FINANCIAL LITERACY AND THE USE OF ALTERNATIVE FINANCIAL SERVICES: A BEHAVIOURAL PERSPECTIVE

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Thesis submitted to the University of Ottawa
in partial fulfillment of the requirements for the
Master's of Science in Management

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ABSTRACT

The extensive literature on financial literacy has sought to explain financial behaviours and decisions. On the asset side of the balance sheet, financial literacy is associated with good financial practice and wealth accumulation. On the liability side, however, the contribution of financial literacy to individuals' financial decisions is not entirely clear. To add to this literature, as well as that of behavioural finance and alternative financial services, this research develops a conceptual framework based on Ajzen's (1991) theory of planned behaviour (TPB). This framework links individuals' attitudes to financial matters, subjective norms, perceived feasibility, financial knowledge, and behavioural biases that include overconfidence and present bias on the decision to obtain high-interest loans. The empirical tests of the developed framework suggest that individuals in distinct socio-economic groups have different antecedents that lead to borrowing from alternative financial services. For instance, individuals from low-income households are more likely to obtain these loans if they: do not have access to other forms of credit; struggle to pay their bills; are unemployed; or do not have access to advice from finance professionals. In turn, individuals from high-income households are more likely to obtain these loans if they lack financial knowledge or have behavioural biases like overconfidence or present bias. These results suggest the importance of access to professional advice while ensuring access to traditional means of obtaining credit for low-income individuals in order to reduce the negative effects of these high-interest loans. The results also confirm the importance of current policy initiatives to implement basic finance education in public school curriculums, and the urgency to seek effective approaches to address individuals' cognitive assumptions.

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1 INTRODUCTION

Recent trends have escalated the importance of financial knowledge for everyone. For instance, due to the shift from defined-benefit employer-sponsored retirement plans to defined-contribution plans, the emergence of the *gig* economy and the multitude of complex financial products available, individuals are increasingly responsible for their finances in both the short- and the long-term[1]. In addition, it has been consistently reported that the general level of financial knowledge in developed countries is insufficient. For instance, Nicolini, Cude, and Chatterjee (2013) found that Canadians, Americans, British, and Italians typically obtain a result of 60% on financial quizzes (see Table 1.1). Consequently, the combination of the *financialisation* of society and that of low levels of financial literacy can lead to poor financial decision-making.

Table 1.1 Financial knowledge index across four countries

	US	**UK**	**Canada**	**Italy**
Variables (Quiz)		Correct answer		
Question 1 - Investment	22.24%	35.21%	59.79%	33.48%
Question 2 - Credit	71.10%	70.92%	81.68%	66.41%
Question 3 - Inflation	65.86%	44.76%	61.71%	72.55%
Question 4 - Money management	65.76%	91.00%	57.16%	60.38%
Financial knowledge index mean (SD)	2.25 (1.14)	2.42 (0.98)	2.60 (1.28)	2.33 (1.19)

A robust growth in literature focusing on financial literacy has emerged to examine the impact financial knowledge has on finance-related decisions. This literature stream has found empirical evidence that financial knowledge is positively associated with asset-building behaviours, such as saving for an emergency fund or investing for retirement. For a meta-analysis

[1] Bay, Catasús, and Johed (2014) identify this trend as the *financialisation* of society. This, according to the study, moves in tandem with the financial literacy movement. Some studies, Arthur (2011), among others, challenge the financial literacy movement. They claim it promotes *financialisation* and, as a result, transfers socio-economic risks to individuals. On the other hand, others argue, such as Kim, Anderson, and Seay (2018), that financial literacy can be welfare improving as individuals make better decisions when they are informed.

of this see Miller, Reichelstein, Salas, and Zia (2015). The empirical evidence with respect to debt behaviour, such as borrowing from alternative financial services (AFS), however, yields mixed results[2]. Some argue, for example Bond (2016) and Lamb (2016), that AFS borrowing could work as a viable option for individuals' liquidity needs. Other researchers maintain that a cash shortage or financial difficulties may not be an apparent motive for many individuals' reliance on AFS (Disney & Gathergood, 2013; Lusardi & de Bassa Scheresberg, 2013; Robb, Babiarz, Woodyard, & Seay, 2015). The latter claim that individuals who obtain AFS loans for reasons other than liquidity needs could either be financially unknowledgeable, i.e., they do not understand how expensive these loans are, or they have cognitive biases, i.e., they incorrectly assess the value proposition of these loans. Accordingly, shedding additional light on this ongoing debate in the literature is one motivation for this study.

Research on AFS is also important for policy development and implementation. The AFS industry has been criticised for perpetuating a cycle of poverty as frequent borrowers can end up paying more in interest and fees than the principal they originally borrowed thus effectively multiplying the size of the loan in a short period of time. The industry enjoys considerable leeway with respect to the fees it can charge, the information it must disclose, and the practice of renewing loans with additional fees (known as *rollovers*). This allows the industry to charge such high interests and fees, and it also draws the attention of policymakers. In order to justify their intervention in the industry, however, policymakers need more conclusive evidence about the antecedents that steer individuals into AFS borrowing, i.e., whether it fills individuals' liquidity

[2] The AFS sector offers high-cost, short-term loans to consumers. Traditional borrowing methods' annual percentage rate (APR) depends on the applicant's credit score. Credit scores, however, are not required for AFS loans (Harvey, 2019). Under an AFS agreement, such as payday loans, the cost of borrowing is fixed for every dollar borrowed. For example, AFS providers often advertise $200 for $20, meaning every borrowed dollar costs $0.10, but over a short time horizon that is typically two weeks in duration, such arrangement represents an APR of 260% (excluding compounding). Section 2.4 discusses AFS loans in greater depth and demonstrates that the APR on an AFS loan can reach 1800%, depending on the arrangement.

needs or takes advantage of their lack of knowledge and cognitive bias. This study, along with being one of the first Canadian studies on AFS, is also among the first to examine factors influencing individuals' attitudes to financial matters and subjective norms[3].

To identify these antecedents, we develop a conceptual framework based on Ajzen's (1991) theory of planned behaviour (TPB) to analyse the linkages between an individual's financial situation, attitude towards finance, financial advice, financial knowledge, and behavioural biases, including overconfidence and present bias, regarding the decision to use AFS borrowing[4]. One of the notable findings of this study is that antecedents of AFS borrowing differ among individuals in different socio-economic situations: individuals from low-income households are more likely to obtain these loans if they: do not have access to other forms of credit; struggle to pay their bills; are unemployed; or do not have access to advice from finance professionals. In contrast individuals from high-income households are more likely to obtain these loans if they lack financial knowledge or have behavioural biases like overconfidence or present bias. These findings provide

[3] To the best of our knowledge, the only paper that investigated alternative financial services in Canada is that of Lamb (2016). While Lamb's contribution to the literature is important, her sample is not representative of the Canadian population.

[4] The theory of planned behaviour (TPB) was not developed specifically for the use of AFS. Rather, the TPB is a widely used theoretical model that predicts one's intention with respect to undertaking a particular behaviour. It has been used to predict the use of seatbelts, quitting smoking, weight loss, etc. To the best of our knowledge, the only paper that investigated the use of alternative financial services through the lens of the TPB is that of Godwin (2003). Godwin examines whether the TPB can predict the use of refund anticipation loans (RAL — a type of AFS service outlined in Section 2.4.6 of this paper) among low-income consumers. Although he did not find conclusive evidence that the TPB predicts the use of RAL, the data he utilised, i.e., a database from a professional tax franchise, limited his findings due to the small sample size ($N = 100$) and there was unattested measurement of TPB motivation sources. Other researchers have used the TPB to predict retirement planning (Kimiyaghalam, Mansori, Safari, & Yap, 2017), and to establish the likelihood of completing debt repayment (Xiao & Wu, 2008).

additional insight regarding the debate as to whether AFS responds to individuals' needs for liquidity or if it exploits them by taking advantage of their lack of knowledge or their cognitive bias. This suggests a possibility that both arguments hold but for different socio-economic groups. These findings could help policymakers to contemplate better policy initiatives and regulatory approaches to limit predatory practices.

These findings also contribute to three distinct literatures. First, it contributes to the literature on financial literacy by providing evidence that debt-related behaviour can be driven by financial illiteracy. Second, it adds to the behavioural financial literature by providing evidence that suboptimal decision-making caused by behavioural biases also applies to debt-related behaviours. Third, it provides the alternative financial services literature with evidence that (1) the AFS industry is not a necessary service; and (2), that low-income consumers are more likely to borrow if they are unemployed.

This paper is structured as follows. Section 2 provides a review of the literature on: (1) the definition of financial literacy and its effect on financial behaviour; (2) the effects of overconfidence on financial behaviour; (3) the effects of present bias on financial behaviour; and, (4) the AFS industry, its externalities and the antecedents associated with its use. Section 3 presents the theoretical framework as well as the hypotheses put forth by this research. Section 4 presents the data and methodology, followed by the empirical results discussed in Section 5. Findings are then reviewed in Section 6 and tested for robustness in Section 7. Section 8 provides concluding remarks. Lastly, Appendix 1 (Section 9.1) summarizes acronyms used in this study and Appendix 2 (section 9.2) considers other decision making theories, their compatibility to TPB and applications to individuals' use of AFS.

2 REVIEW OF THE LITERATURE

2.1 FINANCIAL LITERACY DEFINITIONS AND FINANCIAL KNOWLEDGE

There is no consensus regarding the definition of financial literary among academics, practitioners, and economic organisations. A comparison of the definitions adopted by different researchers and organisations is outlined in Table 2.1. The comparison identifies that: (1) financial literacy is a necessary foundation for adequate use of monetary resources and for prudence with respect to financial products; and that, (2) three basic elements that collectively form the construct of financial literacy are financial knowledge, attitudes, and behaviour. Financial knowledge relates to a cognitive component and refers to the understanding of financial concepts, such as compound interest and risk diversification. Attitudes relate to the affective component such as enjoying personal finance management[5]. Behaviour relates to the dynamic component such as financial decision-making, which is underlain by financial knowledge, attitudes, social opinions, and perceived feasibility. Accordingly, we define financial literacy as: a foundation, which is bounded by financial knowledge, attitudes and behaviour, which are necessary to use monetary resources adequately and to be prudent in the utilisation of financial products.

Prior research investigated the relationship between financial knowledge and finance-related behaviours, since individuals who are more financially knowledgeable presumably make better financial choices. The research findings establish that the following behaviours are positively associated with financial knowledge:

- Having an emergency fund (de Bassa Scheresberg, 2013; Kim, Anderson, & Seay, 2018; Lin et al., 2016)
- Spending less money than what is earned as income (Kim et al., 2018)
- Having no overdrafts (Kim et al., 2018)
- Having savings (de Bassa Scheresberg, 2013; Miller et al., 2015)

[5] According to Ajzen (1991, p. 188), an attitude is the "degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question".

- Record keeping (Miller et al., 2015)
- Having less debt (French & McKillop, 2016; Lusardi & Tufano, 2015; Norvilitis, Merwin, Osberg, Roehling, Young, & Kamas, 2006)
- Investing for retirement (Allgood & Walstad, 2016; Atkinson, Messy, Rabinovich, & Yoong, 2015; Boisclair, Lusardi, & Michaud, 2017; de Bassa Scheresberg, 2013; Kim et al., 2018; Lin et al., 2016; Miller et al., 2015)
- Utilising lower-cost financing solutions (de Bassa Scheresberg, 2013; Disney & Gathergood, 2013; Huston, 2012; Lin et al., 2016; Lusardi & Tufano, 2015)
- Lower odds of defaulting on a loan (Miller et al., 2015; Urban, Schmeiser, Michael Collins, & Brown, 2018)
- Having high credit scores (Urban et al., 2018)
- Portfolio diversification (Abreu & Mendes, 2010)
- Seeking financial advice (Allgood & Walstad, 2016; Collins, 2012)
- Lower odds of using interest-only mortgages (Gathergood & Weber, 2017; Seay, Preece, & Le, 2017).

Table 2.1. The definitions of financial literacy found in the literature

Author	Definition of Financial Literacy
Lusardi and Mitchell (2013, p. 2)	People's ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt.
Clark (2014, p. 2)	Knowledge and understanding of the financial products and services relevant to the issues that people must deal with in their everyday lives.
Organisation for Economic Cooperation and Development (OECD INFE, 2011, p. 3)	A combination of awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being.
Lin et al. (2016, p. 1)	A multidimensional concept that encompasses a combination of knowledge, resources, access, and habits.

Researchers also found that financial knowledge is positively associated with: higher levels of education (Boisclair et al., 2017; de Bassa Scheresberg, 2013; Drolet, 2016; Lin et al., 2016); income (Boisclair et al., 2017; de Bassa Scheresberg, 2013; Drolet, 2016; Lusardi & Mitchell, 2013); and age (Boisclair et al., 2017; de Bassa Scheresberg, 2013; Drolet, 2016; Lusardi & Mitchell, 2013)[6]. An association between gender and financial knowledge was also observed: men are more likely than women to be financially knowledgeable (de Bassa Scheresberg, 2013; Drolet, 2016; Lusardi & Mitchell, 2013; Lusardi & Tufano, 2015; T-Rowe Price, 2017).

Given the benefits of financial knowledge, several Canadian provinces and American states began updating their school curricula by incorporating financial subjects into courses, mainly in mathematics, attempting to increase levels of financial knowledge among the next generation of students. Marr (2016) reviews the school curricula in ten Canadian provinces and finds that British Columbia incorporates financial literacy in classes from kindergarten to grade 12, and that Manitoba, Nova Scotia and Prince Edward Island include one high school compulsory course that contains financial topics. In the United States, Pelletier (2017) reviews the policies of all 50 states and reports that Utah, Missouri, Virginia, Tennessee and Alabama require their students to successfully complete a personal finance course for a high school degree, and that another ten states require schools to cover finance-related subjects as part of a broader course. This translates to about 16% of American high school students being exposed to the subject of personal finance (NGPF, 2018).

2.2 BEHAVIOURAL BIAS: OVERCONFIDENCE

Overconfidence is a behavioural bias that potentially interferes with one's decision-making. Moore and Healy (2008) identify three distinct ways in which the research literature defines overconfidence: (1) the overestimation of one's actual abilities; (2) the over-placement of one's performance ranking relative to others; and, (3) over-precision in the accuracy in one's belief.

[6] Financial knowledge increases incrementally with age until the threshold age of 65, where financial knowledge starts declining (Drolet, 2016).

Moore and Healy (2008, p. 502), as well, provide empirical evidence on overestimation and over-placement, which they summarised as follows:

> On difficult tasks, people overestimate their actual performances but also mistakenly believe that they are worse than others; on easy tasks, people underestimate their actual performances but mistakenly believe they are better than others.

These findings are consistent with those of Kruger and Dunning (1999): people tend to overestimate their abilities when they are ignorant in a given field whereas experts in a given field tend to underestimate their abilities.

