schooling or education (either in the sample, or in the wider population).

Similarly, the declining FDMI in the oldest cohort might be linked to reduced engagement with financial products (though it is possible that the elderly always had low financial capability). Someone who has converted a pension into an annuity — by definition — no longer needs to plan for retirement, as they are already living it. Reduced exposure to financial decision-making may explain the reduction in observed FDMI as much as any generalised cognitive decline.

Table 4.2: FDMI distribution by age

Age range	18-24	25-34	35-54	55-74	75+
Mean FDMI	7.48	7.70	8.09	8.30	7.25

Source: Europe Economics.

A critical advantage of this approach to measuring financial decision-making is that we have a starting level for every individual in the model. Given this starting point, we are therefore able to model improvements in this score which represent improvements in the agent's financial decision-making. Someone with a higher FDMI score is deemed to have greater capability than someone with a lower score — with the interaction with the various behavioural triggers in the model being key.

4.5 Financial products included in the model

Given the array of potential products available, we simplified our analysis significantly. For example, long-term (specifically retirement) planning could cover a wide array of products, such as different flavours of pension, long-term care insurance, life-insurance based investment products and so on. Simplification was necessary to gain traction in the modelling exercise — the exclusion of any particular product makes no judgement as to its suitability or relative appeal. Furthermore, the choice of products to be included in the model was also a facet of the data that were available to us on consumers' product holdings, which meant that it was not possible to include products, such as long-term care insurance, for which there is no market. With regard to this product in particular, we recognise that as financial capability improves, individuals may be better placed to plan for the future, which could increase the appetite for long-term care insurance; however, it has not been possible to model this type of product in practice.

Our model includes the following financial products:⁵⁹

- Overdraft.
- Credit card.
- Personal loan.
- Higher-cost credit (which can be seen to include products such as pawn, payday-lending, sub-prime credit cards and so on).
- Mortgages.
- Savings accounts.
- Non-pension investment accounts (which could include investments in a range of financial instruments directly or indirectly, say through a portfolio manager or an investment fund, which have the object of shifting income and consumption from the present into the future, as well as broadly equivalent insurance products such as income protection products or even long-term care insurance products).
- Work place pension accounts.
- Buildings, contents and motor insurance products.

The model links changing financial capability to the following behaviours identified in our analytical framework through improved product choices for higher levels of financial capability:

- Reduced search costs leading to enhanced search (i.e. greater shopping around for a wide range of financial products), and hence the identification of better value product choices.
- Enhanced allocative efficiency. Where people have savings, choosing better-suited investment products, and achieving a better risk-return mix could be important.

⁵⁹ Since we are primarily interested in how changing capability will have an effect, we have kept asset prices flat in real terms (i.e. in line with general wage/ price inflation) to avoid blurring that focus.

- Enhanced ability to identify opportunities to make better financial decisions, i.e. enhanced self-direction in an individual's financial affairs, or better informed choice of when to seek financial advice — and from whom.
- Enhanced ability to limit the influence of behavioural biases on purchasing choices.

4.5.1 Data used in the model

We wanted to embed the model in current real-world prices as much as possible. Therefore, we researched estimates from, or inspired by, the literature and data from the UK market as it stands now. This research was largely conducted in late 2015 and early 2016.

Insurance products

In insurance, we used data from the AA's British Insurance Premium Index (on the average shopped around motor and insurance quotes — and the differential between these and directly garnered prices), to develop price dispersion data. Similarly we ran various 'mystery shopping' style requests from price comparison websites (PCWs) for various other products (e.g. mortgages, savings accounts). By generating various quotes at a time, these PCWs automatically generate price dispersion data.⁶⁰ We restricted the price data collected to the top 25–50 per cent of quotes obtained. The magnitude of the price dispersion identified matches well to past research in motor insurance.⁶¹

The linkage of these prices to the FDMI draws on the pattern of use by PCWs — for example, it is estimated that about 30 per cent plus of motor insurance buyers use a PCW. (Whilst some of these may well not purchase the lowest price options, PCWs are equally not the only channel through which consumers can achieve satisfactory search.) A similar approach was adopted for home insurance. Where an individual owns or purchases a home, buildings and contents insurance is subsequently purchased. Buildings insurance is not purchased by those agents who are renting.

Price is only one dimension of the purchase of insurance. The quality of an insurance product is also important. One way of thinking about this is to consider the likelihood of claims pay-outs, with a higher claims ratio (claims/ premiums), signalling higher quality. These are unlikely to be sought out by consumers regardless of their capability, but may be nevertheless present behind the visible pricing. In our cash flow modelling we have applied pay-out ratios based around the average for the retail insurance sector, i.e. about 80 per cent.

⁶⁰ This does not mean that we associate the use of price comparison websites axiomatically with increased capability. Whilst PCWs represent a convenient search mechanism, they are not guaranteed to generate 'best' prices for any given set of personal circumstances. Other channels can be more or less appropriate for any given individual.

⁶¹ For example, Europe Economics (2010) "Retail Insurance Market Study".

Table 4.3: Modelled impacts of changing FDMI score on insurance product search behaviour

FDMI	Motor insurance (age bands)							Home insurance
	70+	60-69	50-59	40-49	30-39	23-29	≤ 22	
0	£576	£439	£479	£574	£641	£1,027	£1,710	£58.4
1	£576	£439	£479	£574	£641	£1,027	£1,710	£58.4
2	£576	£439	£479	£574	£641	£1,027	£1,710	£58.4
3	£576	£439	£479	£574	£641	£1,027	£1,710	£58.4
4	£576	£439	£479	£574	£641	£1,027	£1,710	£56.5
5	£576	£439	£479	£574	£641	£1,027	£1,710	£54.5
6	£524	£399	£445	£530	£580	£913	£1,556	£52.6
7	£461	£351	£404	£476	£507	£776	£1,370	£48.7
8	£409	£312	£371	£432	£446	£662	£1,215	£44.9
9	£389	£296	£357	£414	£422	£616	£1,153	£38.6
10	£368	£280	£344	£396	£397	£570	£1,092	£31.7
11	£368	£280	£344	£396	£397	£570	£1,092	£26.2
12	£368	£280	£344	£396	£397	£570	£1,092	£25.0
13	£368	£280	£344	£396	£397	£570	£1,092	£23.8
14	£368	£280	£344	£396	£397	£570	£1,092	£23.8
15	£368	£280	£344	£396	£397	£570	£1,092	£23.8

Source: Europe Economics.

Savings and investment products

We have adopted a similar approach for savings and investment products, with the dispersion table shown below. The savings account returns and annuity rates are largely sourced from PCWs, again focussed on the prices from the first few pages of results (i.e. the least attractive prices quoted are substantially worse than those shown below, e.g. for rates achieved on savings accounts).

For investment returns these outcomes should not be interpreted as individuals suddenly learning to 'beat the market'. Instead, it is about eliminating common retail investor errors (e.g. tendency of retail investors to sell post-crash), additional portfolio diversification and adoption of improved investment strategies (such as greater focus on investment funds with dividend reinvestment strategies). In the pension arena, the scale of gains is curtailed: this largely reflects the much more limited role of the individual in selecting a provider or the investments comprising the pension. Whilst limited, this role is non-zero since (a) the model still has scope for additional voluntary contributions, which may be in a different vehicle such as a Self-Invested Pension Plan, and (b) even in a workplace pension context, there can be scope for involvement in fund selection (even if choice is restricted).

Table 4.4: Modelled impacts of changing FDMI score on saving and investment product search behaviour

FDMI	Savings account	Investment account ongoing fees	Investment post-tax real return	Pension ongoing fees	Pension post-tax real return
0	0.20%	1.1%	1.6%	0.75%	1.20%
1	0.25%	1.1%	1.6%	0.75%	1.20%
2	0.30%	1.1%	1.6%	0.75%	1.20%
3	0.35%	1.0%	1.7%	0.75%	1.20%
4	0.40%	1.0%	1.7%	0.75%	1.20%
5	0.45%	1.0%	1.7%	0.75%	1.20%
6	0.50%	1.0%	1.7%	0.75%	1.20%
7	0.55%	1.0%	1.7%	0.75%	1.20%
8	0.60%	0.9%	1.8%	0.75%	1.20%
9	0.65%	0.9%	1.8%	0.74%	1.225%
10	0.70%	0.9%	1.8%	0.73%	1.25%
11	0.75%	0.9%	1.8%	0.72%	1.275%
12	0.80%	0.9%	1.8%	0.71%	1.30%
13	0.85%	0.8%	1.9%	0.70%	1.30%
14	0.85%	0.8%	1.9%	0.70%	1.30%
15	0.85%	0.8%	1.9%	0.70%	1.30%

Source: Europe Economics

Credit products

Again, we have adopted an equivalent research approach with credit products. The partial exception is the higher-cost credit product. This can best be understood as an attempt to blend various different products (such as pawn, payday, sub-prime credit cards) which have a range of costs (and also very different standard loan durations).

Table 4.5: Modelled impacts of changing FDMI score on credit product search behaviour

FDMI	Overdraft Rate	Credit Card APR	Personal Loan APR	Higher-cost credit APR	Mortgage APR
0	10.0%	29.8%	7.0%	50.0%	4.70%
1	9.8%	29.2%	6.9%	49.0%	4.70%
2	9.5%	28.6%	6.9%	48.0%	4.65%
3	9.3%	28.0%	6.8%	47.0%	4.60%
4	9.0%	27.4%	6.7%	46.0%	4.55%
5	8.8%	26.8%	6.6%	45.0%	4.50%
6	8.5%	26.2%	6.6%	44.0%	4.45%
7	8.3%	25.6%	6.5%	43.0%	4.40%
8	8.0%	25.0%	6.4%	42.0%	4.35%
9	7.8%	24.4%	6.3%	41.0%	4.30%
10	7.5%	23.8%	6.3%	40.0%	4.25%
11	7.3%	23.2%	6.2%	39.0%	4.20%
12	7.0%	22.6%	6.1%	38.0%	4.15%
13	6.8%	22.0%	6.0%	37.0%	4.10%
14	6.8%	22.0%	6.0%	37.0%	4.10%
15	6.8%	22.0%	6.0%	37.0%	4.10%

Source: Europe Economics.

In addition we have drawn on the Competition and Markets Authority's recent investigation on bank accounts.⁶² This indicates that switching accounts could save £70 per annum for an average user (a heavy overdraft user could save more, say £200–£300). We have assumed that any savings generated would only be relevant for those with a relatively high threshold of financial capability (i.e. FDMI score of at least 10 out of 15). This reflects the low incidence of such switching at present.

4.6 Life events

In addition to the regular cash flows, individuals may also experience infrequent income or expenditure shocks — both positive and negative — which could significantly alter their annual cash flows. We are interested in those life events that can have an impact on someone's financial position. This is true whether they relate to expected life transitions, such as getting married or having a child, or something that is unexpected, such as an abrupt labour redundancy or the diagnosis of a long-term illness. It is also true whether they occur less frequently and have a significant monetary impact, either positive (e.g. inheritance) or negative (e.g. redundancy), or more frequently, yet with a lesser financial effect (e.g. repairing your home).

When an individual faces life events, this may trigger a need for borrowing (or, in the case of the inheritance, investing) money. In our model the way an individual makes these financial decisions is connected to his/her financial capability. This way, the exact nature of the impact of life events on an individual's financial position is conditional on his or her financial capability.

This section is structured as follows:

- First, we outline the life events included in the model.
- Second, we explain how we have randomised these life events for each individual in the model.
- Finally, we present the data we have used in the model for each of these life events.

4.6.1 Determination of relevant life events

Within the context of this study, we consider the following life events:

- Getting married.
- Having a child.
- Getting divorced.
- Purchasing a house.
- Purchasing a car.
- Being made redundant.
- Experiencing a work-absence caused by illness.
- Receiving an inheritance.

Some of these life events can be anticipated, whilst others would be more or less unexpected. This distinction is important because, as we set out in more detail later, more financially capable individuals should be able to adapt their financial positions more effectively in response to upcoming, anticipated life events that are within their control. In our model, purchasing a house or car, getting married, or having a child are life events that are treated in this way.

In addition, we consider individuals experiencing what we describe as high-frequency low-cost events. These might cover, for example, the repair or replacement — at least to the extent that these are not covered by

⁶² <https://www.gov.uk/government/news/cma-proposes-better-deal-for-bank-customers>. "On average, current account users could save £70 a year by switching."

insurance — of consumer durables (e.g. TV, fridge), household repairs, or even going overboard with the Christmas shopping.

Death and retirement are also incorporated within our model. Simply, death is randomly distributed around a mean age of 85 (applied regardless of gender). We assume a fixed date of retirement, i.e. at 65 years old. Obviously, the statutory pension age is creeping upwards, and whilst we could have used this as the reference point we note it is not equivalent to the actual average effective retirement age, which remains lower.

4.6.2 Simulation process

We simulated the occurrence of the above life events. We stochastically distributed the occurrence of each event over an individual's lifetime, or within a defined part of that lifetime. While the timing of individual random events is by definition unpredictable, in many cases their overall frequency can be predicted within reasonable confidence intervals.