In the context of personal finance, researchers measure overconfidence based on the difference between subjective and objective financial knowledge (de Bassa Scheresberg, 2013, among others; Drolet, 2016; Lusardi & Mitchell, 2013). The former is measured using a Likert scale in which the individual self-assesses his or her level of financial knowledge, whereas the latter uses the result the individual obtained on a financial quiz. Drolet (2016), using the data from the Canadian Financial Capability Survey, finds evidence of overconfidence as about 25% of male and 33% of female respondents who rated themselves as knowledgeable were not knowledgeable as they correctly answered only 50% or less of the 14 quiz-form questions. On the other hand, about 25% of respondents who reported a lack of confidence in their financial knowledge had a good financial knowledge as they correctly answered 79% or more on the 14 questions, regardless of gender. These are consistent with the findings of Kruger and Dunning (1999): the *ignorant* respondents overestimated their knowledge while the *knowledgeable* respondents underestimated their knowledge.

Furthermore, overconfident individuals often overlook advice from external sources because they place excessive trust on their own knowledge and abilities. Collins (2012) finds that objectively financially knowledgeable individuals rely on both their own views as well as those of financial professionals. Kramer (2016), in turn, finds that individuals who are overconfident in their financial knowledge are less likely to seek professional advice. In other words, the likelihood

of obtaining a second opinion is much lower for overconfident individuals than for those who are unbiased regarding their confidence, which can result in suboptimal decisions. Seay et al. (2017), for instance, find that for every one-unit increase in perceived financial knowledge increases the likelihood of using interest-only mortgages by 13%. Nitani, Riding, & Orser (2019) and Robb et al. (2015), on the other hand, find that the use of AFS is frequent among overconfident individuals — even when controlling for financial difficulties (Robb et al., 2015). These behaviours are consistent with Asaad's (2015, p. 101) warning that overconfident individuals "have a higher propensity to engage in risky financial behaviours".

Lastly, overconfidence is not a new phenomenon. It was documented by Adam Smith (1776, p. 164), who was prescient in his discussion of the negative aspects of overconfidence that arise from relatively recent concepts of behavioural finance:

> The over-weening conceit which the greater part of men have of their own abilities, is an ancient evil remarked by the philosophers and moralists of all ages. Their absurd presumption in their own good fortune, has been less taken notice of. It is, however, if possible, still more universal. There is no man living who, when in tolerable health and spirits, has not some share of it. The chance of gain is by every man more or less over-valued, and the chance of loss is by most men under-valued.

2.3 BEHAVOURAL BIAS: PRESENT BIAS

In addition to overconfidence, there is another behavioural bias that can distort individuals' rational decisions: present bias. Newell, Lagnado, and Shanks (2007, p. 147) state "the fact that immediate rewards can often have an excessive pull on our behaviour leads to many highly undesirable behaviours". They consider the paradox of addiction to smoking. In the long term, smokers prefer not smoking than smoking. But in the short-term, smokers prefer smoking rather than not smoking. Such individuals are thought to have some form of present bias as they place greater weight on immediate reward, i.e., enjoyment from smoking, than the delayed reward i.e., better health. They may also overestimate the costs, i.e., psychological stress, that is associated with stopping smoking when they do so in an immediate fashion, but underestimate such costs when they plan to do so in the future.

In regards to personal finances, present bias, which is also known as future discounting, short-termism and hyperbolic discounting, is associated with liability burdens because debt allows people to obtain immediate rewards, i.e., consumption of desirable goods or services, at the expense of future consumption or debt burden. It should be noted that in certain situations the desirable behaviour would be to avoid debt and to set money aside for the future. Clark (2014, p. 6) argues that "saving for the future typically requires discounting current consumption in favour of future welfare in circumstances in which current consumption may have strong emotional and social value". With respect to the paradox of addiction, the strong emotional or social value attached to a certain action may tip the scale towards short-term, immediate rewards. Garoarsdóttir and Dittmar (2012) provide evidence that the amount of debt can be linked directly to materialism. Gross and Souleles (2002) find that increases in credit limits on credit cards generate an immediate and significant rise in debt: incremental access to credit incentivises individuals to obtain more immediate rewards. Existing research found that present-biased individuals are more likely than those who are not to hold credit card debt (Meier & Sprenger, 2010), have an interest-only mortgage (Gathergood & Weber, 2017), and to simultaneously hold low-yielding short-term savings and expensive consumer debt (Gathergood & Weber, 2014).

Barbić, Lučić, and Chen (2019, p. 110), in this context, state that "[financial] knowledge by itself is not enough; the right attitudes make the actual difference". To support this argument, the positive association between the use and availability of debt, as described above, are also observed among financially knowledgeable individuals (see Gathergood & Weber, 2014). Gathergood (2011) and Ottaviani and Vandone (2018) find that while both financial knowledge and impulsivity are associated with debt burdens when each is considered separately, the effect of financial knowledge vanishes when both are simultaneously included in their models. Kaiser and Menkhoff (2017), furthermore, studied the effects of financial education, i.e., the process of obtaining financial knowledge. They find that "the effects on improving savings or budgeting behaviour are much larger in magnitude than on borrowing" (2017, p. 627). In other words, improving debt-related behaviours are more challenging than saving-related ones. All of these studies suggest that emotional and behavioural biases, i.e., present-bias manifestations, can mitigate the effects of financial knowledge on behaviours.

While many studies have investigated the impact of financial knowledge, overconfidence, and present bias on finance-related decisions and behaviours, there is a dearth of theory utilised to develop a thorough conceptual framework that demonstrates the mechanisms through which they affect behaviours. This study addresses this gap in the literature using the AFS loan borrowing as an example of a finance-related behaviour.

2.4 ALTERNATIVE FINANCIAL SERVICES

As its name suggests, alternative financial services (AFS) differ from the financial services typically found in banks or credit unions. Birkenmaier and Fu (2016) identify two categories of services offered by these alternative institutions: cash-related services and financing-related services. Although financing-related services have received more attention in the literature, both service types are subject to the debate as to whether AFS appeals to consumers who have behavioural biases, such as impulsivity (Gathergood, 2011) or overconfidence (Nitani et al., 2019; Robb et al., 2015), or if it helps consumers who "do not have convenient access to a lower-cost source of credit and want or need to make an expenditure for which they do not have sufficient cash on hand" (Caskey, 2010, p. 6) (see Section 2.5). In either case, the AFS industry has been criticised for charging "higher interest rates than those charged by banks, credit unions, or credit card companies" (Lin et al., 2016, p. 25) as well as the additional service fees, due to high fixed costs and the high risk of default (Bond, 2016).

While the Criminal Code of Canada defined a criminal rate of interest as an effective annual rate of interest exceeding 60%, there is a non-application clause if: (1) the loan size is less than $1,500; (2) the term of the loan is 62 days or less; and, (3) the institution is licensed or authorised under the law of a province (Minister of Justice, 2019). As for the United States, each state implements its own usury law to limit the interest rate chargeable to the public. However "companies typically have the benefit of being able to charge interest rates that are allowed by the state where the company was incorporated rather than follow the usury laws that apply in the states where borrowers live" (Kenton, 2019). In addition, Birkenmaier and Fu (2016, p. 451) recognise that the "lack of federal regulation over much of the AFS sector has allowed growth in the industry and expansion of products and services with less regard for nationally standard consumer protections". Essentially the AFS industry has considerable leeway in both countries.

A commonly used practice in the AFS industry is that of loan rollovers, which involves "paying additional fees to roll over a loan and re-borrowing within a given time period after repaying a loan" (Burke, Lanning, Leary, & Wang, 2014, p. 7). Essentially, a consumer can obtain another AFS loan after paying an outstanding loan. In some jurisdictions a consumer can roll the loan over. This has the consequence of making AFS loans a long-term solution in the event a consumer must repeatedly renew the AFS loan. The issue is that the practice of AFS loan renewal remains unrecognised as a criminal interest rate, because the series of short-term loans complies with the non-application clause. As a result, alternative financial service providers can legally charge triple digit APR on *long-term* loans using the practice of loan renewal. To address this issue, authorities restricted AFS loan renewal in six Canadian provinces (Financial Consumer Agency of Canada, 2017) and 13 American states (Burke et al., 2014), while payday loans are banned in at least 15 additional states in the United States (Bourke, Horowitz, & Roche, 2012). The next section's discussion describes the mechanisms of six major forms of AFS services.

2.4.1 Cash-related AFS: Cheque cashing

Cheques can be cashed at traditional banks or credit unions for minimal fees; an individual can register for a basic bank account in Canada for a monthly fee of under $4.00 (Law Commission of Ontario, 2008). However, banks and credit unions have cheque hold policies in place to assure that: (1) the person or company who wrote the cheque has enough money to cover it; (2) the person or company who wrote the cheque has not put a stop payment on it; (3) the details with the cheque were not altered; and, (4) the account on which the cheque was written is still open and has not been closed (Financial Consumer Agency of Canada, 2019). Individuals who can not wait for the four to eight day delay can use cheque-cashing services for a flat fee of $3.00 plus a charge calculated as a percentage of the cheque of 2.49% to 2.99% (Law Commission of Ontario, 2008).

2.4.2 Financing-related AFS: Payday loans

According to the Consumer Financial Protection Bureau (2016), payday loans are short-term loans typically due on the borrower's next payday. With a median fee of $15 per $100 borrowed, a median loan term of 14 days, and a median loan of $350, the annual percentage rate (APR) is 391%. The Consumer Protection Financial Bureau (2014) finds that more than 80% of payday loans taken out by borrowers were re-borrowed (or rolled over) within 30 days, incurring

additional fees with every renewal. As a result, the average borrower takes on eight loans per year, spending about $520 on interest with an average loan size of $375 (Bourke et al., 2012).

2.4.3 Financing-related AFS: Pawn loans

Pawn shops operate three activities: selling goods, buying goods, and issuing short-term loans using goods as collateral. The first two activities are straightforward, as pawn shops resell goods they buy expecting to make a profit. As for the third activity, individuals can bring their qualified belongings, such as jewellery or electronics, and use them as a collateral to obtain a 30-day loan (Cash Canada, 2019). When the loan is paid in full the belonging is returned to its owners, whereas it is kept by the pawn shop for resale in the event of default on the loan. Pawn loans cost $30 ($5 interest plus a $25 storage fee) per $100 borrowed (Cash Canada, 2019), which translates to an APR of 360%.

2.4.4 Financing-related AFS: Rent-to-own transactions

Rent-to-own transactions, also known as lease-to-own, rent-to-buy, or consumer leases, are plans offered generally for big-ticket items like furniture, appliances, and cars (Financial Consumer Agency of Canada, 2018). Under such a plan, a consumer leases an asset in exchange for a series of payments and becomes the owner once the plan's conditions are met, i.e., the sum of all payments exceeds the value of the asset. Although a rent-to-own agreement grants consumers the option to return the asset, they pay a substantive premium for this privilege. In addition, it costs two to five times more than buying an identical assets at its regular retail price (Financial Consumer Agency of Canada, 2018).

2.4.5 Financing-related AFS: Auto title loans

Auto title loans, which are also known as car title pawn, car title loans, title pledge loans, or motor vehicle equity lines of credit, are loans secured by a lien on the title of the borrower's paid-for car (Fox & Guy, 2005). Lenders loan up to 55% of the vehicle's value for terms of 30 days with fees of $25 per $100 loaned and this translates to an APR of 300% (Fox & Guy, 2005). In the event of default, the lender will repossess the vehicle and return any proceeds, i.e., the remaining 45% minus fees,to the borrower.

2.4.6 Financing-related AFS: Refund anticipation loans

Under a refund anticipation loan (RAL) contract, a consumer is borrowing an amount today equal to the amount of refund he or she anticipates receiving in the near future, but that is minus interest and fees. Anticipated tax refund loans are the most common type in this category because the amount of tax refund can be accurately predicted for employed individuals. According to Fox and Wu (2006), these loans have a two-week duration and the cost to borrow $2,000 is about $215, which translates to an APR of 280%. Note, however, that the $215 includes: filing fees; the tax preparer's fee; and, the loan fee. As a result, the APR depends on the loan size and it can vary from 70% to 1800% (Fox & Wu, 2006).

2.4.7 Externalities of AFS

Existing research has identified that the above described AFS services are tied to negative effects:

i. **Impulsivity.** The ease of obtaining an AFS loan can lead to impulsive behaviours (see Gathergood, 2011). For instance, the higher density of alternative financial service counters was associated with greater use of these services (Friedline & Kepple, 2017), and a greater purchase of liquor (Cuffe & Gibbs, 2017). Others support the impulsivity created by AFS by finding that AFS consumers are not cash-strapped, as nearly one in three payday loan users repaid their loan using sources other than their paycheque (Financial Consumer Agency of Canada, 2016), and most payday loan users forgo these loans when supply is reduced (Bourke et al., 2012; Cuffe & Gibbs, 2017; Mckernan, Ratcliffe, & Kuehn, 2013).

ii. **Vicious cycle.** Payday loan usage leads to credit delinquency (see Agarwal, Skiba, & Tobacman, 2009). This is due to the fact that it is the payday lending company that cashes the individual's paycheque, leaving him or her with little or no liquidity on pay day, making him or her prone to use payday loans again (on rollover). Lamb (2016) denounces the AFS industry for: not helping individuals to improve their credit scores to qualify for less-expensive mainstream banking options; not offering developmental services that support long-term needs; and, not offering professional advice to help these individuals to develop savings and credit management habits. Consequently, AFS consumers accumulate debt over fees and end up paying more in interest and fees than the principal, which the industry calls a "debt trap" (see (Caskey, 2010)).

iii. **Unhealthy.** Use of alternative financial services was found to have negative health consequences for individuals. For instance, consumers using AFS services were found to have worse self-rated health than nonusers (Eisenberg-Guyot, Firth, Klawitter, & Hajat, 2018). Availability of payday loans also facilitates liquor consumption (Cuffe & Gibbs, 2017), increases the difficulty of paying essential living expenses — such as mortgage payments, rent, utility bills or child support — and increases the odds of delaying needed medical care, dental care, and prescription drug purchases (Melzer, 2011, 2018).

Given these negative externalities, some Canadian provinces and American states have implemented strict payday loan rules, such as an APR cap, restrictions on rollover and the number of loans per borrower, and allowance of multiple pay periods for borrowers to repay their loan, or to ban payday lending altogether (Bourke et al., 2012; Financial Consumer Agency of Canada, 2017).

2.5 RATIONALE FOR BORROWING FROM ALTERNATIVE FINANCIAL SERVICES

Despite its negative externalities, AFS still serves a significant portion of the population in North America (about 5.5% of the Canadian population and about 5.9% of the United States' population)[7]. Some researchers speculate as to the reasons why individuals use these expensive services — whether it is due to financial difficulties accompanied with inaccessibility to other sources of liquidity, out of ignorance, or out of behavioural biases. Despite the extensive literature on this subject, researchers have not yet reached a consensus in this regard (for a review see (Caskey, 2010)).

[7] In Canada, the Canadian Payday Loan Association (as cited by Financial Consumer Agency of Canada, 2016) reports that nearly 2 million Canadians use payday loans each year. The OECD (2019) recorded a population of 36,109,487 individuals in Canada for the civil year 2016. As for the United States, the Community Financial Services Association of America (as cited by O'Neill and Xiao (2015)) counts more than 19 million American households as payday loans users. The OECD (2019) recorded a population of 320,742,673 individuals in the United States for the civil year 2015.

The first group of authors explain that alternative financial services are used due to financial difficulties along with inaccessibility to other sources of credit. Martin and Keown (2017) state that consumers who make the decision to use AFS do so because the AFS is the only available source of cash or because alternative sources, such as Web-based borrowing and loan sharking, are even more costly[8]. This may be due to the lack of access to mainstream credit sources (Bond, 2016; Lamb, 2016), liquidity shocks (Morse, 2011), or income shocks (de Bassa Scheresberg, 2013; Kim & Lee, 2018; Pak, 2018)[9]. Bond (2016, pp. 28–29) claims that AFSs are useful financial services for "cash-strapped" individuals and illustrates this stance with the following example:

> Last month, the owner of the restaurant where Alice waitresses announced that the dining room would be renovated, a process expected to take a little more than a month to complete. Alice has been assured that her job is secure, but she now faces at least a month with a significant cut to her expected income while the restaurant is closed. She is concerned about how she will cover rent and utilities expenses in the intervening time, and wants to avoid further damage to her credit score caused by lapsed or missed payments. She opts to take out a 10-day, $400 loan at the payday lender outlet on her street with an interest cost of $84, judging the fees to be less expensive than the cost of reconnecting her utilities — which can exceed $100 where she lives — in the event of non-payment.

[8] According to Bond (2016), this applies to individuals who are either asset-limited, income constrained and employed (ALICE) or asset-rich and temporarily illiquid (ARTI).

[9] While de Bassa Scheresberg (2013), Kim et al. (2018), and Pak (2018) do not explain income shocks, they nonetheless include this variable in their statistical modelling and it is a statistically significant antecedent of the likelihood of payday loan, rent-to-own, and high-cost borrowing, respectively.

On the other hand, other researchers claim that alternative financial services are used by individuals who are unaware of the exorbitant fees tied to these services. This argument is supported by the observation of a significantly lower consumption of AFS when stores disclose the total cost of borrowing (Bertrand & Morse, 2011; Pak, 2018), and when a greater number of professional financial advisors are available to the public (Yerkes, Schirmer, & Finch, 2018). That is, information transparency — either through the form of disclosures or advice — allows consumers to make rational decisions as to whether an AFS loan is appropriate for them. However, when consumers have to rely on their own financial knowledge to assess the proposition of an AFS loan inadequate knowledge leads to suboptimal choices. Agarwal et al. (2009) find that two thirds of payday loan users have at least $1,000 of credit card liquidity on the day they obtained their loan. While the authors identify financial mismanagement as a likely explanation for this puzzling finding, a lack of knowledge about AFS could also be a possible factor as many researchers found evidence that financial illiteracy is positively associated with AFS use (Birkenmaier & Fu, 2016; Disney & Gathergood, 2013; French & McKillop, 2016; Harvey, 2019; Kim & Lee, 2018; Lusardi & de Bassa Scheresberg, 2013; Nitani et al., 2019; O'Neill & Xiao, 2015; Robb et al., 2015).

In addition, some studies identify a relationship between "difficult to understand" behaviours and the use of AFS. These include reduced consumption of these services when stores were closed (Bourke et al., 2012; Cuffe & Gibbs, 2017; Mckernan et al., 2013); the use of sources other than their paycheque to repay payday loans (observed in 30% of payday loan users) (Financial Consumer Agency of Canada, 2016); higher density of AFS stores associated with greater probability of use among modest- and high-income individuals (Friedline & Kepple, 2017); and, availability of at least $1,000 in credit card liquidity on the same day that nearly two in three payday loan users took their payday loans (Agarwal et al., 2009). These imply *irrational* reasoning behind AFS borrowings for some AFS users, suggesting that in addition to the lack of financial knowledge, cognitive biases also play a role in leading individuals to use these expensive loans.

This study aims, therefore, to shed additional light on the noted ongoing debate by developing a conceptual framework explaining the mechanisms that link between AFS use and financial knowledge, behavioural biases, and general attitude to everyday financial matters, and empirically testing it.

3 CONCEPTUAL FRAMEWORK

3.1 THE THEORY OF PLANNED BEHAVIOUR

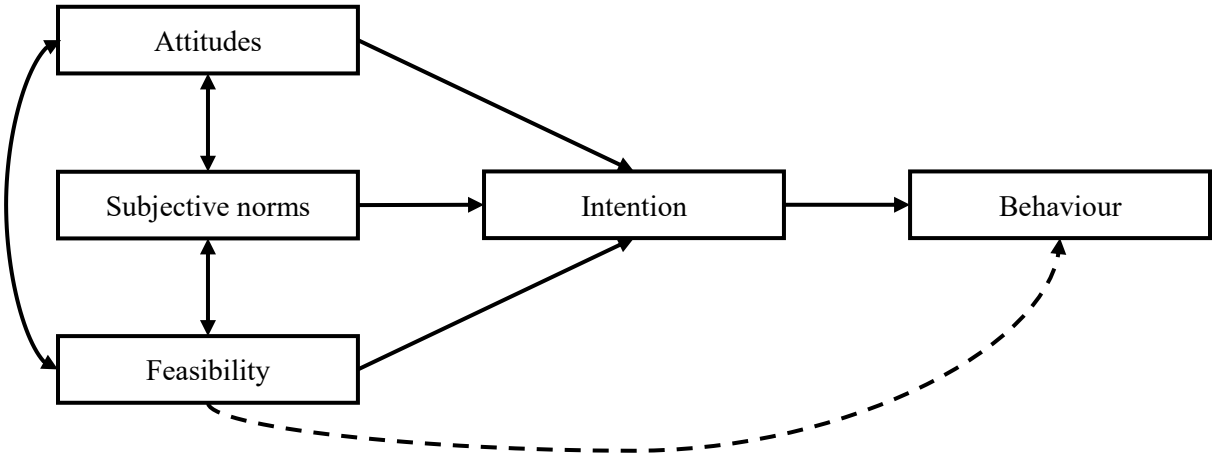
To consider factors that drive individuals to use alternative financial services, we use, as a theoretical framework, Ajzen's (1991) theory of planned behaviour (TPB). This is a widely used decision-making model that encapsulates three sources of motivation to explain the intention of an individual with respect to undertaking a given behaviour[10]. The stronger the intention, the more likely an individual will engage in the behaviour. The relationships among these motivation sources are exhibited in Figure 3.1.

- The first motivation source relates to the ***attitudes*** of the decision-maker. Attitudes, as defined by Ajzen (1991, p. 188), are the "degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question". Attitudes reflect what a person thinks or feels about the given phenomenon, idea, action, behaviour, etc. A question to be considered is whether the behaviour is perceived to be enjoyable, beneficial, or harmful to the decision-maker.
- The second motivation source relates to ***subjective norms*** of the decision-maker with respect to the behaviour. Subjective norms, as defined by Ajzen (1991, p. 188), are the "perceived social pressure to perform or not to perform the behaviour". Subjective norms reflect the opinions of a person's salient others towards a given behaviour. Salient others create social pressures that are relevant to the individual's decision and subsequent behaviour.
- The third motivation source relates to ***feasibility***, which, according to Ajzen (1991), is composed of two types. The first type is referred to as "perceived behavioural control", which is "people's perception of the ease or difficulty of performing the behaviour of interest" (Ajzen, 1991, p. 183). This motivation source is internal, as it refers to one's perceived capability, or

[10] Ajzen (1991) claims that attitudes, subjective norms, and perceived behavioural control account for considerable variance in actual behaviour.

confidence, with respect to being able to overcome obstacles that are either physical or psychological. It influences behaviour through intention (refer to the solid line in Figure 3.1).

Figure 3.1 The theory of planned behaviour



Source: Ajzen (1991, p. 182).

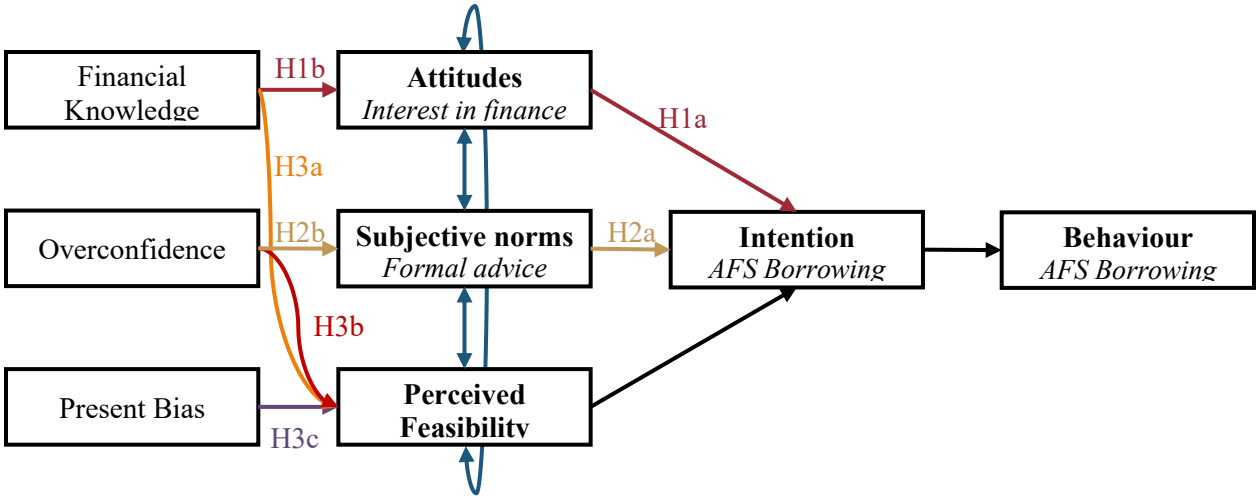
Ajzen (1991, pp. 181–182) argues that this *perceived behavioural control* plays a role in people's decision-making process "only if the behaviour in question is under volitional control, i.e., if the person can decide at will to perform or not perform the behaviour". In many cases, implementation of a particular behaviour also depends on factors that are non-controllable for individuals. These non-motivational and uncontrollable factors, independent from one's wish to implement a particular behaviour, represent *actual behavioural control*. This refers to the feasibility of the second type, which affects the behaviour directly without going through the intention as indicated by the dotted line in Figure 3.1.

This study uses the theory of planned behaviour to develop a theoretical framework that considers factors influencing individuals' use of AFS services, exhibited in Figure 3.2.

3.2 ATTITUDES, SUBJECTIVE NORMS, PERCEIVED FEASIBILITY AND INCOME

In Figure 3.2 a graphical representation of the theoretical framework, based on TPB, is exhibited by which factors leading individuals to AFS borrowing are portrayed[11]. We argue that positive attitudes towards financial matters, which may prompt, and may be prompted by, good financial knowledge, work as a suppressor for the use of AFS services. Second, opinions of others regarding AFS loans may further influence the person's use of AFS, but people who are overly and inaccurately confident about their financial knowledge may not seek advice from others. Third, perceived feasibility, influenced by the objective level of financial knowledge as well as behavioural biases, could also be a determinant on the decision to use AFS services.

Figure 3.2 The theory of planned behaviour in the context of AFS borrowing



3.2.1 Attitudes

An attitude ought to mirror whether a particular behaviour includes a sense of enjoyment for the individual. Individuals who are interested in the macro economy and those who find pleasure in dealing with their financial matters are relatively more likely to exhibit active engagement with their own financial matters. Such individuals should be relatively less likely to use AFS-issued

[11] Interaction between attitudes, subjective norms, and perceived feasibility (blue arrows in Figure 3.2) are an integral component of the theory of planned behaviour. However, these interactions are outside the scope of this research.

loans than individuals with negative attitudes for two reasons. First, interest and curiosity are drivers of knowledge. By being interested in financial news and finding enjoyment in personal finance management people naturally obtain objective financial knowledge that helps them to understand the risk and costs of AFS borrowing. Second, the likelihood of an unexpected expense is lower among those who actively manage their personal finances, reducing their likelihood of facing liquidity shocks and thus lowering the possibility of facing a situation that forces individuals to resort AFS services[12]. Therefore:

Hypothesis 1a: The likelihood of seeking an AFS loan is negatively associated with positive attitudes towards financial matters.

Hypothesis 1b: Positive attitudes towards financial matters are associated with a higher level of objective financial knowledge.

3.2.2 Subjective norms

In the process of decision-making, the TPB maintains that the decision-maker's significant others can influence his or her intention: that is, salient individuals to the decision-maker may either encourage or discourage a particular behaviour. In the context of a borrowing decision, this influence often takes the form of advice — from informal sources such as friends, family members or colleagues, and from formal sources such as financial professionals, creating a continuum of expertise among those who are salient to an individual decision-maker. In the decision of whether or not to use AFS borrowing, we contend that advice from informal sources collectively cancel each other out. This is due to the fact that while some salient individuals to the decision-maker may support his or her intention to borrow from AFS providers, others may discourage this

[12] French and McKillop (2016, p. 3) state that *"*commitments such as making a budget or anticipating bills encourage consumers to consider 'lumpy' irregular expenditures they may otherwise overlook".

intention. However, formal sources of advice are more knowledgeable and are more likely to recommend against expensive borrowing solutions[13]. Thus:

Hypothesis 2a: The likelihood of seeking an AFS loan is lower among individuals who seek formal sources of advice for their financial decisions.

We also argue that behavioural biases could influence the impact of subjective norms on the intention to use AFS services. Overconfident individuals believe they are knowledgeable and tend to place excessive trust in their own judgement (Kruger & Dunning, 1999), and thus are less likely to seek external advice (Kramer, 2016). These studies suggest that overconfident individuals are more likely to underweight the significance of subjective norms in their process of decision-making. When they believe an AFS loan to be the best solution to their financing needs, they are more likely to take actions accordingly even if a financial advisor recommends otherwise. As a result, we expect that:

Hypothesis 2b: Ceteris paribus, the reliance on subjective norms is lower for overconfident individuals than among less confident individuals.

3.2.3 Perceived feasibility

Recall that the TPB identifies two types of feasibility, actual and perceived feasibility (or behavioural control). As for the former, this study considers it to be related to the accessibility to AFS services, and we argue that obtaining a loan from an AFS institution is easy. Anyone who has a regular income, a bank account, and a permanent address can be qualified for an AFS loan (Financial Consumer Agency of Canada, 2017). Good credit scores are not even required (Harvey, 2019). Moreover, AFS outlets are widespread and conveniently located: in the United States there are more payday loan storefronts than there are McDonald's restaurants outlets (Cox, 2014). The proximity of AFS outlets makes visiting a store convenient. Overall, then, obtaining a loan from an AFS institution is generally feasible for most individuals. Accordingly, the conceptual

[13] Consistent with this premise, AFS borrowing is reported to be lower in states with higher per capita numbers of financial advisors (Yerkes et al., 2018).

framework on AFS borrowing decisions developed in this study omits this component of feasibility because access to AFS services is a simple matter for everyone.

As for the perceived feasibility of performing a particular behaviour, in the context of an AFS borrowing decision, this study considers it in relation to the perception of an individual regarding whether the loan can be successfully repaid. It appears that objectively measured financial knowledge, the level of confidence on their own financial knowledge, and the utility function between short- and long-term consumption influences the perceived feasibility regarding AFS loan repayments.