We model the occurrence of life events based on a probabilistic estimation of the likelihood of each event to be observed. Initially, this process involved a set of event-specific conditions that were used as a starting point for the simulation of each event. In particular, we drew on data on the average frequency of observing each event over an individual's lifetime along with the maximum and minimum frequency for each event.

Once we have determined how often a life event is likely to occur on average, we spread its probable occurrences over an individual's lifetime. We used either uniform or normal distributions (also commonly referred to as a "bell curve")⁶³ to create 100 different likely scenarios for each life event within a given period. For instance, one car buying scenario may involve buying a car at the age of 22, 38, 53 and 62, whereas another might involve buying a car at the age of 42 and 58.

Subsequently, we assigned randomly each survey respondent to a scenario for each life event. At this stage, the model imposes a second set of restrictions to make sure that the scenario is consistent with some general legal and economic rules. Specifically:

- An individual cannot have life events in years prior to their starting point age.
- An individual cannot get divorced unless they are married.
- An individual cannot be made redundant and still be in employment at the same time.
- An individual cannot purchase a house when made redundant until they are in employment again.
- An individual cannot purchase a house unless he/she has sufficient funds for a deposit and meets the maximum loan-to-value for a mortgage (90 per cent in our model).
- If an individual is already a homeowner, he/she would sell their existing home in the same time period (i.e. in the same year) as purchasing the new house.
- If an individual already has a number of children deemed to be the maximum for the purpose of our scenario analysis (five, say), then that individual will not have any more children.
- Each individual does not own more than one car.

It should be noted that, once run, the randomisation is fixed, i.e. it is the same for both 'policy on' and 'policy off' scenarios. Equally, given the large number of agents in the sample, it is not necessary to run multiple randomisations — the variation between different simulations across *all* agents in the sample between one randomisation and another is small.

4.6.3 Data on the frequency of the events

The table below shows the parameters used to develop the randomised scenarios for each life event:

⁶³ In probability theory, the central limit theory states that, given certain conditions, the arithmetic mean of a sufficiently large number of iterates of independent random variables will be approximately normally distributed.

Table 4.6: Calibration of life events

Life Event	Max	Min	Mean	Start age	End age
Children	5.0	0.0	1.7	18	65
House purchases	5.0	0.0	2.0	25	65
Car purchases	11.8	0.0	5.9	25	65
Redundancies	4.0	0.0	2.0	25	65
Divorces	3.0	0.0	0.7	25	65
Work-impairing long-term illnesses	9.0	0.0	0.5	45	65
Inheritance	3.0	0.0	1.5	45	85
High-frequency — low cost shock	70.0	0.0	25.0	18	85

Source: Europe Economics.

Marriages and divorces

When estimating the likelihood for an individual to get married we allow for marriage to occur at any point in time between the age of 18 and 65. Nevertheless, in order to ensure consistency with evidence from the 2012 ONS survey, we assume that marriage likelihood declines with age.⁶⁴ Moreover, actual marriage occurrence is subject to further conditions:

- The initial marital status of the survey respondent. In particular, a marriage cannot occur if one is already married.
- Even if the initial marital status of the survey respondent indicated that he/she is married, an additional marriage could only occur provided that a divorce from the previous marriage has been granted.

The above allow for flexibility in the model leading to a maximum number of four marriages that can occur within a survey respondent's lifetime, while satisfying his/her starting demographic constraints. With regard to divorces, our modelling process is closely related to the approach used to model marriages as in order for a divorce to occur in a given year a survey respondent must be married during the previous year. Lastly, we assume that a divorce cannot occur prior to the age of 25. We do so in order to ensure that a considerable amount of time has elapsed, particularly for those married prior to the age of 21, in light of evidence suggesting that the average marriage in the UK lasts 32 years.⁶⁵

Children

The 2012 ONS survey indicates that the average UK family has 1.7 dependent children on average.⁶⁶ Our model is focused on individuals. This means that we need to adjust for the number of children dependent on that adult, bearing in mind that the UK has many households with single parents. About 18 per cent of families have only a single parent. One way of interpreting this would be to adjust the data to about one dependent child per adult. However, in order to ensure that the modelling is grounded in reality we have kept the average suggested by the ONS, and instead we have adjusted the cost of having children (see below).

Our research indicates that only 10 per cent of women born in 1969 have four or more children, whereas the percentage decreases further for women born at a later period.⁶⁷ As a result, we were prompted to set the maximum value of children to five.

House purchases

Our research indicates that the average owner-occupier lives in his current house for 11 years.⁶⁸ The typical age of first time buyers is increasing, and is currently around 30. Given the upward trend in first time buying

⁶⁴ See e.g. ONS (2014) "Marriages in England and Wales (Provisional), 2012".

⁶⁵ See e.g. ONS (2014) "Marriages in England and Wales (Provisional), 2012".

⁶⁶ See e.g. ONS (2013) "Family size in 2012".

⁶⁷ See e.g. ONS (2015) "Childbearing for women born in different years, England and Wales, 2014".

⁶⁸ See e.g. ONS (2011) "Housing" Social trends 41.

age, we set the average number of house purchases to two, with a maximum of five. Moreover, we condition each purchase of a house on:

- The availability of savings to cover at least 10 per cent of the property's mortgage value; and
- An individual income of at least £35,000.

Car purchases

A recent survey of 2,000 UK drivers revealed that a car purchase is likely to occur once every four years.⁶⁹ This implies an average, up to age 65, of 10 car purchases if we assume that an individual will not buy car prior to the age of 25. We have conservatively adopted an average value of six. We did so in order to account for the different starting ages of survey respondents and for the fact that roughly 75 per cent of them were reported as car owners. In return, we have allowed for the maximum amount of cars an individual can purchase in his/her lifetime to be equal to 12. Lastly, in order for a car purchase to occur, an individual's net income must be greater than £12,500.

Redundancies

Based on historic rates of redundancy we assume within our simulation that an individual may become redundant two times within his/her lifetime, on average, with a maximum value of four. Moreover, we impose the additional restrictions that an individual cannot become redundant prior to the age of 25 and after the age of 65 when he/she enters into retirement.

Work absences caused by illnesses

Long-standing illnesses and disabilities *can* have serious financial consequences. Such conditions can include: sensory deficits, circulatory and respiratory conditions, and mental health problems.⁷⁰ Some conditions are congenital, others arise over the course of an individual's lifetime (due to age or accident). In many cases an individual will be able to live 'normally' notwithstanding the condition. About 15 million people in the UK are estimated to have a long-term or chronic condition, i.e. about one quarter of the population.⁷¹ We are primarily interested in this context in those conditions that impact upon an individual's working life. We also recognise that acute illnesses, even when treatable, can cause work absences — fundamentally we are seeking to 'stress' our sample in a realistic way rather than model its health precisely.

According to the Department of Health, the proportion of people with three or more long-standing conditions is about 40 per cent in the age cohort 50-59 and 50 per cent in the age cohort 60-69. This represents a sharp increase from younger age groups.⁷² We have incorporated these data under the somewhat simplified assumption that a maximum of three episodes occur where such illnesses generate a sustained work absence, with an average value of 0.5. Since we model these events as a loss of working income (see next Section) we have assumed that their occurrence post-retirement is not relevant for our model, given its objectives.

Inheritance

The 2010/12 wealth and assets survey of the ONS indicates that the vast majority of inheritances is likely to be received from parents/parents in law, grandparents or aunts/uncles.⁷³ Accordingly, we assume that an inheritance is likely to take place a maximum of two times within an individual's lifetime with an average value of one. As the median age of parents in the UK is 30 to 34, it suggests that a child would need to wait at least another 15 to 20 years before receiving inheritance. As a result, we set the lower age bound to 45.

⁶⁹ See <http://www.westerndailynews.co.uk/Brits-11-different-cars-lifetime-common/story-28112720-detail/story.html>.

⁷⁰ ONS (2015) "Long-lasting health conditions and illnesses; Impairments and disability".

⁷¹ King's Fund "Time to think differently", accessed at <http://www.kingsfund.org.uk/time-to-think-differently/trends/disease-and-disability/long-term-conditions-multi-morbidity>.

⁷² Department of Health (2012) "Long term conditions compendium of information: Third edition".

⁷³ ONS (2014) "Wealth in Great Britain Wave 3, 2010-2012".

High-frequency low-cost shocks

At an individual incident level, losses from high frequency low-cost events are minor but collectively they may be considered important enough so as to significantly affect one's financial behaviour. Such events may relate to home appliances repairs, utility replacements, regular health appointments and other frequent yet not substantial expenses. Accordingly, we assume that a maximum of 70 such events may occur from the age of 18 to the age of 85 with an average value of 25. These events have been incorporated with the aim of creating realistic extra tension for low income agents.

4.6.4 Income and expenditure shocks resulting from life events

This section presents the underlying assumptions behind the income or expenditure shock that would result from each of the life events. Whenever an input estimate was available in the public domain, this estimate was used. Where publically available data have not been available we have made best use of the available information to make an estimate.

It is important to stress here that alternative numbers could be used, and there are caveats associated with each of the estimates presented below. However, because the life event is modelled in both the counterfactual (i.e. policy-off) scenario and in the scenario in which financial capability improves (i.e. policy-on), the impacts of improving financial capability are not directly driven by these estimates here. Rather, these estimates can be thought of as income or expenditure shocks that occur at random over the lifecycle of an individual.

Table 4.7: Assumed income and expenditure shocks associated with life events

Event	Income / expenditure shock
Cost of wedding	£10,000
Upfront costs of having a baby	£3,710
Upfront cost of a divorce	£3,145
Average property value	2.78 x gross income
Estate agent fees	2%
Solicitor's fees when buying or selling a house	£2,000
Stamp duty	£2,500
Cost of a car	£5,000
Price received when selling a car	£2,500
Average duration of unemployment	9.7 months
Long-term illness effect	6 months out of work
Inheritance	£55,000
High-frequency low cost	£300

Source: Europe Economics.

- **Getting married.** According to the Money Advice Service, the average cost of a wedding is £20,983.⁷⁴ This cost was divided by two since we are modelling on individual level (i.e. we have assumed the couple bear the cost, and split it evenly), and we rounded the estimate down to £10,000.
- **Having a child.** The first year cost of having a baby has been estimated at £3710.⁷⁵ As noted, since we are modelling at an individual level, we need to adjust this figure — and bearing in mind also that the UK has many single-parent families. This gives us a revised figure of £3150.⁷⁶ Obviously, the cost of children does

⁷⁴ <https://www.moneyadviceservice.org.uk/en/articles/saving-money-for-a-wedding>

⁷⁵ <https://www.moneyadviceservice.org.uk/en/articles/baby-costs-calculator>

⁷⁶ Obviously, having children has many (greater) ongoing costs. However, our data sources for consumption spending (described later) do not allow us to robustly adjust for the children-related costs included therein, therefore we have chosen not to account for such costs separately.

not stop after one year — instead our approach effectively assumes that there is a process of adaptation after the first year, i.e. it is just the initial spending shock that we are interested in.

- **Getting divorced.** The legal fees of getting a divorce differ across the UK and are dependent on complexity (with costs approaching £30,000 plus VAT for cases that go to a contested final court hearing). According to the Money Advice Service the total solicitor fees for a negotiated financial settlement ranges between £2000 and £3000. We adopted the mid-point of the Money Advice Service’s estimated range.⁷⁷
- **Purchasing a house.** We have assumed the minimum income to buy a house is £35,000. This simplifies reality, where couples or groups can purchase a property jointly. The maximum mortgage multiplier for a couple is likely to be 4–4.5 against 3–3.5 for a single individual. To take into account the fact that many of the agents in the model will be in dual-income households we have adopted an income/mortgage multiple of 2.5 (i.e. between 3–3.5 and 2–2.25, the half share of the joint mortgage ratio). We have adopted 90 per cent as our LTV ratio, meaning that the property value is about 2.78 times gross income.
- **Purchasing a car.** We have assumed that a car would be purchased second hand at a cost of £5,000. When the car is replaced, £2,500 is received for the old car.⁷⁸
- **Experiencing work-related redundancy.** According to the ONS, the average length of redundancy is 9.7 months. In our model, the cost of being unemployed is the net loss of income (over and above unemployment benefit) for the period of redundancy.
- **Experiencing a work-impairing long-term illness.** In our model this features as a work absence, implying a loss of income for the individual. We have assumed that a typical long-term illness lasts six month so that it represents a significant portion of the annual income. (Nothing happens financially in our model if the individual is above 65: his pension is already determined and the NHS should cover the costs, at least in most cases. This is of course a simplification: an individual suffering from, say, dementia might require long-term domiciliary or even residential care, and would need to self-fund until their savings are nearly exhausted. Whilst this would accelerate the conversion of savings to consumption, since it would be the same in both policy off and policy on models, the incremental effects stemming from such ‘out of model’ effects would be rather small.)
- **Receiving an inheritance.** It has been estimated that 64 per cent of parents expect to leave on average £182k, i.e. an expected value is £116k. If the household has two children, then that would represent about £55k for each child.
- **Experiencing other high-frequency low-cost events:** As explained above, these might cover costs associated with home appliance repairs (e.g. fridge breakdown) or excess shopping (e.g. Christmas gift purchases). We have assumed a cost of £300 per event.