This study hypothesises that objectively measured financial knowledge, the level of overconfidence, i.e., the difference between objectively measured and self-assessed financial knowledge, and present bias are associated with the perceived feasibility to repay the AFS loan successfully. First, as noted in Section 2.1, the research literature has confirmed that individuals who are relatively more financially knowledgeable make better financial choices. Following this argument, we hypothesise that the accuracy of perceived feasibility would be enhanced if the individual has sufficient financial knowledge to: understand the terms of a loan; estimate the probability of being unable to meet the loan obligations; and be able to gauge possible consequences of delinquency and rollover. The result of a relatively accurate assessment of feasibility, facilitated by a higher objective financial knowledge, likely leads the individual to refrain from AFS borrowing:

Hypothesis 3a: Ceteris paribus, the likelihood of borrowing from AFS suppliers is negatively related to financial knowledge.

On the other hand, existing research in this area suggests that cognitive biases could encumber individuals when self-assessing the feasibility to manage AFS debt obligations. Given the high rate of repayment failure and its possible consequences, a reasonably high level of confidence with respect to financial knowledge and expected future cash flows are required for

people to borrow from AFS providers[14]. This is especially true if the individual is *cash-strapped* because as soon as he or she receives a cash inflow, such as a paycheque, the sale of a good, etc., it disappears for his or her loan obligations leaving only little-to-no liquidity to him or her. In this regard, overconfident individuals believe they are knowledgeable and tend to place excessive trust on their abilities (Kruger & Dunning, 1999), and thus are more likely to make risky decisions when compared to non-overconfident individuals (Asaad, 2015). In other words, they are more likely to overestimate their own ability to manage obligations associated with AFS debts, and we expect, therefore, that overconfident individuals are more prone to use them:

> *Hypothesis 3b: Ceteris paribus, and after controlling for levels of subjective norms, overconfident individuals are more likely to obtain an AFS loan than individuals who are not overconfident.*

Finally, we also argue that present-biased individuals are more prone to AFS borrowing. Those individuals prefer immediate rewards to delayed rewards even if the present value of the latter is greater than that of the former. In other words, their utility function tends to apply a substantial discount rate when estimating the present value of the future rewards.

In the context of AFS borrowing, they are more likely to value quick and convenient access to cash over the costs of such an easy approach, which they will incur *later* in the form of heavy debt obligations. Gross and Souleles (2002) find that increases in credit limits on credit cards generate an immediate and significant rise in debt as incremental access to credit incentivises individuals to obtain more immediate rewards. Present-biased individuals are more likely,

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[14] Between 2011 and 2012, 80% of payday loans in the United States were rolled over rather than repaid (Burke, Lanning, Leary, & Wang, 2014). Similarly, according to the Financial Consumer Agency Canada's (2016) payday loan survey, 37% (23) of respondents had reported using payday loans two to five (at least six) times, implying a high rate of rollover. The consequence of repayment failure is the rapid compounding of interest and fees: "a person who borrows $400 for a $60 fee for two weeks would have paid approximately $480 in fees after renewing the loan for four months, but would still owe the original $400" (Bourke et al., 2012, p. 7).

compared to those who are not, to: (1) hold credit card debt (Meier & Sprenger, 2010); (2) use an interest-only mortgage (Gathergood & Weber, 2017); and, (3) hold simultaneously low-yielding short-term savings and expensive consumer debt (Gathergood & Weber, 2014). These studies suggest that easy access to AFS borrowing might have the potential to promote impulsive behaviours amongst present-biased individuals from whose point of view easy access to cash is more important than incurring a heavy debt burden later on. We thus hypothesise that, *ceteris paribus*, present-biased individuals are relatively more prone to use an AFS loan because it allows them to satisfy their impulsive desires and their needs for immediate gratification:

Hypothesis 3c: Ceteris paribus, present-biased individuals are more likely to use alternative financial services than individuals who are not present-biased.

4 METHODOLOGY

4.1 DATA

The data employed in this research is drawn from the 2014 edition of the Canadian Financial Capability Survey (CFCS)[15], conducted by the Special Surveys Division of Statistics Canada, and funded by the Financial Consumer Agency of Canada and its partners Finance Canada and the Bank of Canada. This survey sought to comprehend how Canadians understand their financial situation, financial services available, and their plans for the future, by asking respondents about their day-to-day money management and budgeting as well as their longer-term money management and general financial planning.

The initial survey frame for the CFCS was comprised of households previously interviewed by the Labour Force Survey in the months of January and February 2014. Thus, the survey population of the CFCS was Canadian adults, at least 18 years of age, located in any of the ten Canadian provinces. Excluded from the survey's coverage are individuals residing in the three territories (Yukon, Northwest Territories, and Nunavut); individuals residing on reserves and other Aboriginal settlements; individuals that are full-time members of the Canadian Armed Forces; and, the institutionalised population[16]. Participation to the CFCS was on a volunteer basis, and could be completed in either French or English via computer-assisted telephone interviewing. Because this survey interviewed one adult per household, a Kish sample allocation was utilised to produce reliable estimates[17].

[15] Information regarding the CFCS was obtained from Statistics Canada documents (2011, 2014, 2015).

[16] According to the OECD (2003, para. 1), an institutionalized population "comprises persons who are not members of households. These include persons living in military installations, correctional and penal institutions, dormitories of schools and universities, religious institutions, hospitals and so forth".

[17] If the household has more than one member of the desired population, a random selection of one of these adults is required to reduce main respondent bias. Kish (1949) suggests using a grid, or *face sheets*, to codify every adult (from 1 to 6) in the household and to interview adult *n* based on the number of adults in the household.

The CFCS used a two stage stratified sampling of randomly selected telephone numbers. The first stage of sampling involved selecting clusters from each province (strata), while the second stage selected households from these clusters. The total of 12,620 households drawn from the Labour Force Survey formed the CFCS sampling frame, and 6,685 of these households participated, a response rate of 55.6%. The sample was weighted to account for non-response; growth in housing or population within a cluster; households in the survey frame without a telephone number; selecting one individual from each household; and, in accordance by the census-projected populations of each province-age-sex-income category. Accordingly, all analyses must be performed incorporating the complex weighting scheme.

4.2 DECISION MODEL AND CONSTRUCTION OF SCALES

The hypotheses derived from the conceptual framework collectively imply the following models of an individual's likelihood to borrow from an AFS source (except for Hypothesis 1b and Hypothesis 2b, which, respectively, use Equation 2 and Equation 3)[18]. We explain in the following subsections how we measure these variables:

$$L\{AFS\} = \beta_0 + \beta_1\big(Attitude\ factor(s)\big) + \beta_2(Subjective\ norms) + \beta_3(Financial\ knowledge) + \beta_4(Financial\ confidence) + \beta_5(Present\ bias) + \beta_6(Control\ variables) \quad (1)$$

$$L\{Attitude\ factor(s)\} = \beta_0 + \beta_1(Subjective\ norms) + \beta_2(Financial\ knowledge) + \beta_3(Financial\ confidence) + \beta_4(Present\ bias) + \beta_5(Control\ variables) \quad (2)$$

$$L\{Subjective\ norms\} = \beta_0 + \beta_1\big(Attitude\ factor(s)\big) + \beta_2(Financial\ knowledge) + \beta_3(Financial\ confidence) + \beta_4(Present\ bias) + \beta_5(Control\ variables) \quad (3)$$

[18] With the exception for some control variables, all of the dependent variables and many of the independent variables are dichotomous. As a result, the appropriate statistical tool to analyse this data is the logistic regression, which estimates the probability of an outcome using the maximum likelihood method.

The base models, as just discussed, are re-specified as needed in order to reflect potential collinearity, especially among the variables relating to financial knowledge, overconfidence, and present bias, and to adjust for potential moderation of financial knowledge and overconfidence on attitudes and subjective norms.

4.2.1 Measurement of AFS usage

Alternative financial services are comprised of two categories of service: cash-related AFS and financing-related AFS (Birkenmaier & Fu, 2016). As covered in Section 2.4 of this paper, both categories of service charge a substantial premium for fast access to cash. To measure the use of such arrangements, the CFCS asked respondents about their use of AFS services with the following questions:

- In the last 12 months, how many times did you or another member of your family use the following alternative financial service: **a pawnbroker to sell a possession**?
- In the last 12 months, how many times did you or another member of your family use the following alternative financial services: **a payday loan service**?
- In the last 12 months, how many times did you or another member of your family use the following alternative financial services: **a cheque cashing service, other than a bank**?

Respondents selected one of the following choices: never; one time, twice; or, three times or more. Accordingly, this research measures AFS usage with a binary variable that equals one if the respondent used one of the three services at least once in the past 12 months (0 otherwise).

4.2.2 Measurement of attitudes toward finance

Recall that attitudes are shaped by experience, beliefs and personality traits, and in the context of personal finances, attitudes relate to one's interest in the topic of finance. The CFCS asked respondents about their interest in dealing with day-to-day finances with the following agree/disagree questions:

- I keep an eye on changes in the housing market.
- I keep an eye on changes in the stock market.
- I keep an eye on changes in the currency (money) market.
- I keep an eye on changes in interest rates.
- I keep an eye on changes in inflation.

- I keep an eye on changes in taxation.
- I enjoy dealing with financial matters.
- My household has a budget.

Accordingly, this research measures the latent factor *attitudes* using, as a proxy, the respondent's level of interest in personal finance, observable by the following binary variables: *keeping an eye on macroeconomic indicators*, equal to one if the respondent stays informed on the various financial topics above (0 otherwise); *enjoy dealing with financial matters*, equal to one if the respondent likes dealing with financial matters (0 otherwise); and, *budget*, equal to one if the respondent has a budget (0 otherwise).

4.2.3 Measurement of subjective norms

Recall that subjective norms are shaped by social pressures, and in the context of personal finances, these pressures are related to what other people think about certain financial actions, what kind of advice and opinions the individual receives, and the extent to which the individual follows the advice.

The CFCS asked respondents to choose source(s) of advice that influences their financial decisions from the list shown below:

- Advertisements
- Magasines
- Newspapers
- Radio or television
- Internet
- Financial advisor
- Knowledgeable friend
- None of the above

This study categorises the above listed sources of advice into three groups: formal, informal, and media advice group. The formal source group comprises finance professionals, such as accountants, legal experts, tax experts, financial advisors or financial security experts who are either independent or employed by a financial institution, so the item "financial advisor" in the list would be in this group. The informal source group includes individuals close to the decision-maker, such as colleagues from work or social group, friends or family, this study regards the item "knowledgeable friend" to meet this group. The media advice group contains content creators, such as journalists, authors, marketers, "advertisements", "magasines", "newspapers", "radio or television", and "Internet". This research measures the latent factor subjective norms by using

these binary variables to gauge the extent to which the respondent seeks formal, informal, or media advice group sources of advice.

4.2.4 Measurement of perceived feasibility of paying back the loan

We argue that *perceived feasibility* corresponds to, in the context of this study, one's confidence in being able to repay the AFS loan. While this variable is unobservable, we assume that objectively measured financial knowledge, overconfidence, and present bias affect the perceived feasibility to meet the AFS loan obligations. The following sections discuss how each of these three is measured.

4.2.4.1 Measurement of objective financial knowledge (OFK)

The CFCS posed 14 multiple-choice quiz questions to respondents that collectively cover a variety of basic financial topics. Like previous research on financial literacy (Allgood & Walstad, 2016; Asaad, 2015; de Bassa Scheresberg, 2013; among others; Drolet, 2016; Lusardi & Mitchell, 2013), we measure objective financial knowledge using the respondents' quiz scores. Presumably, higher scores are associated with higher financial knowledge. While the absolute middle point is a quiz score of 7 out of 14, the relative middle point (as shown in Figure 4.1) is a quiz score of 9 out of 14. This research, therefore, uses a quiz score of 8 out of 14, the middle between relative and absolute mid-points, as a cut-off for measuring financial knowledge. Respondents with a score less than 8 are categorised as unknowledgeable whereas respondents with a score greater than or equal to 8 are categorised as knowledgeable. The list of quiz questions and correct answers is exhibited in Table 4.1.