4.7 Modelling other general expenditure

The sections above have detailed how individuals’ cash flows would be generated with respect to expenditure on financial products and expenditure resulting from certain life events. In addition, individuals will also have other general expenditure throughout the year.

The literature suggests that the key variable affecting consumption decisions is income. In particular, the academic literature suggests that individuals on low incomes, up to a certain threshold, will tend to consume most or even all of their incomes, i.e. potentially living “hand-to-mouth”. Beyond this threshold, the marginal propensity to consume decreases, i.e. for every extra £1 earned beyond this threshold, less than a £1 is consumed.

To generate a proxy for the marginal propensity to consume that varies by income in this way, our starting point was to analyse expenditure survey data from the ONS. In order to avoid double-counting with the cash flow items we are explicitly modelling in this exercise, we removed items such as tax payments and ‘spending’

⁷⁷ <https://www.moneyadvice.service.org.uk/en/articles/how-much-does-divorce-or-dissolution-cost>.

⁷⁸ <http://www.thisismoney.co.uk/money/cars/article-2226220/Car-buyers-haggling-1k-average-price.html>.

on financial services and products. The table below shows the consumption ratios (as a percentage of net income) that result. The table also shows the final assumptions made, as we flattened the ratios slightly to smooth the series.

Table 4.8: Consumption ratios used in modelling

Income (upper bound)	Consumption as % of net income	Consumption ratio adopted, adjusting for modelled spend
Unlimited	56%	65%
87,500	60%	65%
62,500	60%	66%
45,000	60%	68%
37,500	67%	70%
32,500	66%	70%
27,500	71%	73%
22,500	71%	75%
18,750	74%	76%
16,500	81%	77%
14,500	81%	78%
12,500	81%	80%
10,500	81%	80%
8,500	82%	82%
7,000	82%	82%
5,500	87%	85%
4,500	100%	88%
0	100%	90%

Source: Europe Economics' analysis, ONS Household Spending Surveys.

It is important to stress that while these ratios provide a useful way of modelling additional day-to-day expenditure for each individual, conditional on his/her income, the data are an imperfect proxy and may under- or overstate the actual level of general expenditure that is likely to materialise for each individual in the FCS sample.

Our assumptions around the propensity to consume play an important role in the model. The assumption of a high consumption ratio for those with low incomes means that any agent that remains on a low income (certainly below £10,500) for an extended period (e.g. because they start without a job and do not get a new job 'Life Event' for an extended period) means that agent is likely to be indebted, likely heavily. This has consequences, some positive, others less so. For example, once indebted agents start to adjust their spending down, i.e. deviating from the ratios set out above (with the scale of this change is linked to capability). On the other hand, extended periods of being over-indebted eventually mean that the credit options available to an agent shrink, making them increasingly reliant on sub-prime options.

Obviously it is inherent in any modelling exercise that there is some abstraction from individual circumstances. Many individuals on low incomes will seek to control their finances — the model is seeking to reflect the aggregate position across the sample, not predict any one agent's life story.

4.8 Financial decision-making conditions

An individual's starting level of financial capability will affect that individual's decision-making and behaviour which will then have a knock-on effect on cash flows and financial outcomes. Our model incorporates improved financial capability (in the 'policy-on' scenario) through the combination of "financial product inputs" and "financial capability conditions", as these elements of the model represent the financial decision making aspect of an individual, given a level of financial decision-making capability. As we noted at 3.2.3, one of the constraints on our modelling is that we do not reflect further change in capability over an individual's modelled lifetime. To illustrate what this means, an individual with an FDMI score of 9 will maintain that throughout his or her modelled life. This is clearly a simplification since engagement with financial services vendors and products could well generate some additional learning effects resulting in enhanced capability. Equally, any relative disengagement post-retirement could contribute towards declining capability amongst the elderly (i.e. this need not be due wholly to cognitive decline).

4.8.1 Saving and credit decision-making

This is a core component within the model. This seeks to link changing financial decision-making capability to the following behaviours identified in our analytical framework:

- Enhanced ability to identify opportunities to make better financial decisions, i.e. enhanced self-direction in an individual's financial affairs.
- Greater accumulation of savings over time in preparation for life events (and, in consequence, have increased precautionary savings to absorb unexpected income and expenditure shocks).
- Greater likelihood of planning for retirement (e.g. entering a pension scheme).

In our model, the decision-making around the opening of a savings/ investment account — or accessing particular credit products — partly depends on the individual's net cash position.

However the pathways adopted are also linked to the individual's FDMI score and also, in the credit pathway, on the past track record of that individual and his or her income level. So, if someone has a positive cash position after these expenditures then he/she will invest in savings and investment accounts (e.g. put extra cash in savings account up until his account reaches a threshold value, which is represented by a proportion of income in the model, and then put cash in investment account afterwards). If someone has a negative position he or she will first use an overdraft, then a credit card balance and then a personal loan. The FDMI score plays a role in the type of product that an individual will pick.

The model also takes another variable into account which is whether the individual has been over-indebted or not (either based on their answer to the FCS 2015 study or as a result of the modelling process). In the model we consider that an individual is over-indebted if his financing needs exceed a set threshold (e.g. the outstanding personal loan value cannot exceed a year's worth of income). When an individual is persistently over-indebted (set at three years) then this means that he/she then has restricted access to credit for a number of years (again set at three years). These time periods are judgements, but we believe plausible ones. It means the agent can only borrow at a higher cost (although where exactly he/she sits in the ladder of higher cost credit costs depends on the agent's FDMI score, as described in more detail below).

Saving and investment decisions and interactions with FDMI score

In the model, if an individual is not sufficiently financially capable, then any cash surplus generated will not be invested in any way. Specifically, if an individual's index score ($FDMI_i$) is below the lowest threshold for saving (S_{LT}), then the end of year cash surplus remains in the current account.

Where the FDMI of an individual is higher, then additional saving or investment opportunities open up. If the individual's FDMI score is above the lowest threshold for saving, but below the general threshold for saving (S), then the end of year cash surplus is put in an interest-bearing savings account:

- IF $FDMI_i < S_{LT} \Rightarrow$ opening cash balance $_{t+1}$ = closing cash balance $_t$
- IF $S_{LT} < FDMI_i < S \Rightarrow$ closing cash balance $_t$ is saved in non-investment savings account

If, however, an individual is sufficiently financially capable, then any cash surplus generated at the end of the year is put in a savings account up to a limit of 30 per cent of gross annual income, i.e. if an individual's FDMI score is greater than the threshold for saving and the individual's savings balance is less than 30 per cent of his/her income, any surplus is saved up to the point at which savings equal 30 per cent of income.

- If $FDMI_i > S \Rightarrow$ all of surplus saved if [savings balance + surplus $\leq 0.3 \cdot$ income]
- If $FDMI_i > S \Rightarrow [0.3 \cdot$ income – savings balance] saved if [savings balance + surplus $> 0.3 \cdot$ income]

If an individual is to experience a life event (that the agent can reasonably have some foresight of) in the next two years, and is sufficiently financially capable (i.e. has an FDMI score greater than a threshold set for dealing with life events, LE) then the full end of year cash surplus is saved. In this way, the more financially capable agent is able to provide a greater buffer against expected income/expenditure shocks. However, if the agent does not meet this criterion, the decision-making “rules” set out above apply.

- If $FDMI_i > LE \Rightarrow$ closing savings balance = opening savings balance + surplus

In addition, if an individual is to experience a life event in the next three years, and is sufficiently financially capable, then the individual will undertake a form of saving through reduced consumption expenditure leading up to the life event if his/her savings balance is less than 30 per cent of income — the specific details of changing consumption behaviour in the model are outlined later. Specifically, if an agent's FDMI score is greater than the threshold for life events, his/her cash balance is positive, and his/her savings balance is less than 30 per cent of income, the agent will reduce household expenditure in the period before the life event.

- If $FDMI_i > LE \Rightarrow$ consumption ratio decreases by x per cent (conditional on FDMI score) in the three years before the life event if [savings balance $< 0.3 \cdot$ income]

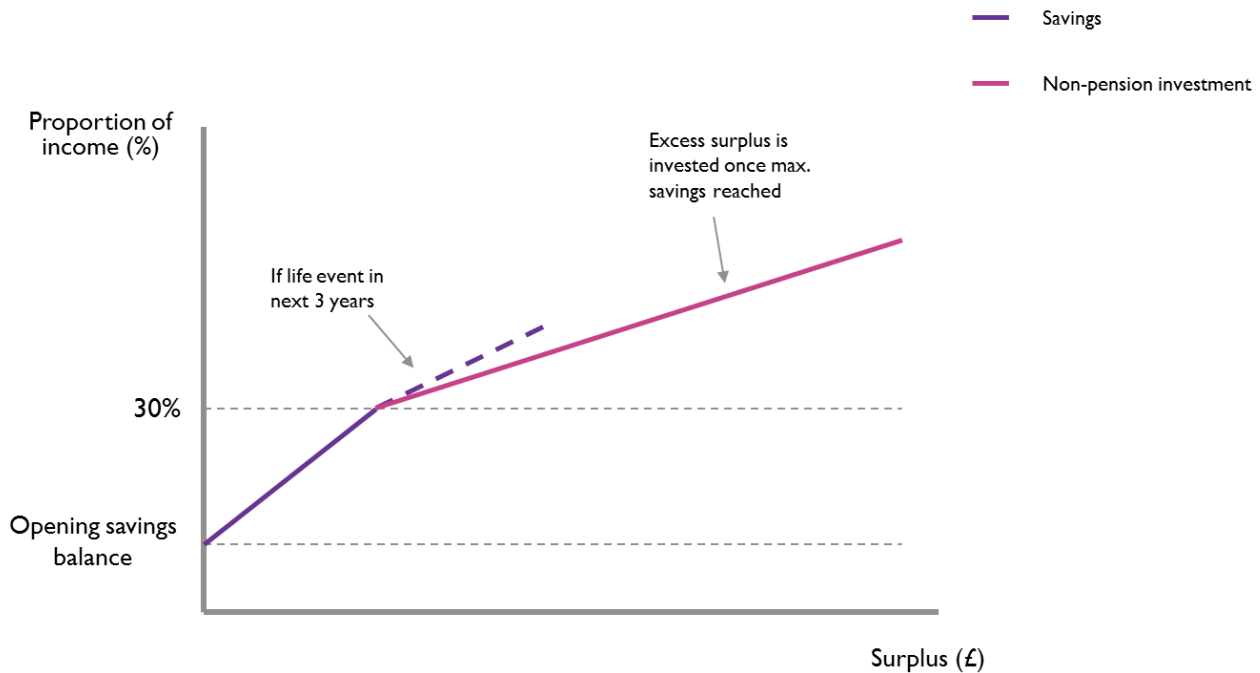
As mentioned above, if an individual is not sufficient financially capable, then any cash surplus generated will not be invested in any way; and if an individual is to experience a life event in the next two years, and is sufficiently financially capable then the full surplus is saved.

However, if an individual is sufficiently financially capable — i.e. the FDMI score is greater than the threshold for investment (DMIN) — and savings are less than 30 per cent of annual income, then any cash surplus above and beyond the saving limit of 30 per cent of annual income (absent life events) is invested in non-pension investments:

- If $FDMI_i > DMIN \Rightarrow$ excess surplus invested once savings balance = $0.3 \cdot$ income
- If $FDMI_i > DMIN \Rightarrow$ [surplus – ($0.3 \cdot$ income – savings balance)] invested if [surplus $> 0.3 \cdot$ income – savings balance] and [savings balance $< 0.3 \cdot$ income]

The diagram below presents an illustrative example of the decision “rules” set out above:

Figure 4.4: Illustrative example of savings and investment decisions



Source: Europe Economics.

Credit decisions and interactions with FDMI score

As described earlier, the general “cascade” of borrowing flows from use of an overdraft, then a credit card, and then a personal loan.⁷⁹ An agent will make use of these debt products in instances when he or she is faced with a cash deficit at the end of the year. If the deficit is smaller than the overdraft limit, the individual uses his/her overdraft:

- If cash balance_t > -£1,000 ⇒ overdraft balance = cash balance_t
- If cash balance_t < -£1,000 ⇒ overdraft balance = £1,000

If the deficit exceeds the overdraft limit (as per the second bullet point above), the agent will then use his/her credit card up to the credit limit:

- If -£1,000 > cash balance_t > 0.25*income ⇒ credit card balance = cash balance_t – £1,000
- If cash balance_t < -0.25*income ⇒ overdraft balance = 0.25*income

However, if an individual is deemed to be “financially unsound”, i.e. the individual has been in distressed debt or has income that is less than half of the FCS average, then the individual does not access a credit card and has an alternate credit path: the individual goes from overdraft to higher-cost credit.

If the deficit exceeds the sum of the overdraft limit and the credit card limit, then the remainder is funded through a personal loan. However, if the individual is not “financially sound” then the excess deficit above and beyond the overdraft limit is funded through high-cost credit.

- “Financially sound”: If cash balance_t < -£1,000 – 0.25*income ⇒ personal loan balance = cash balance_t – £1,000 – 0.25*income

⁷⁹ The model, for understandable reasons, does not incorporate every type of financial product. We do not incorporate informal loans from family and friends in this cascade. Equally, the savings and investment options omit several ways of transferring resources (and hence consumption) between different time periods.

- “Financially unsound”: If cash balance_t < £1,000 ⇒ personal loan balance = cash balance_t – £1,000

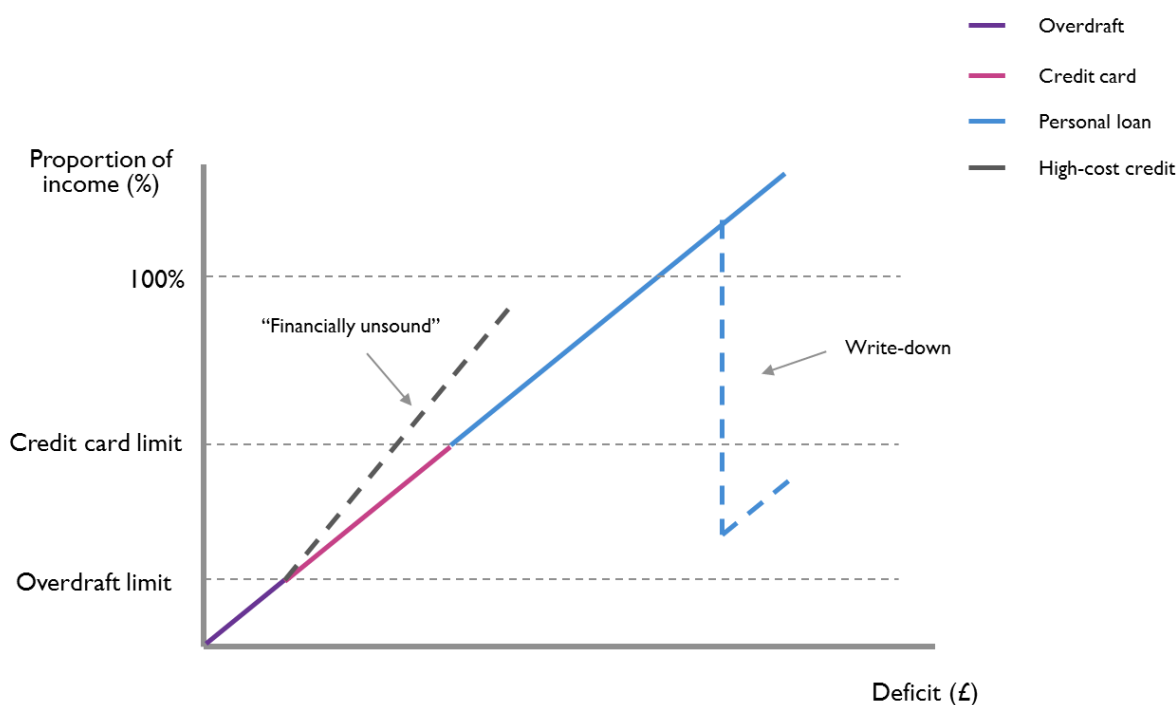
The model also includes a process for writing down debt if agents find themselves in a position of financial distress. In particular, if a personal loan becomes sufficiently large and an individual is considered to be in distressed debt, then part of the loan is written down:

- “Financially sound”: If personal loan_{t, t-1, t-2} < income_{t, t-1, t-2} ⇒ write-down = personal loan – (1-x%)*income
- “Financially unsound”: If personal loan_{t, t-1, t-2} < 0.5*income_{t, t-1, t-2} ⇒ write-down = personal loan – (1-x%)*0.5*income

As described earlier in the introduction to this section, when an individual is in a distressed debt scenario for three years, he/she then has restricted access to credit for three years. In particular, the agent cannot access a credit card or a personal loan and must borrow (if in a situation where the end of year cash position is a deficit) at a higher cost.

The diagram below presents an illustrative example of the decision “rules” set out above:

Figure 4.5: Illustrative example of credit decisions



Source: Europe Economics.

4.8.2 Product choice

In this section we describe how the model links changing financial capability to the following behaviours identified in our analytical framework:

- Enhanced allocative efficiency. Where people have savings, choosing better-suited investment products, and achieving a better risk-return mix could be important.
- Enhanced ability to identify opportunities to make better financial decisions, i.e. enhanced self-direction in an individual’s financial affairs, or, alternatively, better appreciation of when to involve a financial adviser, and to appreciate the nature of the advice (i.e. whether the adviser is independent of the providers of the products and services being advised upon).
- Greater likelihood of planning for retirement (e.g. contributing more towards a pension).

The FDMI score also has an impact in our model on what products agents choose. But the way in which an individual may look at a particular domain (e.g. considerations around her long-term financial future) may also vary according to capability. We have modelled an evolution in product choice as follows:

- An individual leaves all additional cash in a current account if his or her FDMI is five or below. (This can be understood as a proxy for those individuals without access to a bank or credit union account).
- An individual accumulates cash in a savings account, but without accessing more 'sophisticated' investment products, if his or her FDMI is six.
- All individuals contribute to a workplace pension (and receive employer and government contributions in line with the scheme). There is no opt-out from this assumed in the model.

Table 4.9: Workplace pension contributions

	Pre-2018	Post-2018
Base rate contribution	0.8%	4%
Employer contribution	1%	3%
Government contribution	0.2%	1%

Source: <https://www.gov.uk/workplace-pensions/what-you-your-employer-and-the-government-pay>.

- Above an FDMI threshold of eight, individuals start additional voluntary pension contributions at age 40 (or later, if the pension started later).
- Above an FDMI threshold of ten, individuals start additional voluntary pension contributions from a starting age of 32.

Increased funds available for investment will encourage an individual to consider a wider range of investment products (e.g. making direct investments in equities and bonds, purchasing ETFs, tracker funds) and insurance products designed to shift current into future consumption (e.g. Long-term care insurance). We do not model such choices actually being made, i.e. we have an investment account not individual accounts for equities, funds, bonds, etc. — nor do we need to, as we can recognise that common motivating factors are access to greater return for a given risk-weighting in products, and access at lower cost. This means that the pricing schedule used to model changing search behaviour (and described above) can also be rationalised as part of this proliferation of product choice, showing as it does reduced product costs and (slightly) enhanced product returns.

4.8.3 Changing consumption behaviour

In this section we describe how the model links changing quality of financial decision-making to the following behaviours identified in our analytical framework:

- Better budgeting capability, leading to improved consumer credit and mortgage credit management (e.g. limitations on the scale of the build-up of credit levels) and the development of increased precautionary savings.
- Enhanced ability to identify opportunities to make better financial decisions, i.e. enhanced self-direction in an individual's financial affairs, or better informed choice of when to seek financial advice — and from whom.
- Enhanced ability to limit the influence of behavioural biases on consumption choices.
- Greater accumulation of savings over time in preparation for such life events (and, in consequence, have increased precautionary savings to absorb unexpected income and expenditure shocks).
- More rapid and effective management of such difficulties (e.g. more actively managing consumption expenditure downwards).
- More effective actions to reduce indebtedness.

There are two types of relevant effect in our model, relating to when an agent is over-indebted and also when planning for particular types of life event.

When people are over-indebted, they will take actions, such as cutting back on spending and drawing up a budget plan. However such responses are not universal, even when an individual opts to take debt advice.⁸⁰ We simplify matters in our model by having all agents, when over-indebted, to start to adjust his consumption downward as a way of dealing with. This adjustment is small in default, but the adjustment pattern is stronger when the agent is more capable. The expenditure bounces back once the agent is no longer over-indebted.

Similarly, more capable individuals are modelled to anticipate life events in their immediate future (or at least a sub-set of them, such as marriage, buying a car, etc. which should be at least partially expected, and within their control) and start adjusting their consumption behaviour in a somewhat similar way so that additional saving is made in advance of these life events. This effect is stronger for the financially capable. This type of effect can be explained with reference the idea that the agents have a limited time horizon over which they plan, and that this horizon is expanded for the more capable agents. Whilst the literature supports the effect, and its linkage to capability, the research provides very limited aid in terms of the strength of this effect — we have kept the incremental difference low to at least partly reflect this.

The key aspects of this then are that:

- Where an agent is 'over-indebted', he or she starts to adjust controllable consumption spending (i.e. household spending in our model). The rate of adjustment is increasing in capability. However, bearing in mind the difficulty in adjusting spending commitments and the consequent persistence of consumption habits we have used relatively small annual adjustments. These vary up to three per cent of spending per annum, for a maximum of three years. The average agent would be making an adjustment of around one per cent per annum.
- Above an FDMI threshold of 8, individuals save in anticipation of predictable life events.

⁸⁰ Wells, J., Leston, J. and Gostelow, M. (2010) "The Impact of Independent Debt Advice Services on the UK Credit Industry" Friends Provident Foundation.

5 Model Results

5.1 Introduction

In this chapter we describe the results generated by the model, in particular the comparison of the ‘policy on’ and ‘policy off’ models due to an improvement in the FDMI.

The utilisation of life events and current actual prices embeds the model in the real-world. Our calibration process also compared the results generated by the model in the ‘policy off’ setting to expectations, i.e. to check that the baseline outputs of the model are realistic. For example, the value of debt write-offs per annum is an output of the approach. In the ‘policy off’ setting the expected write-offs in £ per person are similar to the recent historic experience looking across mortgage and consumer credit. This does not mean the model matches reality exactly — as set out at the beginning of Chapter 4, it is inherent in a model that it is a stylised ‘take’ on reality not reality itself (although we have sought to check assumptions made back to the real-world).

The model also works deterministically, i.e. capability (being an amalgam of having skills and also deploying those skills effectively) essentially drives behaviour, abstracting from anything else. In a rational world, this makes sense (if an agent has an incentive to act, she should do so) but has an evident tension with the persistent existence of behavioural biases — whilst increased capability should better manage these, it may not in fact fully resolve them.

5.2 Impact of across-the-board increase in the FDMI

We set out below the results of our core model, showing how the modelled behaviours around widespread enhanced capability would translate into monetary gains for consumers. This looks at the first 30 years of the lifespan of the agents in the model (less if the agent dies before those 30 years are up). We have described the composition of the FDMI at 4.4.2 above. What we consider here is the impact of an across-the-board increase in the FDMI score of all individuals in the model by one ‘notch’ on a fifteen point scale. This means that some proportion of these individuals pass a different behavioural trigger or access different product prices than before, e.g. about six per cent open a savings account. The potential individual and aggregate impacts of these behavioural changes are what the model seeks to capture.

The pecuniary results are re-weighted and scaled to the UK population. The monetary effects are presented as 2015 £ values, i.e. we discount future monetary figures (in real terms) back to today using the discount rate recommended by HM Treasury’s Green Book.⁸¹ As we have noted elsewhere, these results do not take into account any countervailing strategies by the supply-side. These are discussed further in Chapter 6.

It is important to note that some of the gains presented below could be tempered, or indeed exacerbated, by responses by the financial services industry to improved financial capability, e.g. to safeguard its profitability. (The nature of the supply-side response that we expect to result is discussed in detail in Chapter 6.) Nonetheless, the direct impact on consumers *absent* a supply-side response provides useful information on the likely impacts that could occur if financial capability is improved and, importantly, where these impacts might occur, thus helping the Money Advice Service to develop strategies for *how* financial capability might be improved.

In the table below, we present changes in wealth, i.e. cash and asset ownership, in present value terms after a 30 year period. We also present changes in consumption, as increases here would represent a utility to

⁸¹ https://data.gov.uk/sib_knowledge_box/discount-rates-and-net-present-value.

consumers and any decreases would represent a disutility (though offsetting benefits would be captured through wealth effects, e.g. if consumers saved more now, they can consume more in the future).

The greater gains to consumers are generated by those age cohorts with a greater part of their working lives within the model's timeframe. This is driven in part by increased retirement saving — indeed the relatively small changes in consumption spend within the youngest cohorts reflect the impact of foregoing current consumption to increase future access to savings, as well as off-setting changes due to consuming some part of the gain from reduced financial product prices.

Table 5.1: Potential financial impact of changing financial capability for all (by starting age)

Age Group, as at 2015	Increase in FCS 30 year wealth, %	Wealth effect (30-year UK figure), £bn	Increase in 30 year consumption, %	Consumption effect (30-year UK figure), £bn	Combined effect (30-year UK figure), £bn
75+	0%	2.8	0%	-	2.8
65 - 74	1%	10.3	0%	-	10.3
55 - 64	2%	8.5	1%	6.7	15.2
45 - 54	3%	14.6	0%	8.5	23.2
35 - 44	3%	9.9	0%	8.1	18.0
25 - 34	5%	21.0	0%	4.7	25.7
18 - 24	3%	12.4	0%	0.9	13.3
Total		79.6		28.8	108.4

Source: Europe Economics analysis.