Figure 4.1 Histogram of the CFCS quiz scores

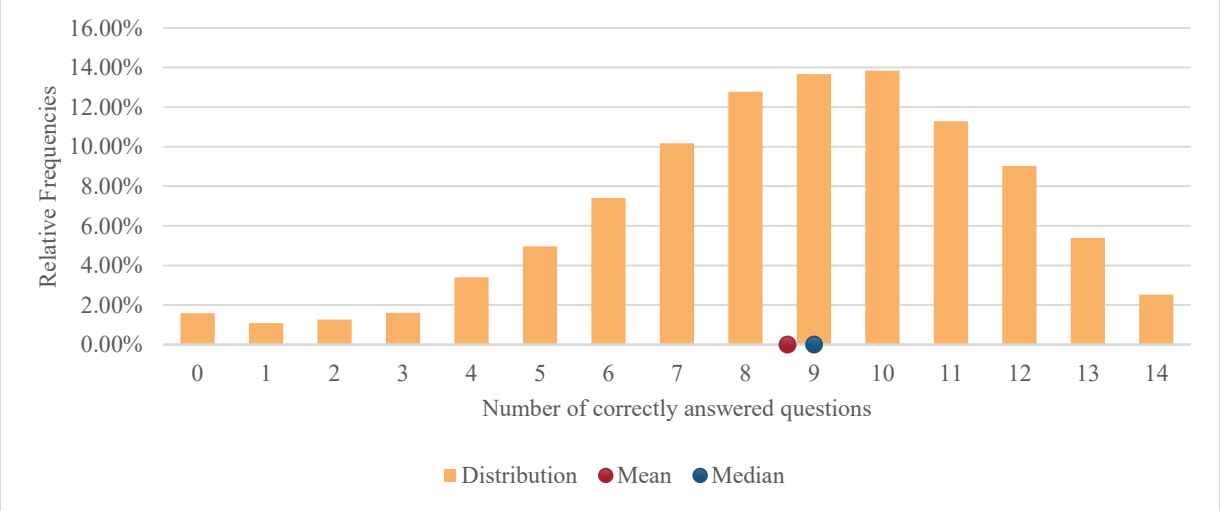

Table 4.1 List of CFCS questions and answers to measure OFK

1) If the inflation rate is 5% and the interest rate you get on your savings is 3%, will your savings have at least as much buying power in a year's time?
   a) Yes
   b) No
2) A credit report is... ?
   a) A list of your financial assets and liabilities
   b) A monthly credit card statement
   c) A loan and bill payment history
   d) A credit line with a financial institution
3) Who insures your stocks in the stock market?
   a) The National Deposit Insurance Corporation
   b) The Securities and Exchange Commission
   c) The Bank of Canada
   d) No one
4) By using unit pricing at the grocery store, you can easily compare the cost of any brand and any package size.
   a) True
   b) False
5) If each of the following persons had the same amount of take home pay, who would need the greatest amount of life insurance?
   a) A young single woman with two young children
   b) A young single woman without children
   c) An elderly retired man, with a wife who is also retired
   d) A young married man without children
6) If you had a savings account at a bank, which of the following statements would be correct concerning the interest rate that you would earn on this account?
   a) Sales tax may be charged on the interest that you earn
   b) You cannot earn interest until you pass your 18th birthday
   c) Earnings from savings account interest may not be taxed
   d) Income tax may be charged on the interest if your income is high enough
7) Inflation can cause difficulty in many ways. Which group would have the greatest problem during periods of high inflation that lasts several years?
   a) Young working couples with no children
   b) Young working couples with children
   c) Older working couples saving for retirement
   d) Older people living on fixed retirement income
8) Lindsay has saved $12,000 for her university expenses by working part-time. Her plan is to start university next year and she needs all of the money she saved. Which of the following is the safest place for her university money?
   a) Corporate bonds
   b) Mutual Funds
   c) A bank savings account
   d) Locked in a safe at home
   e) Stocks
9) Which of the following types of investment would best protect the purchasing power of a family's savings in the event of a sudden increase in inflation?
   a) A twenty-five year corporate bond
   b) A house financed with a fixed-rate mortgage
   c) A 10-year bond issued by a corporation
   d) A certificate of deposit at a bank
10) Under which of the following circumstances would it be financially beneficial to borrow money to buy something now and repay it with future income?
   a) When something goes on sale
   b) When the interest on the loan is greater than the interest obtained from a savings account
   c) When buying something on credit allows someone to get a much better paying job
   d) It is always more beneficial to borrow money to buy something now and repay it with future income
11) Which of the following statements is not correct about most ATM (Automated Teller Machine) cards?
   a) You can get cash anywhere in the world with no fee
   b) You must have a bank account to have an ATM card
   c) You can generally get cash 24 hours-a-day
   d) You can generally obtain information concerning your bank balance at an ATM machine
12) Which of the following can hurt your credit rating?
   a) Making late payments on loans and debts
   b) Staying in one job too long
   c) Living in the same location too long
   d) Using your credit card frequently for purchases
13) What can affect the amount of interest that you would pay on a loan?
   a) Your credit rating
   b) How much you borrow
   c) How long you take to repay the loan
   d) All of the above
14) Which of the following will help lower the cost of a house?
   a) Paying off the mortgage over a long period of time
   b) Agreeing to pay the current rate of interest on the mortgage for as many years as possible
   c) Making a larger down payment at the time of purchase
   d) Making a smaller down payment at the time of purchase

4.2.4.2 Measurement of subjective financial knowledge (Confidence level, SFK)

The CFCS measured respondents' self-assessed financial knowledge (SFK) (the level of confidence on their financial knowledge) with the following question and choice of answers: *How would you rate your level of financial knowledge? Very knowledgeable, knowledgeable, fairly knowledgeable, or not very knowledgeable*.

On the one hand, the first two answer choices exude financial confidence, as these responses are affirmative; therefore, respondents who selected *very knowledgeable* or *knowledgeable* are categorised as being confident in their financial knowledge. On the other hand, the last two answer choices do not exude financial confidence, as these responses show signs of hesitation or lack of confidence altogether. Therefore, respondents who selected *fairly knowledgeable* or *not very knowledgeable* are categorised as being not confident in their financial knowledge. Accordingly, this research measures SFK with a binary variable, based on whether or not respondents are confident.

4.2.4.3 Measurement of financial overconfidence

Following the research of Kruger and Dunning (1999), the level of financial overconfidence in this study is measured by the discrepancy between subjective and objective financial knowledge. Juxtaposing subjective and objective knowledge (SFK and OFK) allows identification of the overconfidence level category into which the respondent falls, as exhibited in Table 4.2.

Table 4.2 Financial confidence groupings

	High SFK	**Low SFK**
High OFK	Realistic confidence	Under confidence
Low OFK	Overconfidence	Realistic confidence

4.2.4.4 Measurement of present bias

Recall that when an individual is present biased, he or she places greater weighting on present consumption (or income) rather than future consumption (income). In our view, the following CFCS questions measure present bias because they are related to the trade-off between short-term and long-term utility, i.e., maximising the former at the expense of the latter. This study assumes that a latent variable, the respondent's level of present bias, is reflected by answers to the following two questions:

Do you currently have a will? While every province has estate laws to distribute the estate of a deceased individual who had no will (intestate), this distribution is likely to be inconsistent with the individual's intentions and may not be fiscally advantageous. Not having a will could be an indicator for present bias to the extent that the individual prefers avoiding the costs and lacklustre associated with a creation of a will in the short run, at the expense of the opportunity to distribute his/her assets as intended in the future. We therefore use the binary variable *Will*, equal to 1 if the respondent has a will (0 otherwise), as a measurement for present bias.

Have you ever made a financial decision that you later regretted? Decisions that placed a greater priority to an immediate consumption are likely to result in *regret* when the costs of the immediate consumption later accrue. Although a greater priority to an immediate consumption is not *the* source of regret about financial decisions, it is certainly among the courses of such regret. We, therefore, use the binary variable *Regret*, equal to 1 if the respondent has regretted a financial decision (0 otherwise), as a measurement for present bias.

4.2.5 Measuring control variables

Prior research on alternative financial services (Lusardi & de Bassa Scheresberg, 2013; Robb et al., 2015, among others) identified some systemic variations in consumption of AFS among individuals with specific characteristics. It is, therefore, important for this research to control for these characteristics to avoid misleading results or spurious associations:

- Region, a categorical variable indicating the location of the respondent, comprising the following provinces: Atlantic; Quebec; Ontario; Manitoba, Saskatchewan, and Alberta; and, British Columbia.
- Age of the respondent, a categorical variable comprising the following responses: 18 to 34; 35 to 44; 45 to 54; and, 55 or more.
- Marital status, a categorical variable comprising the following responses: living in a formal union (= 0) or single (= 1).
- Children, a binary variable that equals 1 if there is at least one individual is less than 18 years of age in the household; 0 otherwise.
- Housing tenure, a categorical variable indicating whether the respondent is: (1) a homeowner without a mortgage; (2) a homeowner with a mortgage; and, (3) renting.

- Finance/economic course, a binary variable that equals one if the past five years the respondent took a finance or economics course; 0 otherwise[19].
- Education, a binary variable that equals one if the respondent holds a college, trade school or university degree; 0 otherwise.
- Occupational status, a categorical variable comprising the following responses: employed; self-employed; unemployed; and, retired[20].
- Gender, a categorical variable comprising the following responses: male (= 0) or female (= 1).
- Immigrant, a binary variable that equals 1 if the respondent immigrated to Canada; 0 otherwise.
- Credit card, a binary variable that equals 1 if the respondent's household has a credit card; 0 otherwise.
- Keeping up with bills, a binary variable that equals one if the respondent's household keeps up with its bills and other financial commitments; 0 otherwise.

The respondent's likelihood of AFS borrowing could be influenced by his or her level of household income. According to Bond (2016), there are two types of AFS consumers: *asset-limited, income constrained, and employed* (ALICE); and, *asset rich and temporarily illiquid* (ARTI). ALICEs typically have low household incomes, whereas ARTIs usually have high household incomes. This study, therefore, filters respondents into these groups since it is possible that different enticing factors exist across these two socio-economic groups. This is achieved by combining the Canadian Financial Capability Survey's income quintiles into two distinct groups. Given that Canadian households have a median income of $70,336 (Statistics Canada, 2016), we combine the quintiles *less than $80,000* into a category "*low household income*" and the quintiles *more than or equal to $80,000* into a category "*high household income*". We use the binary

[19] Finance or economic courses are specialised education, which controls for (1) respondents who took such courses without receiving a diploma; and, (2) those who pursued college or university education in such fields.

[20] Students are excluded from the analysis because too few have answered the CFCS (n = 137).

variable *Household Income* in some of the tables we present throughout this paper, which is equal to 0 if the respondent's household income is "low" and equal to 1 if the respondent's household income is "high".

Descriptive statistics and a correlation matrix of variables used in the main regression analyses are presented in Table 4.3 and Table 4.4, respectively. As expected, the high and low household income groups exhibit significantly different demographic traits[21]. For example, respondents from the high household income group are more likely to be: younger; married with children; highly educated (by either taking a finance/economic course or having a degree); male; non-immigrant homeowners with a mortgage; and more likely to have employed or self-employed status rather than unemployed or retired; holding at least one credit card; keeping up with bills; and having a will. They are more likely to have positive attitudes towards financial matters in terms of checking macro indicators and finding enjoyment in dealing with them, but less likely to do so in terms of having a household budget. Respondents with a high household income are more likely to listen to others when making financial decisions and more financially knowledgeable than respondents with low household income. However, they appear to be, in a univariate basis, more prone to present bias as they are more likely to have regretted their past financial decisions. Finally, as to the use of alternative financial services, respondents with a low household income are more likely to use these short-term expensive loans than those with a high household income, though the mean is marginal in both income groups.

[21] Respondents in the low household income group are more likely to be a homeowner with mortgage paid and retired, because they are older.

Table 4.3 Descriptive statistics

Household income	Low (n = 3,028)		High (n = 2,319)			All (n = 5,347)	
Variables	$\bar{X}_1$	S_1	$\bar{X}_2$	S_2	$\bar{X}_1 - \bar{X}_2$	$\bar{X}$	S
AFS	0.07	0.26	0.04	0.19	***	0.06	0.23
Region							
Atlantic	0.08	0.27	0.06	0.24	**	0.07	0.25
Quebec	0.27	0.44	0.20	0.40	***	0.24	0.43
Ontario	0.38	0.49	0.38	0.49		0.38	0.49
Manitoba, Saskatchewan, and Alberta	0.15	0.36	0.21	0.41	***	0.18	0.38
British Columbia	0.12	0.33	0.14	0.35	**	0.13	0.34
Age							
18 to 34	0.25	0.43	0.25	0.43		0.25	0.43
35 to 44	0.13	0.34	0.24	0.43	***	0.18	0.39
45 to 54	0.16	0.37	0.25	0.43	***	0.20	0.40
55 and over	0.46	0.50	0.26	0.44	***	0.37	0.48
Marital status (union = 0; single = 1)	0.42	0.49	0.28	0.45	***	0.36	0.48
Children	0.22	0.41	0.39	0.49	***	0.29	0.46
Housing tenure							
Homeowner, house paid	0.34	0.47	0.27	0.44	***	0.31	0.46
Homeowner, mortgage	0.27	0.44	0.53	0.50	***	0.39	0.49
Renter	0.39	0.49	0.20	0.40	***	0.30	0.46
Finance/economic course	0.08	0.27	0.11	0.31	***	0.09	0.29
Education	0.49	0.50	0.75	0.43	***	0.61	0.49
Employment status							
Employed	0.47	0.50	0.71	0.46	***	0.58	0.49
Self-employed	0.07	0.25	0.12	0.32	***	0.09	0.29
Unemployed	0.15	0.36	0.08	0.26	***	0.12	0.32
Retired	0.31	0.46	0.10	0.30	***	0.22	0.41
Gender (male = 0; female = 1)	0.54	0.50	0.46	0.50	***	1.50	0.50
Immigrated to Canada	0.21	0.40	0.15	0.36	***	0.18	0.39
Has a credit card	0.87	0.34	0.96	0.20	***	0.91	0.28
Keeps up with bills	0.64	0.48	0.76	0.43	***	0.69	0.46
Keeping an eye on macro indicators	0.48	0.50	0.68	0.47	***	0.57	0.50
Enjoying dealing with financial matters	0.41	0.49	0.49	0.50	***	0.44	0.50
Has a household budget	0.49	0.50	0.46	0.50	**	0.47	0.50
Advice from financial advisor	0.43	0.50	0.58	0.49	***	0.50	0.50
Advice from knowledgeable friend	0.35	0.48	0.37	0.48	*	0.36	0.48
Advice from media advice group	0.30	0.46	0.36	0.48	***	0.33	0.47
Financial knowledge and confidence							
Not knowledgeable and not confident	0.22	0.41	0.15	0.35	***	0.18	0.39
Not knowledgeable and confident	0.14	0.35	0.06	0.23	***	0.10	0.30
Knowledgeable and not confident	0.40	0.49	0.44	0.50	***	0.42	0.49
Knowledgeable and confident	0.24	0.43	0.35	0.48	***	0.29	0.45
Has a will	0.44	0.50	0.49	0.50	***	0.46	0.50
Financial regret	0.37	0.48	0.47	0.50	***	0.42	0.49

Table 4.4 Correlation matrix (continues on next page)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) AFS	1									
(2) Household income	-0.07***	1								
(3) Marital status (union = 0; single = 1)	0.04***	-0.15***	1							
(4) Children	0.07***	0.18***	-0.25***	1						
(5) Finance/economic course	0.02	0.04***	0.03**	0.02	1					
(6) Education	-0.07***	0.27***	-0.12***	0.10***	0.06***	1				
(7) Gender (male = 0; female = 1)	0.00	-0.08***	0.02	0.01	-0.01	-0.04***	1			
(8) Immigrated to Canada	0.02	-0.07***	-0.09***	0.06***	0.04***	0.10***	-0.05***	1		
(9) Has a credit card	-0.12***	0.16***	-0.18***	0.05***	0.03*	0.14***	-0.04***	0.03*	1	
(10) Keeps up with bills	-0.15***	0.14***	-0.06***	-0.17***	0.01	0.09***	-0.06***	0.01	0.12***	1
(11) Keeping an eye on macro indicators	-0.06***	0.21***	-0.15***	0.06***	0.09***	0.18***	-0.12***	0.00	0.17***	0.06***
(12) Enjoying dealing with financial matters	-0.01	0.08***	-0.03**	0.00	0.12***	0.06***	-0.15***	0.08***	0.08***	0.15***
(13) Has a household budget	-0.02	-0.03*	-0.06***	0.09***	0.11***	0.06***	0.08***	0.00	0.03**	-0.06***
(14) Advice from financial advisor	-0.08***	0.15***	-0.12***	0.03**	0.06***	0.12***	0.08***	-0.04***	0.17***	0.09***
(15) Advice from knowledgeable friend	-0.01	0.02	0.02	0.12***	0.06***	0.05***	0.04***	-0.06***	0.00	-0.1***
(16) Advice from the media advice group	0.02	0.07***	-0.03*	0.02	0.08***	0.05***	-0.07***	0.04***	0.03*	0.03**
(17) Financial knowledge	-0.09***	0.17***	-0.11***	0.07***	0.07***	0.15***	-0.08***	-0.12***	0.16***	0.01
(18) Financial confidence	0.01	0.03**	-0.08***	0.00	0.1***	0.06***	-0.12***	0.04**	0.05***	0.09***
(19) Has a will	-0.11***	0.06***	-0.18***	-0.13***	-0.09***	0.00	0.05***	-0.09***	0.12***	0.22***
(20) Financial regret	0.03**	0.10***	-0.06***	0.06***	0.08***	0.10***	-0.09***	-0.02*	0.05***	-0.17***

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) AFS										
(2) Household income										
(3) Marital status (union = 0; single = 1)										
(4) Children										
(5) Finance/economic course										
(6) Education										
(7) Gender (male = 0; female = 1)										
(8) Immigrated to Canada										
(9) Has a credit card										
(10) Keeps up with bills										
(11) Keeping an eye on macro indicators	1									
(12) Enjoying dealing with financial matters	0.22***	1								
(13) Budget	0.15***	0.09***	1							
(14) Advice from financial advisor	0.19***	0.06***	0.08***	1						
(15) Advice from knowledgeable friend	0.07***	-0.04***	0.06***	-0.05***	1					
(16) Advice from the media advice group	0.18***	0.12***	0.05***	-0.12***	0.07***	1				
(17) Financial knowledge	0.23***	0.06***	0.06***	0.18***	0.08***	0.04***	1			
(18) Financial confidence	0.15***	0.3***	0.09***	0.04***	-0.06***	0.06***	0.05***	1		
(19) Has a will	0.12***	0.08***	0.04***	0.16***	-0.14***	-0.04***	0.08***	0.12***	1	
(20) Financial regret	0.2***	-0.01	0.06***	0.09***	0.06***	0.02	0.21***	0.06***	0.03*	1

5 EMPIRICAL FINDINGS

Estimation of Equation 1 (page 27) was carried out hierarchically, of which the results are shown in Table 5.1 (for low-income households) and Table 5.2 (for high-income households). On the left-hand side of each table, Model 1 has control variables only, to which attitude variables are added to form Model 2; measures of subjective norms are added (Model 3); measures of financial knowledge and confidence are added (Model 4); and, measures of present bias are added (Model 5). The results of the logistic regression models that estimate the antecedents of positive attitudes to financial matters (Equation 2) are shown in Table 5.3, those of subjective norms (Equation 3) are in Table 5.1. All models are statistically significant with a p-value < 0.01.