This can also be represented according to the (starting) incomes of the individuals modelled. This is shown below.

Table 5.2: Potential financial impact of changing financial capability for all (by starting income)

Income Group (£ thousands), as at 2015	Increase in FCS 30 year wealth, %	Wealth effect (30-year UK figure), £bn	Increase in 30 year consumption, %	Consumption effect (30-year UK figure), £bn	Combined effect (30-year UK figure), £bn
50+	1%	6.4	0%	3.0	9.44
30 - 50	2%	14.2	0%	6.6	20.9
15 - 30	2%	36.5	1%	11.9	48.4
0 - 15	3%	22.4	0%	7.3	29.7
Total		79.6		28.8	108.4

Source: Europe Economics analysis.

The table below shows the approximate breakdown of the wealth effect between different sources. As can be seen the majority of the gains as a result of improved financial capability result from consumers making improved decisions which increase their savings in the form of investments, the value of pensions and in savings accounts. Inequality in retirement incomes (as measured by GINI coefficient) is slightly reduced in our model.

Table 5.3: Contributing factors to wealth impact

Contributing factor	Contribution to wealth impact	Proportion of total wealth gain
Property	1.6	2%
Investment	47.2	59%
Saving	18.3	23%
Pension	9.9	12%
Credit	1.7	2%
Mortgage	0.8	1%

Source: Europe Economics analysis.

Given the importance of the model's triggers for behavioural change, we have also sensitivities adjusting those triggers by one 'notch' (up and down) on the FDMI scale from those used in the core model. The results are non-symmetric, reflecting the differences in the distribution of the FCS 2015 sample. These sensitivity results give a 30 year PV gain of £105–127 billion in this case — which highlights the sensitivity to these assumptions.

5.3 Other scenarios

The results above are based on improving the financial decision-making for every adult in the UK by one 'notch' on the FDMI. While this provides a useful insight into the potential gains from improving financial capability, in practice it may be very difficult to achieve, particularly for those that also have a decent level of capability. To supplement these results, we therefore consider two further scenarios:

- The first looks at what would happen if the FDMI increased by one for just those individuals with a base score below 7. This is equivalent to a successful campaign targeted upon those with poor financial decision-making skills.
- The second scenario considers a more extreme scenario in which every agent with an FDMI score below 7 is brought up to an FDMI score of 7.

As we might expect, the first scenario reduces the potential gains for consumers given that it is essentially a subset of the main results. Interestingly, however, the reduction is relatively small given the proportion of agents with a financial capability below 7 is less than a third of the sample. This can be explained by the large gains that can still be achieved by those individuals that pass some of the behavioural thresholds through improved financial capability and are therefore able to make better saving and investment decisions.

Table 5.4: Potential financial impact of improving financial decision-making for those with starting FDMI below 7 by one notch on the FDMI (by starting age)

Age Group	Increase in 30 year wealth, %	Wealth effect (30-year UK figure), £bn	Increase in 30 year consumption, %	Consumption effect (30-year UK figure), £bn	Combined effect (30-year UK figure), £bn
75+	0%	2.2	0%	-	2.2
65 - 74	0%	2.9	0%	-	2.9
55 - 64	1%	5.1	0%	0.8	5.9
45 - 54	2%	8.3	0%	4.0	12.3
35 - 44	2%	5.9	0%	4.4	10.4
25 - 34	1%	4.7	0%	2.9	7.5
18 - 24	1%	2.9	0%	1.0	3.9
Total		31.8		13.2	45.0

Source: Europe Economics analysis.

Table 5.5: Potential financial impact of improving financial decision-making for those with starting FDMI below 7 by one notch on the FDMI (by starting income)

Income Group (£ thousands), as at FCS 2015	Increase in 30 year wealth, %	Wealth effect (30-year UK figure), £bn	Increase in 30 year consumption, %	Consumption effect (30-year UK figure), £bn	Combined effect (30-year UK figure), £bn
50+	0%	0.6	0%	0.3	0.9
30 - 50	1%	8.6	0%	5.8	14.4
15 - 30	1%	18.6	0%	5.7	24.3
0 - 15	0%	4.0	0%	1.4	5.4
Total		31.8		13.2	45.0

Source: Europe Economics analysis.

Table 5.6: Contributing factors to wealth impact

Contributing factor	Contribution to wealth impact	Proportion of total wealth gain
Property	1.0	3%
Investment	23.9	75%
Saving	5.6	18%
Pension	0.5	2%
Credit	0.5	2%
Mortgage	0.5	2%

Source: Europe Economics analysis.

The table below presents the results of the second, more extreme scenario:

Table 5.7: Potential financial impact of changing financial capability for those with starting FDMI below 7 to 7 (by starting age)

Age Group	Increase in 30 year wealth, %	Wealth effect (30-year UK figure), £bn	Increase in 30 year consumption, %	Consumption effect (30-year UK figure), £bn	Combined effect (30-year UK figure), £bn
75+	1%	5.6	0%	-	5.6
65 - 74	3%	26.5	0%	-	26.5
55 - 64	4%	18.0	0%	3.3	21.3
45 - 54	5%	27.4	0%	8.7	36.1
35 - 44	4%	14.6	0%	10.4	25.0
25 - 34	4%	19.7	0%	10.0	29.8
18 - 24	2%	8.5	0%	3.5	12.0
Total		120.4		36.0	156.4

Source: Europe Economics analysis.

Table 5.8: Potential financial impact of improving financial decision-making for those with starting FDMI below 7 by one notch on the FDMI (by starting income)

Income Group (£ thousand), as at FCS 2015	Increase in 30 year wealth, %	Wealth effect (30-year UK figure), £bn	Increase in 30 year consumption, %	Consumption effect (30-year UK figure), £bn	Combined effect (30-year UK figure), £bn
50+	1%	3.5	0%	2.1	5.6
30 - 50	2%	14.2	0%	6.3	20.6
15 - 30	4%	67.5	1%	17.6	85.1
0 - 15	4%	35.2	0%	9.9	45.1
Total		120.4		36.0	156.4

Source: Europe Economics analysis.

Table 5.9: Contributing factors to wealth impact

Contributing factor	Contribution to wealth impact	Proportion of total wealth gain
Property	8.1	7%
Investment	87.5	73%
Saving	18.4	15%
Pension	0.8	1%
Credit	0.7	1%
Mortgage	4.8	4%

Source: Europe Economics analysis.

Perhaps unsurprisingly, this scenario results in a larger gain for consumers than the base case (where all agents improve by one notch). This is because all agents with a score below 7, even those with very low scores, improve to a level of 7 which allows them to unlock gains from better saving and investment decisions (but not significantly benefit from enhanced decision-making on pensions). However, this scenario would be extremely difficult to affect in practice and the results are therefore unlikely to materialise. Nonetheless both

scenarios suggest that large gains could be made by focussing efforts to improve financial capability on those at the bottom end of the scale.

5.4 Other impacts

The model as constructed does not capture all of the possible consequences and effects that could flow from enhanced financial capability. We discuss some of what we consider the better evidenced corollary effects of increased capability below.

5.4.1 Impact on incidence of consumer over-indebtedness

In our model, capability can influence the incidence, duration and severity of over-indebtedness. This is because more capable agents may manage their financial positions better and therefore reduce the number of times they become indebted; they may also adapt their consumption behaviour in anticipation of particular life events. They also adapt more strongly than less capable agents if and when they become over-indebted. The latter trait reduces the severity of the debt problem, and potentially can shorten the duration of the period spent as an over-indebted agent.

Overall, as noted above, our core model shows a reduction in the incidence and level of over-indebtedness, and of the consequent debt write-offs, amongst consumers of about 9–13 per cent from the ‘policy off’ case to ‘policy on’, i.e. when financial decision-making improves.

5.4.2 Impact on mental health

Research suggests that a number of factors can interact to contribute towards the development of mental health problems, such as physical, social, environmental and psychological factors. Most of the empirical studies show (mainly through surveys) that stressful circumstances are the most commonly endorsed cause of mental illness and majority of respondents believe that stress are very or somewhat likely a cause of mental illness. There are often specific life-events that underpin these stressful events, such as:⁸²

- Interpersonal loss: bereavement, separations, divorce, widowhood etc. (i.e. “exit events” that often precede depression, and may be more common in depressed samples than in other forms of psychopathology).
- Financial Problems: job losses, debt etc. (“dependent events” to which the person has contributed).

While there may be links between these two types of events (e.g. divorce may be associated with financial problems), we are principally concerned with the second bullet point, as this is something that might be directly influenced by improving financial capability.⁸³ In particular, actions taken by individuals with better capability may allow them to ameliorate their financial positions, thus restricting the incidence of debt, the level of indebtedness and/or the duration of indebtedness (which could stem, for example, from other financial events, such as redundancy).

Drentea and Lavrakas (2000) explored how credit card debt and stress relating to debt is linked with health. They found that both credit card debt and debt stress are determinants of health.⁸⁴ To address the impact of stress on health, Lavrakas *et al.* (2000; 2008) show that stress from debt is associated with deteriorating

⁸² Hammen, C. (2005) “Stress and depression” *Annual Review Clinical Psychology*, 1, 293-319.

⁸³ Some research has suggested a direct link between financial capability and mental health. See, for example: Taylor (2011) “The long term impacts of financial capability: Evidence from the BHPS, and Taylor *et al.* (2011) “Financial capability, income and psychological wellbeing”.

⁸⁴ Drentea, P., & Lavrakas, P. J. (2000) “Over the limit: the association among health, race and debt” *Social science & medicine*, 50(4), 517-529.

health. According to the study, 27 per cent of the surveyed had ulcers or digestive-tract problems compared 8 per cent of those with a low level of stress from debt (using a developed Debt Stress Index).⁸⁵ There are also studies that investigate gender differences in the level of stress associated with debt; Dunn and Mirzaie (2012) found that women in their sample are subject to significantly more stress from their debts than men, even when controlling for debt-to-income ratio.⁸⁶

However, while a number of studies have explored the connection between debt and mental health the time dynamics of debt stress on health has often been disregarded. Shen (2013) empirically analysed the impact of household credit card indebtedness on debt stress by constructing a debt stress index. Households were grouped into three different categories: long-run debtors, short-run debtors and non-debtors. The results indicate that there are time-varying impacts of credit card debt on stress level. Holding the debt level constant, debt stress for short-run debtors is more than twice that of long-run debtors. The results also show that debt related stress responds elastically to the level of credit card debt.⁸⁷

Another strand of literature has aimed at estimating the direct impact of debt on mental health. Sweet *et al.* (2013) investigate the links between multiple indices of financial debt and mental and general health outcomes. They find that individuals with high debt compared to low debt, on average have 11.7 per cent increased symptoms of stress, and 13.2 per cent increased depressive symptoms relative to the mean.⁸⁸ Meltzer *et al.* (2012) estimate the prevalence of ‘specific’ mental disorders by type of debt and found that adults in debt were three times more likely than those who were not in debt to have Common Mental Disorders.⁸⁹ Knapp *et al.* (2011)⁹⁰ review the relationship between debt and mental health and conclude that individuals who initially have no mental health problems but find themselves having unmanageable debts within a 12 month period have a 33 per cent higher risk of developing depression and anxiety related problems compared to the general population who do not experience financial problems.⁹¹ In a study of those seeking debt advice from Citizens Advice Bureaux (Edwards, 2003), 62 per cent of respondents reported that their problem led to stress, anxiety or depression.

There are some concerns about the causal relationship between mental health and distressed debt. Balmer *et al.* (2005) investigated the reverse link between mental illness and debt, where mental illness was seen as a cause of poor financial circumstances rather than the opposite. They found that the long-term ill are indeed more susceptible to long-term debt.⁹²

Overall, we consider there to be a measurable effect, despite these ambiguities. Our core model speaks to the above — in a necessarily simplified way — as follows: by reducing the episodes of being over-indebted, it should also lead to some avoidance of mental health episodes over and above our counterfactual. Using

⁸⁵ Lavrakas, Paul J., Lucia Dunn, Jeff, Stec, and T.H. Kim (2000) “A Debt Stress Index for Measuring the Stress Associated with One’s Total Debt” *The American Statistical Association Proceedings*, pg. 78-81; Lavrakas, and Tompson (2008) “New Research on the Measurement of Debt Stress” *Midwest Association for Public Opinion Research*.

⁸⁶ Dunn, L. F., & Mirzaie, I. A. (2012) “Determinants of Consumer Debt Stress: Differences by Debt Type and Gender” *Working Paper, Center for Human Resource Research*.

⁸⁷ Shen, S., (2013) “Consumer Debt, Psychological Well-being, and Social Influence” *Dissertation, The Ohio State University*.

⁸⁸ Sweet, E., Nandi, A., Adam, E. K., & McDade, T. W. (2013), “The high price of debt: Household financial debt and its impact on mental and physical health”, *Social Science & Medicine*, 91, 94-100.