5.1 ALTERNATIVE FINANCIAL SERVICES CONSUMPTION

Table 5.1 presents the results of the analyses that examine the determinants of AFS use for low household income individuals, while Table 5.2 does so for high-household income individuals. The comparison of two tables (Table 5.1 and Table 5.2) indicates that, as expected and discussed in Section 4.2.5, the determinants of AFS use are different between low- and high-household income respondent:

- **Region.** High household income individuals residing in Atlantic provinces (and Manitoba, Saskatchewan, and Alberta in Models 1 to 3) are significantly less likely to use AFS than those in British Columbia, Ontario, and Quebec, while this relationship is nonexistent for low household income individuals.
- **Age.** Respondents aged 55 years or older from low household income are significantly less likely to use AFS compared with those in other age groups, while this relationship is nonexistent for high household income individuals.
- **Children.** High-income households with children are significantly more likely to use AFS compared with those without children, while this relationship is nonexistent for low household income individuals.
- **Education.** Low-household income individuals with education are less likely to use AFS compared to those without education, though this relationship ceases when *attitude*

variables are added to the model. Educated high-household income individuals are not more or less likely to use AFS.

- **Employment status.** Self-employed individuals from high-income households are significantly less likely to use AFS than those in other employment status, while individuals with low-household income are significantly more likely to use it when they are unemployed.
- **Credit card.** Low household income individuals with a credit card are less likely to use AFS compared to those without a credit card, while this relationship is nonexistent for high household income individuals.
- **Financial difficulty.** Low household income individuals who do not struggle to pay their bills are less likely to use AFS compared to those with such struggle, while this relationship is nonexistent for high household income individuals.

Consistent with the literature on AFS borrowing (Bond, 2016; Caskey, 2010; Lamb, 2016), individuals who are unemployed, do not have a credit card or struggle to pay their bills are more likely to obtain an AFS loan. We find, however, that these antecedents apply only to low household income individuals. This profile of AFS users corresponds to the ALICE (asset-limited, income constrained, and employed) consumer designation, and the findings may suggest that AFS might provide cash-strapped individuals with liquidity especially when they do not have access to other sources of credit.

Model 2 also exhibits the differences in AFS use determinants between different household income levels. In both Table 5.1 and Table 5.2, *attitude* variables, such as staying informed about macroeconomic indicators, enjoying dealing with financial matters, having a household budget, are not significantly associated with the use of alternative financial services. The exception is Model 4 of Table 5.2, where high household income individuals with a budget are significantly less likely to use AFS borrowing than their peers without a budget, but the significance is marginal. Overall, these findings fail to support Hypothesis 1a.

Model 3, as applied in Table 5.1 and Table 5.2, suggests that the difference in the impact of subjective norms between high- and low-household income respondents: while seeking for financial advisors' opinions reduce the likelihood of AFS use for low household income

respondents. For high household income respondents it is the media advice group that leads to the reduction of AFS use. This somewhat surprising result may occur because: (1) the majority of high-income individuals have advisers (making the impact of advisors null), while not many of low income respondents do (making the impact of advisors stand out); and, (2) in addition to the opinions from financial advisors, high-income individuals might do their own research based on information available through the media advice group, enriching their understanding of financial matters. These findings partially support Hypothesis 2a.

While neither the level of financial knowledge nor overconfidence is a significant determinant of AFS use for low household income individuals (Table 5.1), Models 4 and 5, as applied in Table 5.2, indicates that both variables are significant in predicting AFS borrowing for high household income individuals. That is, respondents with adequate financial knowledge are significantly less likely to borrow from AFS providers than their non-knowledgeable counterparts, whether or not they were financially confident, supporting Hypothesis 3a. In addition, the results show the strong impact of overconfidence in the use of AFS. Overconfident individuals, referring to those persons who are not knowledgeable and yet are confident, are at least three times more likely to borrow from AFS providers than "not knowledgeable and not confident" individuals. They are, as well, at least 6.87 (3.23/0.47) times more likely to use AFS than knowledgeable people. This strongly supports Hypothesis 3b, which predicts a positive association between overconfidence and AFS use.

Finally, unlike the case for low household income respondents, present bias, that is not having a will or regretting a financial decision, is significantly associated with AFS borrowing for high-income individuals, consistent with Hypothesis 3c. This may suggest that low-income individuals use AFS out of necessity, while high income counterparts use it impulsively and short-sightedly, i.e., when they are subject to present bias.

Table 5.1 Low-income Household Logit Model

Variables	(1)	(2)	(3)	(4)	(5)
Region (base is British Columbia)					
Atlantic	0.556	0.557	0.514	0.651	0.654
Quebec	1.117	0.978	0.941	1.413	1.424
Ontario	0.580	0.682	0.658	0.849	0.851
Manitoba, Saskatchewan, and Alberta	1.454	1.486	1.440	2.046	1.981
Age (base is 18 to 34)					
35 to 44	1.175	1.235	1.209	1.019	0.983
45 to 54	0.929	1.008	0.953	0.931	0.892
55 and over	0.406**	0.452*	0.422**	0.394**	0.374**
Marital status: Single	0.979	0.962	0.909	0.886	0.910
Has children	1.248	1.339	1.376	1.334	1.309
Housing tenure (base is renter)					
Homeowner without mortgage	0.722	0.717	0.773	0.808	0.774
Homeowner with mortgage	0.832	0.801	0.862	0.733	0.750
Took course in finance/economics	1.634	1.779	2.007	2.061	1.999
Education: College, trade school, university	0.629*	0.667	0.703	0.689	0.667
Employment status (base is employed)					
Self-employed	1.264	1.414	1.302	1.457	1.465
Unemployed	2.172**	2.086**	1.954**	1.951**	1.943*
Retired	1.318	1.300	1.264	1.193	1.147
Female (base is male)	0.907	0.895	0.945	0.992	1.023
Immigrated to Canada	1.232	1.220	1.194	1.363	1.398
Has a credit card	0.553**	0.502**	0.554**	0.476**	0.503**
Keeps up with bills	0.330***	0.336***	0.343***	0.313***	0.340***
Keeps eye on macroeconomic indicators		0.693	0.737	0.779	0.711
Enjoys dealing with financial matters		1.119	1.092	0.970	1.061
Has a household budget		0.958	0.964	0.838	0.815
Influenced by advice (base is no advice)					
Financial advisor			0.506**	0.572*	0.552*
Knowledgeable friend			0.786	0.766	0.750
Media advice group			1.275	1.352	1.358
Financial knowledge and confidence (base is "not knowledgeable and not confident")					
Not knowledgeable and confident				1.618	1.584
Knowledgeable and not confident				0.952	0.925
Knowledgeable and confident				1.206	1.166
Has a will					1.117
Regretted a financial decision					1.351
Constant	0.035***	0.037***	0.055***	0.043***	0.047***
Observations	3,530	3,326	3,288	3,067	3,028
Pseudo r^2	0.141	0.145	0.159	0.173	0.172

Table 5.2 High-income Households Logit Model

Variables	(1)	(2)	(3)	(4)	(5)
Region (base is British Columbia)					
Atlantic	0.320**	0.377*	0.360*	0.364	0.305*
Quebec	1.403	1.667	1.764	2.254	2.961
Ontario	0.690	0.835	0.844	0.916	0.924
Manitoba, Saskatchewan, and Alberta	0.330**	0.322**	0.329**	0.405	0.384
Age (base is 18 to 34)					
35 to 44	1.259	1.471	1.373	1.002	1.195
45 to 54	1.109	1.289	1.215	1.023	1.478
55 and over	1.799	2.135	1.924	1.507	2.590
Marital status: Single	1.500	1.519	1.419	1.744	1.495
Has children	1.972*	2.069**	1.923*	2.272**	2.149*
Housing tenure (base is renter)					
Homeowner without mortgage	1.180	1.308	1.428	1.360	1.402
Homeowner with mortgage	1.364	1.619	1.802	2.267	2.485
Took course in finance/economics	0.598	0.587	0.595	0.756	0.729
Education: College, trade school, university	0.818	0.886	0.976	0.959	0.729
Employment status (base is employed)					
Self-employed	0.124***	0.124***	0.107***	0.082***	0.073***
Unemployed	1.094	0.670	0.569	0.201	0.199
Retired	1.014	0.882	0.904	0.751	0.866
Female (base is male)	0.919	0.964	0.966	0.882	1.004
Immigrated to Canada	0.949	1.042	0.940	0.487	0.466
Has a credit card	0.680	0.557	0.487	0.377	0.422
Keeps up with bills	0.621	0.652	0.626	0.617	0.764
Keeps eye on macroeconomic indicators		0.699	0.795	1.068	1.029
Enjoys dealing with financial matters		1.433	1.425	1.217	1.093
Has a household budget		0.589	0.607	0.526*	0.543
Influenced by advice (base is no advice)					
Financial advisor			0.717	0.794	0.848
Knowledgeable friend			0.792	1.031	1.054
Media advice group			0.680	0.536	0.494*
Financial knowledge and confidence (base is "not knowledgeable and not confident")					
Not knowledgeable and confident				3.528**	3.230**
Knowledgeable and not confident				0.313**	0.291**
Knowledgeable and confident				0.418*	0.470*
Has a will					0.273***
Regretted a financial decision					1.882*
Constant	0.031***	0.030***	0.042***	0.049***	0.017***
Observations	2,550	2,446	2,431	2,337	2,319
Pseudo r^2	0.069	0.086	0.091	0.174	0.208

5.2 ATTITUDES AND OBJECTIVE FINANCIAL KNOWLEDGE

In order to test Hypothesis 1b, the relationship between attitudes towards finance and the level of financial knowledge is examined. Table 5.3 presents the results of the logistic regression analyses on "attitude" variables against financial knowledge, while controlling for other characteristics of respondents.

Regarding the control variables, the findings generally make sense. For instance, individuals in a good socio-economic situation such as those with a household income greater or equal to $80,000, who own a house with or without a mortgage, has an education — either a degree or a finance/economic course, has a credit card, and keeps up with bills, are more likely than individuals in difficult socio-economic situations to stay informed about macroeconomic indicators and to enjoy dealing with financial matters. Individuals receiving financial advice are also more likely to have a positive attitude towards finance when compared to individuals not receiving advice. Present-biased individuals are less likely to have positive attitudes towards finance, though "keeping an eye on macroeconomic indicators" yields mixed results as one form of short-termism, such as not having a will, reduces the likelihood of looking at macroeconomic indicators whereas the other form of short-termism, such as regretting a financial decision, increased that likelihood. Other significant antecedents to attitudes include marital status, gender, and immigration status.

- **Marital status.** Singles are less likely to have a budget when compared to individuals in a formal union. This is consistent with the findings of Xiao and O'Neill (2018). This is presumably because singles are more aware of their household's expenses and can mentally track their spending by reframing budgeting as "small spending restrictions today to insure a better future tomorrow" (Xiao & O'Neill, 2018, p. 458). In turn, individuals in a formal union have to develop a budget in writing for the parties to keep track of one another's spending.
- **Gender.** Women are less likely to look at macroeconomic indicators and to enjoy dealing with financial matters, but are more likely to have a budget than men. Xiao and O'Neill (2018) also find that women are more likely to budget than men. This could be

because women typically have a lower confidence level regarding finance than men and, consequently, prefer to be more conservative. Barber and Odean (2001) find that men are more likely to be overconfident than women when managing their portfolios, resulting in more turnover in male-managed portfolios. Women, who are more conservative and less confident than men, as reported by Drolet (2016), have lower turnover and typically obtain better returns than men.

- **Immigration status.** Individuals who immigrated to Canada are more likely than individuals native to Canada to enjoy dealing with financial matters. Although we are unaware of research regarding the relationship between immigration and enjoyment of financial matters, we believe it could be because some immigrated individuals appreciate the stability of the Canadian banking system, especially if they come from a country whose economy or banking system is unstable. The level of security offered by the Canadian banking system (for instance, the Canadian Deposit Insurance Corporation insures Canadians' banking accounts) elevates their confidence and perhaps increases their involvement with their finances, giving them a sense of enjoyment to deal with their financial affairs.

As for the independent knowledge related variables, it appears that different components of financial knowledge influence different angles of attitudes. While it is the objective measured financial knowledge, not financial confidence, that is associated with the variable "keeping an eye on macroeconomic indicators", it is the confidence, not objective measured financial knowledge, that is associated with the variables "enjoying dealing with financial matters" and "having a budget". Accordingly, the results partially support Hypothesis 1b.

Table 5.3 Attitudes Logit Model

Variables	Informed	Enjoy	Budget
Household income: High household income	1.470***	1.237*	0.726***
Region (base is British Columbia)			
Atlantic	0.776	1.066	0.907
Quebec	0.819	1.120	1.281
Ontario	0.863	0.991	1.099
Manitoba, Saskatchewan, and Alberta	0.875	1.227	0.794
Age (base is 18 to 34)			
35 to 44	1.284	0.897	1.169
45 to 54	1.153	0.759	1.111
55 and over	0.992	0.847	0.950
Marital status: Single	0.827	1.170	0.787**
Has children	0.905	1.122	1.147
Housing tenure (base is renter)			
Homeowner without mortgage	1.437**	1.079	0.620***
Homeowner with mortgage	1.389**	0.945	0.868
Took course in finance/economics	1.210	1.951***	1.791***
Education: College, trade school, university	1.427***	1.029	1.143
Employment status (base is employed)			
Self-employed	1.550**	1.149	0.824
Unemployed	0.930	1.130	0.864
Retired	1.107	1.257	0.795
Female (base is male)	0.732***	0.622***	1.454***
Immigrated to Canada	1.002	1.538***	1.006
Has a credit card	1.668***	1.385*	1.137
Keeps up with bills	1.040	1.500***	0.845
Influenced by advice (base is no advice)			
Financial advisor	1.905***	1.217*	1.263**
Knowledgeable friend	1.401***	0.944	1.192*
Media advice group	2.520***	1.547***	1.147
Financial knowledge and confidence (base is "not knowledgeable and not confident")			
Not knowledgeable and confident	1.132	2.900***	1.559**
Knowledgeable and not confident	1.494**	1.101	1.238
Knowledgeable and confident	2.755***	3.713***	1.670***
Has a will	1.320**	1.232*	1.398***
Regretted a financial decision	1.801***	0.815**	1.136
Constant	0.291***	0.308***	0.573**
Observations	5,505	5,419	5,473
Pseudo r^2	0.165	0.118	0.052

5.3 SUBJECTIVE NORMS AND OVERCONFIDENCE

Table 5.4 exhibits the results of logistic regression analyses on the relationship between subjective norms and overconfidence. The results on control variables suggest the following:

- The reliance on advice from finance professionals is greater among individuals in a good socio-economic situation, that is a household income greater or equal to $80,000, has an education — either a degree or a finance/economic course, and has a credit card. Not-married individuals are less likely, and women are more likely to seek professional advice. Women appear to both rely on professional advice and discuss financial matters with their colleagues, friends, and families. Positive attitude to finance matters, in a form of keeping eyes on macro indicators, is positively associated with all three sources of advice.
- The reliance on advice from knowledgeable friends is less likely among individuals with a high-household income (although marginal); who are aged 35 years or older; with an occupational status other than *employed*; and, who immigrated to Canada (although marginal). As mentioned, females and those who constantly check macro indicators tend to discuss finance matters with people around them.
- The reliance on advice from the media advice group is greater among unemployed individuals (although marginal), but less likely among homeowners and retired people. As expected, people who constantly check macro indicators and those who find enjoyment in dealing with financial matters are more likely to seek finance-related information in the media advice group source.

As for the relationship between overconfidence (the independent variable) and subjective norms, the results did not support the argument offered by the existing study. Kramer (2016), specifically, suggests that overconfident individuals are less likely than individuals who are not overconfident to seek external advice. In empirical application to this argument, however, external advice — either advice from financial advisors, knowledgeable friends or the media advice group — is not significantly associated with whether or not a respondent is overconfident, refuting Hypothesis 2b. However, the level of objectively measured financial knowledge is positively associated with the reliance on formal advice. This finding is consistent with the research of Collins (2012), who found that objectively financially knowledgeable individuals rely on both their own views as well as those of financial professionals. In addition, underconfident individuals, referring

to objectively knowledgeable but not confident people, appear to discuss finance matters with their colleagues, friends, and families, although the significance is marginal.

Table 5.4 Subjective Norms Logit Model

Variables	Formal advice	Informal advice	Media advice
Household income: High household income	1.296**	0.820*	1.151
Region (base is British Columbia)			
Atlantic	0.941	1.110	0.881
Quebec	0.878	1.390*	1.983***
Ontario	1.092	1.416**	1.424**
Manitoba, Saskatchewan, and Alberta	1.038	1.354*	1.075
Age (base is 18 to 34)			
35 to 44	1.068	0.631***	0.895
45 to 54	0.828	0.414***	1.206
55 and over	0.751	0.366***	1.062
Marital status: Single	0.788**	0.935	0.829
Has children	0.921	1.163	0.984
Housing tenure (base is renter)			
Homeowner without mortgage	1.151	1.010	0.730*
Homeowner with mortgage	1.007	0.988	0.675***
Took course in finance/economics	1.465*	1.098	1.369
Education: College, trade school, university	1.206*	1.097	1.028
Employment status (base is employed)			
Self-employed	0.794	0.595***	1.102
Unemployed	0.762	0.658**	1.457*
Retired	1.033	0.563***	0.675**
Female (base is male)	1.607***	1.288**	0.865
Immigrated to Canada	0.892	0.754*	1.234
Has a credit card	2.284***	0.839	0.945
Keeps up with bills	1.200	0.867	1.108
Keeps eye on macroeconomic indicators	1.558***	1.418***	2.125***
Enjoys dealing with financial matters	1.060	0.914	1.355***
Has a household budget	1.152	1.119	1.015
Financial knowledge and confidence (base is "not knowledgeable and not confident")			
Not knowledgeable and confident	1.224	0.833	0.916
Knowledgeable and not confident	1.810***	1.301*	0.954
Knowledgeable and confident	1.611***	1.103	1.069
Has a will	1.700***	0.930	0.840
Regretted a financial decision	1.183	1.160	1.014
Constant	0.937	0.692	0.146***
Observations	5,378	5,378	5,378
Pseudo r^2	0.092	0.081	0.063

6 REVIEW OF FINDINGS

6.1 HYPOTHESIS 1A: AFS CONSUMPTION AND ATTITUDES TO FINANCES

Hypothesis 1a states that the likelihood of seeking an AFS loan is negatively associated with positive attitudes towards financial matters. Empirical findings do not support this hypothesis, since the three *attitude* variables were not significantly associated with the use of alternative financial services for either income group.

6.2 HYPOTHESIS 1B: FINANCIAL KNOWLEDGE AND ATTITUDES TO FINANCE

Hypothesis 2a states that positive attitudes towards financial matters are associated with a higher level of objective financial knowledge. Empirical findings partially support this hypothesis, since financial knowledge was a significant antecedent to maintain their knowledge of macroeconomic indicators. It is financial confidence, rather than knowledge, however, that was significantly associated with the other two *attitude* variables, i.e., enjoy dealing with financial matters and have a household budget.

6.3 HYPOTHESIS 2A: AFS USAGE AND SUBJECTIVE NORMS

Hypothesis 2a states that the likelihood of seeking an AFS loan is lower among individuals who seek formal sources of advice for their financial decisions. Empirical findings partially support this hypothesis, since respondents in the low-income group were significantly less likely to use AFS borrowing if a financial advisor influenced their decision. However, a significant relationship between having a financial advisor and AFS use was not detected among the high household income group. Instead, interestingly, respondents in the high-income group were significantly less likely to use AFS borrowing if the media advice group influenced their decision.

6.4 HYPOTHESIS 2B: OVERCONFIDENCE AND SUBJECTIVE NORMS

Hypothesis 2b states that the reliance on subjective norms is lower for overconfident individuals than among less confident individuals. Empirical findings do not support this hypothesis, since no subjective norms variable was significantly associated with overconfidence.

6.5 HYPOTHESIS 3A: AFS CONSUMPTION AND FINANCIAL KNOWLEDGE

Hypothesis 3a states that the likelihood of borrowing from AFS suppliers is negatively related to financial knowledge. Empirical findings partially support this hypothesis, since respondents in the high-income group were significantly less likely to use AFS borrowing if they have financial knowledge. However, financial knowledge was not significantly associated with AFS borrowing among respondents in the low-income group.

6.6 HYPOTHESIS 3B: AFS USAGE AND OVERCONFIDENCE

Hypothesis 3b states that overconfident individuals are more likely to obtain an AFS loan than individuals who are not overconfident. Empirical findings partially support this hypothesis, since respondents in the high-income group were significantly more likely to use AFS borrowing if they are overconfident. However, overconfidence was not significantly associated with AFS borrowing among respondents in the low-income group.

6.7 HYPOTHESIS 3C: AFS CONSUMPTION AND PRESENT BIAS

Hypothesis 3c states that present-biased individuals are more likely to use alternative financial services than individuals who are not present-biased. Empirical findings partially support this hypothesis, since respondents in the high-income group were significantly more likely to use AFS borrowing if they are present biased. However, present bias was not significantly associated with AFS borrowing among respondents in the low-income group.

7 ROBUSTNESS CHECK

In this section, we test the robustness of our empirical results to alternative approaches to test the hypotheses. The robustness check is performed for each of the three regression models estimated in the previous section, they are: one for the AFS use; the other for attitudes to financial matters; and, the last one for subjective norms. All models estimated here are statistically significant with a p-value < 0.01.

7.1 ALTERNATIVE FINANCIAL SERVICES CONSUMPTION

First, we test if the results pertaining to the factors influencing the AFS use are robust to different cut-off points that distinguish high and low levels of objective financial knowledge (OFK). Table 7.1 presents the estimation of Equation 1 (page 27), with OFK cut-off points of 7 (the absolute mid-point) and 9 (the relative mid-point).

The results pertaining to AFS borrowing are fairly robust to changes in the cut-off point of OFK. For low household income individuals, the antecedents associated with AFS borrowing remain unchanged when the OFK cut-off point changes from 8 to either 7 or 9. For high household income individuals, however, some of the antecedents associated with AFS borrowing are sensitive to the OFK cut-off point. For instance, when the OFK cut-off point is 9, overconfidence is no longer significant while financial knowledge remains only marginally significant when the individual is under confident. An OFK cut-off value of 7 does not affect the significance of overconfidence nor financial knowledge, however. It appears that financial knowledge that enables answering at least roughly 60%, 8/14 = 0.57, of basic finance question is required in order to avoid high-cost borrowing. In both scenarios, present bias is associated with AFS borrowing for high household income individuals.

Table 7.1 Robustness of AFS Logit Model

Variables	OFK cutoff = 7		OFK cutoff = 9	
Household income	Low	High	Low	High
Region (base is British Columbia)				
Atlantic	0.650	0.329	0.666	0.320*
Quebec	1.448	3.183*	1.453	2.818
Ontario	0.855	0.942	0.872	0.948
Manitoba, Saskatchewan, and Alberta	1.990	0.360	2.044	0.311*
Age (base is 18 to 34)				
35 to 44	1.009	1.199	0.960	1.463
45 to 54	0.902	1.467	0.914	1.634
55 and over	0.382**	2.694*	0.368**	2.854*
Marital status: Single	0.902	1.682	0.906	1.437
Has children	1.309	2.163**	1.326	2.081*
Housing tenure (base is renter)				
Homeowner without mortgage	0.779	1.716	0.753	1.597
Homeowner with mortgage	0.751	2.566	0.756	2.532
Took course in finance/economics	2.077	0.672	1.926	0.642
Education: College, trade school, university	0.655*	0.759	0.677	0.679
Employment status (base is employed)				
Self-employed	1.463	0.097***	1.406	0.087***
Unemployed	2.004**	0.234	1.922*	0.265
Retired	1.158	0.700	1.149	0.963
Female (base is male)	1.045	1.093	1.018	0.985
Immigrated to Canada	1.445	0.481	1.409	0.479
Has a credit card	0.501**	0.309*	0.492**	0.412
Keeps up with bills	0.338***	0.843	0.347***	0.766
Keeps eye on macroeconomic indicators	0.707	1.085	0.696	0.972
Enjoys dealing with financial matters	1.102	1.114	1.036	1.164
Has a household budget	0.805	0.596	0.825	0.514*
Influenced by advice (base is no advice)				
Financial advisor	0.550*	0.822	0.560*	0.772
Knowledgeable friend	0.744	1.138	0.751	0.993
Media advice group	1.365	0.486*	1.346	0.501*
Financial knowledge and confidence (base is "not knowledgeable and not confident")				
Not knowledgeable and confident	2.090	4.230**	1.194	2.141
Knowledgeable and not confident	1.088	0.249**	0.716	0.421*
Knowledgeable and confident	1.275	0.368*	1.237	0.710
Has a will	1.110	0.276***	1.119	0.247***
Regretted a financial decision	1.357	1.963*	1.374	1.880*
Constant	0.269	0.175	0.343	0.115*
Observations	3,028	2,319	3,028	2,319
Pseudo r^2	0.173	0.215	0.173	0.181

7.2 ATTITUDES AND OBJECTIVE FINANCIAL KNOWLEDGE

Second, we tested whether the influence of financial knowledge on the attitude towards financial matters is different across different household income groups. Table 7.2 presents the results of such robustness checks, the logistic regression estimates of attitude when respondents are distinguished individuals by their levels of household income.

We see, in Table 7.2, that the significance of several variables observed in Table 5.3, which combined two household income levels, are coming from either household income group. For example, the significantly positive effects of education and being self-employed on checking macro indicators as well as the positive impact of the reliance on financial advisors on budgeting are mainly coming from high household income respondents. In comparison, the positive educational effect on budgeting and the positive impact of listening to knowledgeable friends on checking macro indicators originate from the low household income group. Homeowners without a mortgage are less likely to have a household budget if they are in the low household income group. The positive impact of having prepared a will on finding enjoyment in dealing with financial matters comes from the low household income group, and that on budgeting originates from the high household income group. In addition, the positive impact of an individual's age on enjoying dealing with financial matters as well as the impact of searching for financial information in the media advice group on budgeting, differ between the two household income groups. However, the directions of the influence are, in many cases, the same between the two income level groups, although there are few exceptions. For example, low household income homeowners are less likely to enjoy dealing with financial matters than renters, whereas high household income homeowners are more likely to enjoy dealing with financial matters than renters. For other variables, such as the positive impacts of education and keeping up with bills, on enjoyment in financial matters, the positive effects of reliance on financial advisors and having regretted a past financial decision, on checking macro indicators, and the positive impact of searching for publicly available financial information on both checking macro indicators and enjoying financial matters, as well as the gender effect on the three *attitude* measures are similar between the two household income groups.

Table 5.3 shows that objective financial knowledge matters for individuals to "keep an eye on macroeconomic indicators", while confidence matters for "enjoying dealing with financial matters" and "having a budget". Table 7.2 indicates that they are true for low household income

individuals regarding the macroeconomic and budget variables and for both low and high-income individuals regarding the enjoyment variable. However, for the high-income group, both knowledge and confidence are necessary in order to keep their eyes on macro indicators and to have a household budget.