⁸⁹ Meltzer, H., Bebbington, P., Brugha, T., Farrell, M., & Jenkins, R. (2012) “The relationship between personal debt and specific common mental disorders” *The European Journal of Public Health*, cks021.

⁹⁰ Knapp, M., McDaid, D., & Parsonage, M. (2011) “Mental health promotion and mental illness prevention: The economic case”.

⁹¹ Skapinakis P, Weich, S *et al.* (2006) “Socioeconomic position and common mental disorders. Longitudinal study in the general population in the UK” *British Journal of Psychiatry* 189:109–117.

⁹² Balmer, N. *et al.* (2005) “Worried Sick: The Experience of Debt Problems and their Relationship with Health, Illness and Disability” *Social Policy and Society*, 5:1, 39-51.

conservative assumptions on the value of this, our base model implies an approximate £0.23 billion saving in healthcare costs over a 30 year time horizon.

Broader health outcomes, i.e. in terms of physical health, are also possible but our research suggests, however, that the key driver is changing mental health states.

5.4.3 Other non-modelled effects

A further knock-on effect could relate to improved productivity at work. The driver for this would be the possible improvements in mental and physical health outcomes resulting from improvements in financial capability described above. Broadly, this has two components: first, individuals may take fewer days of sick leave; and second, employees may generate greater output from the same input (i.e. time worked) — perhaps due to reduced ‘presenteeism’— notably where improvements in mental health materialise.

A recent study published by the Social Market Foundation considered ways in which stress could be reduced to boost workplace engagement to help improve UK productivity.⁹³ The study was based on new analysis of Understanding Society, a longitudinal survey of 40,000 households across the UK, and it found that 13 per cent of workers reported that money worries have affected their ability to concentrate at work.

Therefore, there is the potential for labour productivity to improve. However, it is important not to overstate the extent to which this benefit is attributable to improvements in financial capability. First, there are a number of issues that can affect labour productivity, of which financial issues is one part and it is not clear how big a part this is or the way in which financial worries interact with other factors (and, importantly, *vice versa*). Second, while improving financial positions in our model are driven by improvements in capability, in reality individuals may find themselves in better financial positions for reasons other than their financial capability.

We have not modelled exchequer effects due to uncertainties around the supply-side response, as discussed more fully in the next chapter. At a more speculative level, it has been argued that improved individual capability could contribute towards an improvement in financial stability. Whilst the idea that more reflective consumer behaviour could limit the development of asset bubbles has some immediate plausibility, this remains an area for further research.

Somewhat similarly, enhanced capability could change the frame within which individuals view their lives (or at least their working lives). This could result in increased investment in their own human capital. Equally, there is evidence that more financially capable individuals are more likely to be entrepreneurs.⁹⁴ However the causality with some of these effects is unclear, i.e. some other common trait or traits may be promoting both greater capability and increased entrepreneurial drive.

⁹³ Evans (2016) “Working Well: How employers can improve the wellbeing and productivity of their workforce” Social Market Foundation.

⁹⁴ Klapper L.F., Lusardi A., and Panos, G.A. (2016) “Financial literacy and entrepreneurship” GFLEC Working paper.

6 Supply-Side Impacts

Our model is focussed upon the financial impacts on consumers of enhancing their capability. In this chapter we present the potential impacts of improved financial capability on the supply-side. It is important to note that this analysis is indicative only, as the precise nature of the supply-side impacts would depend on the strategic response of firms in relevant industries that would be affected by consumers' actions.

When we consider potential supply-side responses we bear in mind the degree of competition in the relevant markets to inform the assessment of the distribution of these impacts. The starting point for any supply-side impacts remains the behavioural outcomes generated by the consumer-based modelling (in particular, the prices paid to access certain financial products and the amount of money attributable to different financial products). A limitation here is, of course, the granularity of the products considered in the modelling to date. These were necessarily restricted to gain traction in that exercise.

6.1 Day-to-day banking products

There are several possible financial products offered by banks and building societies that consumers may use. Here, we focus on the day-to-day banking products that are covered in our modelling, namely: current accounts (with an overdraft facility) and savings accounts.

Modelling results

Our quantitative assessment finds that improving financial capability has the following impacts on the “average prices” for current accounts and savings accounts accessed by consumers in the FCS data set that forms the basis of the modelling:

Table 6.1: Impact on prices

	Counterfactual	Improved financial capability	% change
Overdraft interest rate	8.0%	7.8%	-3.1%
Excess current account fees	£63	£53	-16.3%
Savings interest rate	0.59%	0.64%	8.4%

Source: Europe Economics.

Holding all else constant, the immediate impact of improved financial capability among consumers in our model would be a shift in revenues from certain providers (with a higher price / lower savings interest rate) to lower total revenues to other providers that offer better value for consumers. Overall, for a given volume, industry revenues would fall; however, this would reflect increased efficiency at an aggregate level.⁹⁵ If this effect was sufficiently large it could encourage additional entry by more efficient (or at least better value) market participants, though this would depend in part on the extent of barriers to entry in the sector, which we discuss later in this section.

However, this does not give a complete picture of the effect of improved financial capability on revenues for the industry, as the change in financial capability may result in different volumes, e.g. the volume of money saved could change, less overdrafts could be taken, etc. Indeed, we see that the proportion of consumers adding to their savings in any given year (on average) changes by 8.1 per cent, with an average increase in annual additions to savings balances of about seven per cent over consumers' lifetimes.

⁹⁵ It is possible that as consumers become more financially capable, they switch to a better product with the same provider, rather than another provider, but in this set up the overall effect would still be the same.

We also find that on average consumers hold less in their current accounts each year as financial capability improves. This is consistent with what we would expect, given the set-up within our model, as more financially capable consumers would move cash surpluses to more fruitful products, such as savings, investments and pensions.

Overall, therefore, we see that revenues for those banks and similar institutions offering current accounts would decrease as more financially capable consumers seek out current accounts with lower fees (while the number of consumers holding current accounts does not change). We find that revenues earned from charging customers for using their overdraft facility would decrease as consumers become more financially capable (a) because more capable consumers switch to current accounts with lower interest rates on overdrafts, and (b) because more financially capable consumers find themselves in positions in which it is necessary to rely on an overdraft on fewer occasions. However, offsetting these negative impacts on the industry's revenues would be an increase in savings as consumers become more capable which would generate greater funds for banks to engage in investment strategies and credit creation.

These shifts might reflect the industry becoming more efficient because consumers are switching to lower cost firms that are able to offer lower prices in a competitive market with cost-reflective pricing, or because consumers' increased capability leads to switching which erodes incumbent market power in a less competitive market. In order to understand the potential supply-side impacts that might result from the changing financial capability of the customer base, it is necessary to investigate the competitive landscape in relation to current accounts and savings accounts.

Personal current accounts

In its recently published findings on the retail banking market, the CMA found that the market for personal current accounts in both GB and NI are concentrated but not highly concentrated, and that market shares by volume in GB and NI have remained broadly stable since 2005 (apart from the impact of mergers and divestments).⁹⁶ The four largest banks in GB have collectively lost less than five per cent market share since 2005 — although they have a lower share of the flow of new personal current accounts than of the stock of all personal current accounts.

In general, the CMA found that while banks appearing to offer lower average prices and/or better quality tend to have been gaining market share this was at a very slow pace. The CMA also noted that there have been a number of innovations in the personal current account market in recent years including the introduction of interest-paying and reward accounts, changes in overdraft fee structures and developments in mobile banking (as part of the wider digitalisation of retail banking). The CMA also considers that innovations in IT platforms and in digital banking have also facilitated new entry. Nonetheless, the CMA did consider that barriers to entry and expansion do exist, notably in relation to “strategic and first-mover advantages”. Specifically, the CMA noted that there is a significant investment of time and resources for new entrants to attract customers before they can recover costs of entry and initial investments.

Indeed, the CMA found that banks with larger market shares (in the personal current accounts market) can have higher average prices and/or lower quality, which is consistent with incumbency advantages from weak customer response and banks having a larger base of established customers and a higher proportion of inactive customers. However, the CMA noted that there is stronger competition from former and continuing building societies and that smaller banks tend to grow more rapidly than larger banks (in the medium- to longer-term).

Overall, the CMA provisionally found that a combination of low customer engagement, barriers to searching and switching and incumbency advantages in the provision of personal current accounts is leading to adverse effects on competition. However, the CMA noted that with greater customer engagement it would expect

⁹⁶ CMA (2015) “Retail banking market investigations: provisional findings”.

banks to have stronger incentives to compete and develop products to benefit all customers which are clearer to and valued by customers.

Therefore, as things stand it is possible that the changes in revenue as a result of improved financial capability could lead to revenue losses (from current account fees and overdraft charges) being recouped elsewhere from existing customers. However, the revenue impact cannot be considered in isolation: it is important to understand where this impact is stemming from. In particular, we might expect more financially capable customers to be more engaged in the market, e.g. making greater use of educational resources and price comparison websites, to inform switching to better products. Therefore, this greater engagement in the market could, as noted by the CMA, create greater incentives for firms to compete. For example, as noted by the FCA in its assessment of the effectiveness of the Current Account Switching Service, making switching easier has led to a number of product development efforts, including: simplification of the product range and increased clarity of pricing; planned reductions in overdraft charges or caps to the monthly costs incurred through overdraft charges; new reward propositions, including third party partnerships; and technological developments, such as improved budgeting tools.⁹⁷

The more pessimistic scenario described above, whereby revenue losses resulting from improved financial capability are recouped elsewhere from other customers, could, however, prevail if the existing incumbency advantages were to persist. In particular, if financial capability were to improve equally across all customers then the number of “sophisticated” customers would grow — but less capable customers would still persist. So, whilst amongst the increased cohort of “sophisticated” customers the greater engagement in the market and active searching and switching by these customers would lead to revenue losses from these customers, banks with incumbency advantages may seek to increase fees for inactive (or “naïve”) customers that do not switch providers. This pessimistic scenario could be supported by work from Gabaix and Laibson, whereby shrouding effects (real prices are greater than the perceived price) result in exactly this scenario.⁹⁸ Whether such price shrouding exists in the personal accounts markets (or in banking services more generally) remains unclear — however we find a natural interpretation of low financial capability is that for such consumers there is scope for less than transparent pricing (whether this is primarily due to the consumer’s lack of observation, or to the firms’ practices, or both is less apparent).

This effect could be exacerbated if banks with relatively large proportions of naïve customers opted to employ “loss-leading” strategies to attract sophisticated customers with low fees (and/or higher rewards) by cross-subsidising these offers with higher fees (and/or lower rewards) for the non-switching, naïve customer base. Indeed, the CMA noted that many banks are currently able to price discriminate between existing/inactive and new/active customers, suggesting that the supply-side response to the improved financial capability of certain individuals could lead to a worsening of outcomes for those whose financial capability does not improve sufficiently. The size of the reduction in the current account fees that prevail following an improvement in financial capability of just one notch suggests that the scale of this adverse distributional impact between naïve and sophisticated customers could be large if this scenario were to come to fruition.

Savings accounts

In relation to savings, the FCA, in its recent market study on the cash savings market, concluded that there is ineffective competition due to *inter alia* a low number of consumers who shop around and switch.⁹⁹ In particular, the FCA found that while there are a significant proportion of rate sensitive customers who shop around, there are also a large number of consumers for whom interest rate is not as important (and who value other features such as convenience) and who do not shop around as effectively. Consumers perceive

⁹⁷ FCA (2015) “Making current account switching easier: the effectiveness of the Current Account Switching Service (CASS) and evidence on account number portability”.

⁹⁸ Gabaix, X. and D. Laibson (2006) “Shrouded attributes, consumer myopia, and information suppression in competitive markets” *The Quarterly Journal of Economics*.

⁹⁹ FCA (2015) “Cash savings market study report”.

there to be switching costs and there is significant variation between firms in switching processes. As a result, there are many less active customers, with significant balances in aggregate, which limits the pool of consumers that challenger firms are able to attract and means that challenger firms are unable to attract retail funds at comparable rates to those paid by larger firms.

However, to the extent that improving financial capability results in a greater propensity to switch savings accounts, the incumbent advantages described above may be eroded leading to greater competition in the market, with more attractive savings rates offered. For example, the FCA notes that firms regularly make use of promotional offers, conditional or loyalty rates, i.e. the types of pricing that can introduce noise around the expected price. Improved financial capability leading to greater switching rates could result in an increased use of these types of pricing strategies to encourage rate-sensitive customers (which we might reasonably equate to more financially capable customers, notwithstanding other relevant factors, such as income) to switch. However, as described above in relation to current accounts, if such incumbency advantages are not limited (by improving financial capability, say), “waterbed effects” owing to cross-subsidisation of active customers could dominate resulting in a worsening of outcomes for inactive customers.

Further, customer engagement is not the only factor that might influence supply-side behaviour. The FCA found there to be a significant structural barrier to entry in the market because many consumers prefer banks with a branch network, which larger banks have had an advantage of time and resources in building. It may therefore be difficult for new banks with a more limited branch network to compete. The FCA also found that personal current account providers have an advantage in easy access savings accounts, and they therefore have less of an incentive to compete for consumers’ savings and can pay lower interest rates without losing customers. On the one hand, this could limit the effectiveness of improvements in financial capability in the savings market; on the other hand, more financially capable consumers may be more willing to switch to better offerings between bigger banks — or between competing offerings at their incumbent bank, which could still mean that the overall personal current account / savings combinations improve. Similarly, greater recognition amongst low earners of the value of building up savings could mean — at last — the supply of suitable savings products in response to such novel demand.

6.2 Credit products

Consumers may use different credit products in different combinations depending on their circumstances. As set out earlier in the report, our modelling involves behavioural pathways in relation to credit products, depending on the circumstances of each individual in the model, which involves the use of credit cards, personal loans and higher-cost credit in different permutations to complement the overdrafts discussed in the previous section.

Modelling results

Our modelling of improving consumers’ financial capability finds that an improvement in capability of one notch has the following impact on interest rates paid on average by consumers in the sample:

Table 6.2: Impact on prices

	Counterfactual	Improved financial capability	% change
Credit card interest rate	25.1%	24.5%	-2.4%
Personal loan interest rate	6.4%	6.3%	-1.2%
Higher-cost credit interest rate	42.1%	41.1%	-2.4%

Source: Europe Economics.

On average, we see that more financially capable consumers obtain cheaper credit, i.e. credit with a lower rate of interest, with a smaller fall in interest rates observed for the middle of the market, i.e. personal loans. If this pricing impact were to be the only change in relation to credit products, and the amount of credit that

was made available held constant, the effect on the credit industry would clearly be a decrease in revenues (though there may, again, be distributional shifts to companies offering cheaper versions of a particular credit product, or even attract new entrants, which could improve the efficiency of the sector as a whole).

However, as described earlier, a key feature of the modelling is improved-decision making as a result of higher financial capability. Therefore, consumers may find themselves in better financial positions, potentially requiring less credit in order to meet their expenditures (i.e. cash outflows). This can have ambiguous consequences, dependent on the agent's circumstances. For example: improved financial capability may reduce demand for higher-cost loans → reduced instances of distressed debt → reduced credit restrictions (which flow in our model as a result of a distressed debt episode) → resulting in a greater volume of credit supplied through other credit products.

Table 6.3: Impact on volumes and revenues

	% change in average annual proportion of consumers using product
Credit card	0%
Personal loan	0%
Higher-cost credit	-4%

Source: Europe Economics.

Clearly, there is a distributional impact in the credit market. Although there is only limited impact in annual usage of credit cards and personal loans, it seems plausible that consumers' credit requirements would be more readily satisfied with the use of cheaper credit cards as they become more financially capable — with a corresponding negative impact (though not commensurate due to other beneficial impacts of improved financial capability meaning that the amount of credit required overall reduces) on the personal loan and higher-cost credit market. However, this negative impact on the higher-cost credit market is offset in part by the reduction in write-downs of distressed debt. We find that the reduction of annual average write-downs represents nine per cent of the reduction in average annual cash flows for personal loans and high-cost credit as financial capability improves.

Credit card providers are also faced with more financially capable consumers obtaining credit at better rates of interest. As set out earlier in relation to day-to-day banking products, this could be a result of the industry becoming more efficient, but the supply-side effects that would materialise would (in part) depend on the nature of competition in the sector. Similarly, the impact on the higher-cost credit market (modelled here in the form of personal loans, e.g. from a bank, and high-cost credit, e.g. in the form of a payday loan) of reduced revenues as a result of financial capability, albeit limited by the reduction in the amount of debt that is written off, will depend on the current market structure.

Credit cards

The FCA's interim findings in its current market study of the credit card market found that competition is working fairly well for consumers.¹⁰⁰ Firms were said to compete strongly for custom on some features — not only for new consumers but also for existing borrowers with credit balances. However, the FCA found that competition is focused primarily on introductory promotional offers and rewards, with less competitive pressure on interest rates outside promotional offers and other fees and charges.

The FCA observed that the market is moderately concentrated but there has been new entry in recent years and new entrants have been able to gain significant market share, though the sunk costs involved prevent completely new entrants from entering. However, it was noted that higher credit risk consumers' face more limited choice, due to reputational and regulatory risks associated with higher risk and higher cost lending (in

¹⁰⁰ FCA (2015) "Credit card market study: Interim report".

addition to commercial viability considerations). To the extent that the increase in volumes of credit taken through credit cards following improvements in financial capability is being driven by relatively high risk consumers (who are on the border of needing to take out a personal loan or some form of high-cost credit), these customers may face more limited choice and there may be less competition to “win” these customers.

Having said this, the FCA found that while consumers in default are extremely unprofitable, consumers with persistent levels of debt or who make minimum payments are highly profitable. Indeed, across the board the FCA’s analysis suggests that many consumers are open to switching and that credit card providers do not consider a lack of switching to be a significant barrier to entry or expansion. Therefore, an increase in the size of the market, which has relatively weak barriers to entry and expansion according to the FCA, coupled with greater financial capability (perhaps in the form of an increased propensity to switch) could lead to an increase in competition. Indeed, access to lower prices as a result of improved capability could lead to increased usage / willingness to use credit cards which could amplify the increases in volumes of credit taken using credit cards that we see in our modelling.

It is also important to note that competition in the market has not been driven solely by price, i.e. interest rates and/or fees. The FCA noted that recent innovations in the market include:

- **Product innovation.** Credit card providers have started to offer new product types such as low-rate cards and low or no fee balance transfer cards and new product features such as statement credits when consumers spend a certain amount in a particular retailer.
- **Search innovation.** Tools have been developed which allow prospective consumers to get a better idea of their eligibility for particular cards and/or the likely price without having to submit a full application. These tools may be offered by price comparison websites seeking to better tailor search results to an individual consumer’s needs. As shown earlier in the report, we would expect more financially capable consumers to engage in more productive search.
- **Technological innovation.** New developments such as contactless technology and mobile/online banking have increased convenience for credit card consumers, including new acquisition channels, such as applying via a smartphone.

Despite the relatively healthy competitive landscape and innovations in the market, the FCA did raise some concerns with regard to tariff/product complexity. In particular, the FCA noted that the increase in the number and length of offers has raised some concern: first, whether consumers understand the product and the fees they will incur; and second, whether balances that are currently interest-free are storing up future debt problems. It is possible therefore that while an increase in financial capability improves consumers’ credit positions overall, resulting in greater use of credit cards and less use of higher-cost credit, financial capability with respect to credit cards specifically could plateau as competition for market share (with an increasing market size) could lead to product innovations which crowd out efficiency gains.

Higher-cost lending (e.g. payday lending)

A recent market investigation by the CMA found that there are a number of features in the provision of payday loans in the UK which contribute to, and help to explain, the failure by many payday lenders to compete on price and which either alone or in combination give rise to an adverse effect on competition.¹⁰¹

The CMA found that there were at least 90 payday lenders offering loans to UK customers. However, the market is more concentrated than this figure might suggest, with the three largest lenders accounting for around 70 per cent of total revenue generated from payday lending in the UK (in 2012-13) and the ten largest lenders accounting for more than 90 per cent. The CMA also found that the prices of payday loans tended to cluster around a headline price. This clustering in headline prices has emerged over time as increasing numbers of lenders have increased their prices to this level.

¹⁰¹ CMA (2015) “Payday lending market investigation: Final report”.

In any case, customer demand was generally found to respond weakly to prices. Lenders that offered substantially lower rates have not been particularly successful in attracting new business. In light of the above the CMA has pointed to significant limitations in the effectiveness of competition between payday lenders on prices, and that the competitive constraints that lenders faced when setting their prices were weak. The CMA identified two sources of customer detriment which are likely to arise as a result of this:

- Some customers currently pay more for their loans than they would if price competition were more effective.
- There may be less innovation on pricing (e.g. in relation to the introduction of risk-based pricing or flexible pricing models) than would be observed in a market in which price competition is more effective.

However, as financial capability improves it is possible that consumers requiring this type of higher-cost credit become more capable of seeking out better products. Indeed, the CMA noted that many consumers that reported getting money to repay their loan more difficult than expected were in this situation because (*inter alia*) they had a poor understanding of financial terms and conditions, had previously taken out payday loans in order to pay off debts to other payday lenders, or had experienced debt problems in the last five years — all aspects that we would expect to ameliorate as financial capability improves. However, despite the weak price competition observed, the CMA found that there was significant variation in the prices that different lenders charged in a number of representative borrowing scenarios. It is possible that some individuals require the use of higher-cost credit even as financial capability improves. Given the apparent lack of competition in the market, it is possible that such customers may face higher interest rates across the board in a bid to cross-subsidise more marginal customers who are in more flexible credit positions.

In any case, it is important to note that payday lenders' products differ not only in terms of prices but also with respect to other dimensions. Based on customer surveys and lender submissions the CMA identified the following product characteristics that are of particular importance to customers:

- speed of getting the money;
- ability to repay online;
- ability to repay in a store;
- ease of the application process;
- the reputation of the lender;
- the total cost of the loan;
- repayment flexibility; and
- the size of the loan that customers could take out.

Overall, the CMA's investigation indicated that lenders have on a number of occasions introduced new products or made changes/innovations to their products within the above dimensions in recent years. In addition, the FCA has introduced a specific package of regulatory reforms targeted at higher-cost lenders (particularly short-term loan providers, such as payday lenders). The full effect of these is not yet apparent, but it is widely understood to have shrunk both the number of market participants and the cost of lending. Therefore, as the size of the market further reduces in the face of consumers' improved financial positions owing to improved financial capability, and consumers develop a greater understanding of the products and greater propensity to engage in more effective search, it is possible that the market would develop increased price competition as firms compete to win customers in a declining market. However, it seems at least as likely that some firms would instead seek to focus on the remaining pools of less capable consumers and seek to adapt pre-existing business strategies to increase profitability on those customers. Some of these strategies may in turn be affected by subsequent regulatory change or enforcement action by the relevant competition authority, in which case market participants may seek other means to safeguard profitability (such as targeted or general price increases). Whilst increased capability should reduce the average pay-offs to firms (or at least increase the uncertainty around the net pay-offs) this implies that such strategies would remain in the

market — and could even worsen for the least capable consumers. So whilst there could be an exit of such ‘bad’ firms, this would not be total.

This could lead to market exit of inefficient firms (bearing in mind that the extent of exit may be tempered by the reductions in risk of some consumers resulting in lower proportions of debt being written down) or possibly entry of more efficient firms that are able to offer innovative solutions, given the array of product characteristics along which firms compete. While the latter may *a priori* seem like a low probability scenario, it is worth noting that the CMA found that market entry has been observed regularly since 2008, with firms employing a variety of different entry strategies, including start-ups, firms entering by acquisition, entry by North American-based lenders, and diversification by lenders originally offering non-payday credit products. These patterns indicate that, historically, large numbers of lenders have managed to enter the market, and that a few lenders have been very successful in growing their businesses.

6.3 Insurance products

Insurance products are offered for a whole host of eventualities, some of which are mandatory, but most of which are optional. Our model considers two key insurance products that interact with the “life events” simulated in the modelling exercise, namely car insurance and home insurance (both buildings and contents insurance). For individuals in the FCS sample that already have life insurance, we also model the effect of improving financial capability on the premiums paid.

Modelling results

The results of the modelling show the following impacts on average insurance premiums following improved financial capability:

Table 6.4: Impact on premiums

	% change
Car insurance	-9.3%
Home insurance	-2.3%
Life insurance	-11.1%

The volume of insurance products taken out with respect to car insurance and home insurance is driven by the randomised life events (given certain conditions, such as the number of cars already owned). In the model, improvements in financial capability could improve an individual’s financial position so as to allow this individual to purchase a house or a car when they otherwise would not have been able to (i.e. in the counterfactual). However, this “volume effect” is marginal and the volume of homes purchased (and therefore the quantity of home insurance products purchased) is broadly constant in both the counterfactual and the policy scenario in which financial capability improves. As set out earlier in this report, this is somewhat grounded in reality rather than driven by modelling assumptions, as some form of car insurance is mandatory, as is structural insurance for mortgage holders. The volume of life insurance products taken out is exogenous and fixed in the modelling.

Therefore, drawing on the results of our modelling the immediate impact of improving financial capability on the supply-side is likely to materialise in the form of negative revenue impacts resulting from more capable consumers seeking out cheaper insurance premiums. (Volumes of insurance products are unchanged between the ‘policy off’ and ‘policy on’ scenarios).

Overall, therefore, as expected we see that the immediate knock-on effect of improved financial capability for insurers is a decrease in revenues. This could stem from consumers switching to other providers offering better deals or consumers obtaining better deals with their existing providers, most likely representing improved efficiency in the sector overall. Beyond these immediate negative revenue effects, the supply-side

response to improving financial capability and falling premiums is not clear. This will depend in large part on the competitive landscape and the evolution of price comparison websites which have become a key gateway to searching for and purchasing insurance products. Profitability in UK retail insurance is not high, i.e. at best, efficiency gains, from incumbents or new entrants, would be necessary to secure the scale of gains identified above. Such efficiency gains may include some job losses.

Insurance premiums

In 2014, the CMA conducted a market investigation into the private motor insurance market.¹⁰² The investigation found that the separation of cost liability (which lies with the at-fault party) and cost control (which lies with the non-fault party), in combination with various practices and conduct, gave rise to inefficiencies in the supply chain for the provision of post-accident services to non-fault claimants. These features of the market distorted competition and caused higher transactional and frictional costs in the management of non-fault claims than would otherwise be the case, ultimately increasing premiums, especially for higher-risk drivers. However, the CMA found that market participants had already developed some measures to address the transactional and frictional costs which arise due to separation, and were exploring further measures. Improvements in financial capability could lead to more effective search for insurance premiums, thus amplifying the speed with which the market moves to address the separation issues in order to reduce costs and therefore offer more competitive premiums.

In relation to the sale of “add-ons” (such as motor legal expenses insurance, windscreen cover, breakdown cover and no-claims bonus protection), the CMA found that there were information asymmetries between insurance providers and consumers, ultimately leading to consumers facing difficulties in comparing the price and terms of their chosen add-ons across different providers. These two features distorted competition by making it more difficult for consumers to identify the best-value offers in the market and to make informed purchasing decisions. On the one hand, improvements in financial capability could diminish this problem as consumers better understand the products they are purchasing. On the other hand, given the existing distortion to competition in this area, one possible supply-side response could be the proliferation of add-ons — if permitted — in a bid to combat increased price competition resulting from improved financial capability. Such innovations would be beneficial to society up to the point that the marginal benefit of an additional add-on equals the marginal cost associated with the additional add-on.

The nature of the remedies required by the CMA suggests that the former might result, and more financially capable consumers would be better placed to deal with complex products. Specifically, it was decided that remedies be introduced to improve information on no-claims bonus protection (where consumers’ lack of information was considered to be most acute) whereby insurers and brokers were instructed to provide information to consumers on the implied price of no-claims bonus protection, the average no-claims bonus discount according to the number of “no-claims bonus years”, and “step-back” procedures (i.e. what happens to the number of NCB years with and without NCB protection in the event of one or more claims).

Price comparison websites

As mentioned above, a key component of the competitive landscape in insurance is the interaction between insurance providers and price comparison websites (PCWs). This is pertinent because the use of price comparison websites is an important enabler of more effective search (and/or reduced search costs). The CMA found that “wide” most-favoured nation (MFN) clauses, which restrict insurance providers’ ability to set different prices on different sales channels, were a feature of the PCW market which limited competition, giving rise to an adverse effect on competition. In particular, the softening of price competition between PCWs with regard to their services to insurance providers due to wide MFN clauses was likely to lead to less entry, less innovation and higher commission fees, all leading to higher insurance premiums. The prevalence of such clauses could in principle limit the effectiveness of improved financial capability. However,

¹⁰² CMA (2014) “Private motor insurance market investigation: Final report”.

the outcome of the CMA’s market investigation was the prohibition of wide MFN clauses as well as behaviour which seeks to replicate the anticompetitive effects of wide MFN clauses.

In addition, the FCA’s recent study of the use of price comparison websites in the general insurance sector found that PCWs did not present sufficient product information in a clear and consistent way, to ensure consumers were given appropriate information to allow them to make informed decisions. In particular, while PCWs provide choice in the number of providers and products available, they had not always taken reasonable steps to ensure consumers had the appropriate information to allow them to make informed choices. Further, PCWs did not make clear their role in the distribution of the product or the nature of the service they provided. In the light of these findings, the FCA expected PCWs to commit to numerous actions designed to ensure that consumers are not disadvantaged by their use of PCWs.

Overall, therefore, we might expect the regulations imposed on the PCW market coupled with improved financial capability to lead to greater competition in the insurance market. This could lead to persistence in the lower premiums observed in our modelling (see Table 6.4); however, the extent to which premiums continue to decrease beyond these levels may be more limited given the reasonably competitive nature of the market, i.e. limiting further efficiency gains, and the relatively large proportion of consumers that are actively engaged in the market.

6.4 Investment products

Investments may take a number of different forms, including, for example, investments in equity, bond, and real estate markets. Individuals may undertake some of these investments directly themselves, or indirectly. In the latter case, this could be through funds provided to a fund manager to undertake investments on behalf of retail investors (such as an Investment Trust), or wages contributed to a pension pot which a pension fund manager then invests in a bid to grow the pension.¹⁰³ Individual investments will face some combination of systematic risk and specific risk which could lead to an outcome that is positive or negative. However, investors generally seek to diversify their portfolios to eliminate the effects of idiosyncratic risks — hence, in part, the appeal of investment funds, which have an element of diversification built-in. Our model considers pension investments and non-pension investments (which may cover any of the range of investment products available).

Modelling results

The returns earned on investments would reasonably be independent of — or at least not completely dependent on — financial capability. The selection of investments is inherently difficult, with past performance not being a good guide to future performance. This is one important reason why the financial advisory industry exists. However, as explained earlier in this report, financial capability may directly be linked to the fees paid by consumers to access certain investments, e.g. the understanding of the cumulative impact of such fees on the net returns achieved. Our quantitative modelling finds that improving financial capability by one notch on the FDMI has the following effects on average fees paid for pension and non-pension investments:

Table 6.5: Impact on fees

	Counterfactual	Improved financial capability	% change
Investment fees	0.94%	0.92%	-2.1%

Source: Europe Economics.

¹⁰³ An Independent Financial Adviser could provide advice as to which products to invest in, and also additionally provide portfolio management services. The most self-directed consumers may choose to undertake more of the responsibility personally, e.g. investing in a Self-Investing Pension Plan, or selecting investments for an ISA account say.

This could be interpreted as increased investor interest in passive and exchange-traded funds, which typically have low management fees. It is also worth noting that the Financial Conduct Authority's reforms in the retail investment arena should make it easier for consumers to identify and to compare the costs of their retail investments.

Holding all else constant, the immediate impact of improved financial capability among consumers in our model would be a shift in revenues from certain pension providers and non-pension investment providers to lower total revenues for other providers that offer better value for retail investors (i.e. consumers in our set-up). Overall, for a given volume of funds invested, industry revenue would fall, though efficiency (in aggregate) may increase.

However, improving financial capability leads to better decision making in a number of regards which in many cases would mean that consumers have more money available to invest in their pensions and in other investments.

Table 6.6: Impact on volumes and revenues

	Average annual proportion of consumers using product 'policy off'	Average annual proportion of consumers using product 'policy on'	% change
Non-pension investments	83.0%	89.7%	6.7%

Source: Europe Economics.

Note: We do not include pension investments in the table above, because under the new workplace pension scheme, all individuals in employment would be required to contribute to a pension, so there would be no change in the average annual proportion of consumers contributing to pensions as a result of changes in financial capability.

Overall, therefore, we see that average fees being charged to consumers would fall as a result of improved financial capability, but funds being invested would increase which would likely result in an overall increase in revenues for investment firms given the magnitude of this increase. Any potential supply-side effects beyond this immediate impact would depend on a) the competitive environment in which these investment firms operate, and b) the implications of having "more money in the system" for these firms.

Pension annuities

At the end of 2014, the FCA published its final report for a study on the retirement income market.¹⁰⁴ The FCA found that competition in the retirement income market was not working well for consumers. One key aspect was that consumers have been missing out on a higher income by not shopping around for an annuity, and some do not buy the best annuity for their circumstances. Consumers were found to have been deterred from engaging with their options by the length and complexity of provider wake-up packs, or because they did not believe the sums involved make shopping around worthwhile. However, we might expect this effect to be negated to some extent by the improvement in financial capability.

Nonetheless, the FCA had other concerns. It found that consumers had a tendency to buy annuities from their existing provider which weakened competitive discipline in this market. In particular, incumbent providers were under less pressure to offer competitive vesting rates, and challenger firms also found it difficult to attract a critical mass of customers.

On this basis, we might expect dominant incumbent firms to "win" the majority of the new money available for investment as a result of improved financial capability. This might mean that there is a more limited impact on innovation, service quality and fees. With regard to the latter, if demand increases then fees may actually be expected to increase.

¹⁰⁴ FCA (2014) "Retirement income market study: Final report — confirmed findings and remedies".

However, the FCA noted that supply chain innovation is expected to manifest in the near future in the following ways:

- Direct to consumer (D2C) business models: There continues to be a move (particularly by life insurance providers) towards D2C being developed. Many of these are online combined with telephony support, although some firms are developing primarily telephone based or online only solutions. Many D2C propositions include supporting guidance, decision trees, tools and calculators designed to help customers make an informed decision.
- Digital customer engagement: Firms are continuing to look to enhance their engagement and education of customers and online continues to be the default option for most firms.
- Retirement advice: An increasing amount of firms (including life insurance providers and banks) are deploying or planning to develop solutions that offer a personal recommendation for more mass affluent or mass market customers in the retirement income market. These solutions include simplified advice solutions, some of which are entirely online journeys.

The FCA noted that these developments may not all be positive. In particular, in anticipation of new products to emerge, despite the increased flexibility offered to consumers, the FCA considered that there is a risk that greater choice and more complex products will reduce consumer confidence and appetite to shop around, thereby weakening competitive pressure.

On the one hand, therefore, it is possible that financial capability could help to increase competition leading to a more efficient market with lower, cost-reflective fees, because more financially capable customers would be able to overcome some of the product complexity issues identified by the FCA. On the other hand, the limited competition in the market in conjunction with a proliferation of products could limit the effect of improved financial capability with respect to choice of pension products (though improvements in other areas could still mean that more money is contributed to pension pots). However, with regard to the latter there have been policy initiatives and remedies to address the identified concerns (such as the introduction of Pension Wise, automatic transfers, mandating the provision of annuity quotation comparisons, etc.). These policies may mean that the supply-side effect would be a shift to a more efficient industry.

Funds for investment

As mentioned above, the supply-side response that may be expected would also depend on the extent to which funds made available for investment changed. A wide variety of academic studies attempt to shed light on the effects on financial services firms of having more funds to invest. Overall, it has generally been found that economies of scale do exist, but these are smaller the larger the size of the fund.¹⁰⁵

Therefore, while there may be benefits for pension funds and non-pension investment firms from the increased flow of money to invest with regard to their cost structure, concerns about the competition in the sector could mean that fees are not cost-reflective and do not decrease as might be expected in a competitive market. However, the improvements in the financial capability of consumers may encourage the development of competition as consumers seek out more profitable net returns on their investments (i.e. after taking into account fees). This could therefore multiply the benefits in terms of efficiency gains because a more competitive sector in the face of greater volumes of money available for investment could be in a position to take advantage of economies of scale which would then be passed on to retail investors, i.e. consumers in the form of reduced fees.

¹⁰⁵ See, for example: Bikker (2013), Hernandez and Stewart (2008), Dyck and Pomorski (2011) or Bauer et al. (2010).

6.5 Concluding thoughts on supply-side effects

From the above discussion it is apparent that a clear quantitative finding is beyond the scope of this project to produce. It is likely not even possible without making heroic assumptions and simplifications about the future strategies of market participants.

Our model indicates increased demand for particular types of product, e.g. in investment and savings. However an increased emphasis on price competition is also implied by our analytical framework across all financial services, at least to the extent that more financially capable consumers are a significant component of their demand. We have identified above how some market participants might seek to use particular strategies in order to safe-guard profitability in such a changed market context, and that — at least under set circumstances and in particular cases — some firms may focus on increasing profitability by targeting less capable customers. In turn this may trigger regulatory action, in which case market participants may seek other means to safeguard profitability (such as targeted or general price increases) — or they may seek to safeguard profitability through increased innovation in terms of products offered and/ or in service delivery (e.g. strategies aimed at cost reduction).

Another possibility is the potential impact that enhanced capability could have on the scope for mis-selling. Any such impact would be dependent upon the nature and — particularly — the distribution of the improvement in capability, e.g. everyone somehow attaining some minimum level of capability or a generalised uplift. Increased capability across the UK population should not be expected to eliminate mis-selling (particularly if that improvement in capability is of the more generalised sort). Mis-selling can be caused in various ways: it is not simply due to sales or advisory staff with incentives ill-aligned to the interests of the consumer. If the product or service is not sufficiently straight-forward and simple either in its design or the way in which it operates, an adequate description of it is unlikely to be achieved. In either case, the customer is likely to end up disadvantaged through a product they did not need or did not fully understand. Enhanced capability may only help at the margin here by reducing but perhaps not eliminating information asymmetries — and could even, without regulatory intervention, simply lead to more complex and obscure product descriptions.

This leads to a final thought, namely whether greater availability of ‘simpler’ products could have an equivalent impact as improved capability. Whilst full analysis of this is outside the scope of our work, we believe it likely that the right kind of simpler, e.g. a product or service fulfilling well a customer’s need without exposure to unknowable adverse outcomes, could help in those areas where such products can be found or innovated — but would not fully substitute for growing the financial capabilities of UK citizens.