Table 7.2 Robustness of Attitudes Logit Model

Variables	Informed		Enjoy		Budget	
Household income	Low	High	Low	High	Low	High
Region (base is British Columbia)						
Atlantic	0.695*	0.902	1.227	0.961	0.885	0.917
Quebec	0.748	0.840	1.370	0.870	1.479*	1.016
Ontario	0.727	1.104	1.033	0.994	1.269	0.898
Manitoba, Saskatchewan, and Alberta	0.876	0.926	1.165	1.313	0.758	0.793
Age (base is 18 to 34)						
35 to 44	1.258	1.189	0.971	0.669*	1.358	0.963
45 to 54	1.611*	0.811	0.984	0.519***	1.112	1.011
55 and over	1.130	0.777	1.285	0.447***	0.885	0.913
Marital status: Single	0.876	0.748	1.124	1.165	0.777*	0.833
Has children	0.893	0.921	1.624**	0.848	1.016	1.255
Housing tenure (base is renter)						
Homeowner without mortgage	1.395	1.345	0.789	1.829**	0.591***	0.708
Homeowner with mortgage	1.357*	1.286	0.670**	1.549**	0.846	0.943
Took course in finance/economics	1.186	1.385	1.904**	2.082***	2.683***	1.201
Education: College, trade school, university	1.253	1.707***	0.909	1.291	1.111	1.195
Employment status (base is employed)						
Self-employed	1.297	2.164***	1.230	1.079	1.140	0.659*
Unemployed	1.126	0.606	1.386	0.662	1.090	0.597*
Retired	1.237	0.870	1.023	1.537*	1.032	0.638*
Female (base is male)	0.778*	0.665**	0.685***	0.517***	1.654***	1.373**
Immigrated to Canada	0.900	1.343	1.734***	1.266	0.767	1.526**
Has a credit card	1.460*	3.288***	1.506**	1.183	1.224	1.133
Keeps up with bills	1.016	1.083	1.377**	1.801***	0.919	0.704**
Influenced by advice (base is no advice)						
Financial advisor	1.809***	2.260***	1.218	1.241	1.158	1.424**
Knowledgeable friend	1.647***	1.247	0.894	1.023	1.263*	1.083
Media advice group	2.269***	2.968***	1.519***	1.516***	0.939	1.396**
Financial knowledge and confidence (base is "not knowledgeable and not confident")						
Not knowledgeable and confident	1.150	1.277	2.211***	6.048***	1.795***	1.317
Knowledgeable and not confident	1.539**	1.440	1.064	1.219	1.216	1.388
Knowledgeable and confident	2.932***	2.604***	3.705***	3.832***	1.701***	1.803**
Has a will	1.278	1.389*	1.655***	1.022	1.131	1.722***
Regretted a financial decision	1.897***	1.636***	0.838	0.792	1.086	1.239
Constant	0.131***	0.087***	0.140***	0.225***	0.414**	0.324**
Observations	3,137	2,368	3,077	2,342	3,118	2,355
Pseudo r^2	0.131	0.170	0.121	0.148	0.0665	0.0610

7.3 SUBJECTIVE NORMS AND OVERCONFIDENCE

Lastly, we tested whether the impact of overconfidence is different across different household income groups. Table 7.3 presents the results of the logistic regression models of subjective norms by distinguishing individuals by their household income.

Similar to the case of individuals' attitudes, some control variables influence individuals' tendency to rely on external advice differently depending on their household income levels. For example, Table 7.3 shows that homeowners' reliance on the media advice group, the educational effect and the impact of holding credit card on the use of professional advice, and the positive association between keeping an eye on macroeconomic indicators as well as seeking advice from knowledgeable friends (all observed in Table 5.4), originate mainly from the low household income group. The influence of employment status on the reliance on three sources of advice, the gender impact on the use of the media advice, and the impact of immigrant status on the use of informal advice, all differ between the two household income groups. However, the directions of the influence are the same in many cases — at least no variable exhibits significant difference in its direction of influence between the two groups, i.e., a negative and significant impact on one group and a positive and significant impact on the other. In addition, there are variables that exhibit very similar impacts between the two groups. For instance, for both high and low household income individuals, being female in gender, having financial knowledge, and having prepared a will is positively associated with seeking professional advice; positive attitudes towards finance, in terms of keeping eyes on macro indicators, is positively associated with seeking formal advice and publicly available information; and, young respondents who are aged 34 or less are more likely to discuss financial matters with their friends who are knowledgeable.

As for the independent variable, the results are fairly robust even when the analyses distinguished among individuals based on their household income: overconfidence is not an antecedent to seeking advice, thus rejecting Hypothesis 2b.

Table 7.3 Robustness of Subjective Norms Model

Variables	Formal advice		Informal advice		Media advice	
Household income	Low	High	Low	High	Low	High
Region (base is British Columbia)						
Atlantic	0.878	1.023	1.174	1.134	1.035	0.732
Quebec	0.801	1.041	1.829**	1.109	2.256***	1.743**
Ontario	1.169	0.994	1.648**	1.260	1.442	1.420
Manitoba, Saskatchewan, and Alberta	0.986	1.056	1.102	1.574**	1.368	0.855
Age (base is 18 to 34)						
35 to 44	0.894	1.270	0.610**	0.674*	0.731	1.014
45 to 54	0.892	0.806	0.270***	0.577**	1.015	1.425
55 and over	0.754	0.837	0.263***	0.525**	0.854	1.196
Marital status: Single	0.746*	0.884	0.816	1.116	0.925	0.738*
Has children	1.011	0.888	1.218	1.181	1.112	0.820
Housing tenure (base is renter)						
Homeowner without mortgage	1.077	1.316	1.176	0.746	0.631**	0.950
Homeowner with mortgage	0.996	1.091	1.054	0.873	0.530***	0.962
Took course in finance/economics	2.254**	0.917	1.162	0.999	1.158	1.519*
Education: College, trade school, university	1.361**	1.002	1.247	0.925	0.957	1.191
Employment status (base is employed)						
Self-employed	0.957	0.675*	0.579*	0.599**	1.915**	0.773
Unemployed	0.604**	1.014	0.730	0.497**	1.593**	1.549
Retired	0.825	1.746**	0.543***	0.717	0.807	0.710
Female (base is male)	1.621***	1.590***	1.334*	1.243	1.052	0.722**
Immigrated to Canada	0.904	0.796	0.635**	0.941	1.224	1.302
Has a credit card	2.424***	1.559	0.871	0.674	1.016	1.030
Keeps up with bills	1.395*	1.049	0.944	0.794	1.167	1.050
Keeps eye on macroeconomic indicators	1.555***	1.667***	1.678***	1.264	2.078***	2.242***
Enjoys dealing with financial matters	1.085	1.039	0.821	1.030	1.302*	1.363*
Has a household budget	1.066	1.256	1.181	1.009	0.843	1.182
Financial knowledge and confidence (base is "not knowledgeable and not confident")						
Not knowledgeable and confident	1.126	1.367	0.745	1.061	0.888	1.197
Knowledgeable and not confident	1.767***	1.830**	1.297	1.410	0.859	1.200
Knowledgeable and confident	1.620**	1.655**	1.074	1.141	1.210	1.086
Has a will	1.902***	1.571***	0.961	0.963	0.696*	0.966
Regretted a financial decision	1.332*	1.110	1.146	1.182	1.001	1.023
Constant	0.092***	0.218***	0.693	0.915	0.278***	0.174***
Observations	3,048	2,330	3,048	2,330	3,048	2,330
Pseudo r^2	0.109	0.0652	0.132	0.0469	0.0787	0.0700

8 CONCLUSION

Based on Ajzen's (1991) theory of planned behaviour, this research developed a conceptual framework to predict that the use of alternative financial services is determined by three different motivation sources, namely: attitudes, subjective norms, and perceived feasibility. Through these sources financial knowledge and behavioural biases influence an individual's choice of AFS borrowing. The work then empirically tests the framework using data from the Canadian Financial Capability Survey. The findings of this research suggest that the antecedents of AFS borrowing depends on the individual's socio-economic profile, which sheds additional light on the ongoing debate about the antecedents of AFS borrowing. Low household income individuals are more likely to use these expensive short-term loans when they: are unemployed; do not have access to other forms of credit; can not keep up with their bills, and, do not consult financial advisors. On the other hand, high household income individuals are more likely to use these loans if they lack financial knowledge or have behavioural biases like overconfidence or short-termism. Furthermore, the results show that attitudes to financial matters are influenced by both financial knowledge and confidence as predicted by our conceptual framework, and that the knowledge facilitates consultation with finance professionals, which, in turn, reduces the likelihood of AFS borrowing for low-income individuals.

Like most empirical work, this research is not limitation free due to its reliance on the secondary data. Firstly, the CFCS provide the respondent's characteristics, e.g., the levels of financial knowledge and confidence in financial knowledge, as on the day on which the survey was conducted, and at that time it asked if they used AFS loans in the past 12 months. This creates a causality problem, as it is not clear whether, for example, if the respondent's level of financial knowledge influenced the decision to use an AFS loan or his/her experience in AFS borrowing affected the levels of financial knowledge and confidence in the knowledge[22]. Perhaps some

[22] Nevertheless, the causality issues associated with the CFCS might be relatively less severe than those with the National Financial Capability Study, which asked it respondents if they used AFS loans in the past 60 months.

respondents had not fully understood the costs of AFS at the time of their AFS borrowing, and learned the finance consequences afterwards. Alternatively, some respondents might have experienced a successful use and repayment of AFS, which might have reinforced their confidence in financial matters. Another example is the relationship between having trouble in keeping up with bills and the AFS use. We cannot discern whether borrowing from AFS created financial difficulties or whether financial difficulties caused AFS borrowing.

Second, the variables available in the CFCS and used for the analyses may be incomplete. For instance, assessing one's attitudes towards financial matters only from three angles, that is whether or not keeping an eye on macroeconomic indicators, whether or not enjoying dealing with financial matters and whether or not having a budget, might have omitted some important aspects of "attitudes". These might be more directly related to an individual's decision to use AFS such as emotions like urgency or fear. Similar arguments holds for other variables, such as those used to gauge subjective norms and present bias. There are more measures for subjective norms, such as conformity, that could have been included in the analysis if it had been available. Not having a will, an action with which this study attempted to detect present bias, may not be the manifestation of present bias. However it may represent people's rational response to the way their province handles the distribution of their assets. Having a past, regretted financial decision may be caused by an unawareness of particular aspects of AFS use such as regulatory issues, rather than a preference given to immediate consumption at the expense of those in the future.

The AFS use — this study's main dependent variable — also poses a limitation because this variable was created based on a question in the CFCS, whether they *or a family member* made use of AFS in the past 12 months. This makes it impossible to distinguish, when the answer to the question is yes, whether it is the survey respondent or a family member that used AFS. The extent to which the sample includes the latter case, this study is subject to main respondent bias through its attempts to associate the main respondent's characteristics with his/her family member's decision to use AFS.

Despite these limitations, we believe that this research contributes to three distinct literatures. First, it contributes to the literature on financial literacy because it provides evidence that financial literacy can improve debt-related behaviour since financial knowledge can steer

individuals away from expensive credit. This is in addition to the asset-related behaviours that are identified by this research strand. Second, it contributes to the literature on behavioural finance by providing evidence that suboptimal decision-making arising from behavioural biases can also apply to debt-related behaviour in addition to those related to assets, i.e., mental accounting when budgeting or overconfidence when trading stocks.

Lastly, this research contributes to the literature regarding alternative financial services. First, it is one of the first Canadian studies on this topic based on data representative of Canada's population. The only paper on this topic in the Canadian context that we are aware of is by Lamb (2016), whose findings are based on a sample that is not representative of Canada's population. Second, it is among the first papers to examine the factors influencing individuals' attitudes to financial matters and subjective norms. Third, it is one of the first studies to provide evidence that the antecedents of AFS are variable. That is, while we find results consistent with the literature, we also find that these results depend on an individual's socio-economic profile. These results shed additional light on the ongoing debate about the role of AFS in which one school of thought claims that AFS attract cash-strapped individuals, while the other argues that it exploits them by taking advantage of their lack of knowledge or cognitive bias. Empirical observations obtained here suggest that both are probably the case as they are in line with the former when low household income individuals are examined, and are in line with the latter when wealthy counterparts are considered. This finding, however, does not support the argument to advocate for AFS, claiming that the AFS industry provides a necessary service for individuals who urgently need cash. It just indicates that cash-strapped individuals are more likely to perceive AFS a viable option (regardless of whether this perception is right or wrong). The implications of these findings are twofold. The first implication relates to the limitation of the TBP. That is the finding that people are more likely to use AFS when they have trouble keeping up with their bills, do not have access to other forms of credit or are unemployed suggests that AFS borrowing is driven by necessity rather than intention. Moreover, the TPB may not apply if desperation pre-empts the decision process. Even if their attitudes, subjective norms or perceived feasibility would normally refute the intention of AFS borrowing, their precarious situation could override the linkage between intention and behaviour and thereby lead these individuals to borrow nevertheless. This suggests a limitation of TPB in that it may not apply if factors such as necessity, emotion, etc., drive individuals'

behaviour. In this instance, the TPB does not work well when it is applied to low-income individuals' use of AFS. While our statistical models control for *necessity* to remedy this limitation, it nevertheless points to potential avenues for future research.

The second implication is associated with public policy. The current policy initiatives to implement basic finance educations in public school curriculums is worthwhile, but is not enough to reduce the negative externalities of these high-interest loans. To reduce these externalities, policymakers should consider programs facilitating access to traditional means of obtaining credit for low-income individuals, as well as access to professional advice. Alternatively, policymakers could further regulate the AFS by imposing a reasonable cost of credit, i.e., one that is below the criminal interest rate, and by mandating additional disclosures, i.e., comparing the cost of borrowing across different credit solutions (Figure 9.1 in the appendices is an example). This study also suggests the importance of addressing individuals' cognitive biases by showing their significant positive associations with AFS use. A search for effective approaches for this issue is a fertile area to explore in future studies.

9 APPENDICES

Figure 9.1 Sample fee disclosure for a short-term $300 loan

Image source: Financial Consumer Agency of Canada (2017).

9.1 GLOSSARY OF ACRONYMS

AFS	alternative financial services
ALICE	asset-limited, income constrained, and employed
APR	annual percentage rate
ARTI	asset-rich and temporarily illiquid
CFCS	Canadian Financial Capability Survey
NFCS	National Financial Capability Study
OFK	objective financial knowledge
RAL	refund anticipation loans
SD	standard deviation
SFK	self-assessed financial knowledge
TPB	theory of planned behaviour

9.2 OTHER DECISION-MAKING MODELS

This study has developed a theoretical framework that predicts individuals' use of alternative financial services based on the theory of planned behaviour (TPB). However, there are other theories (other than TPB) that conceptualise human behaviours. This appendix discusses these theories and examines if they also predict the impact of attitudes, the level of subjective norms, financial knowledge, and the cognitive biases of AFS use in the way same as this study's framework does.

9.2.1 The Dual Process Theory

The dual process theory suggests that individuals faced with a decision have two types of reasoning. According to Handley and Trippas (2015), the first type of reasoning (i.e., type 1) is rapidly generated as it is based on an intuitive processing that is effortless and autonomous, whereas the second type of reasoning (i.e., type 2) is generated slowly as it is based on an analytical processing that is effortful and reliant upon working memory resources.

Initially, the theory suggested that decision-makers rely on their fast-but-heuristic type 1 reasoning, which may be corrected by their slow-but-deliberative type 2 reasoning. However, researchers, such as Bago and De Neys (2017) and others, find that these two types of reasoning frequently occur simultaneously rather than sequentially, suggesting that decision-makers can make knowledgeable decisions quickly.

As for the decision to borrow from AFS, the dual process theory supports the framework this study has developed for the AFS use on two fronts. First, because behavioural biases such as overconfidence and present bias can alter preferences and perceived outcomes, we can postulate that such biases influence type 1 reasoning or impede "correct" type 1 reasoning, leading to an increase in the likelihood of AFS borrowing. Secondly, we can postulate that financial knowledge is jointly related with type 2 reasoning, as one's ability to analyse a financial proposition is directly tied with his or her understanding of financial concepts. Therefore, greater levels of financial knowledge should reduce the likelihood of AFS borrowing as consumers understand the costs and become aware of other borrowing solutions.

9.2.2 Social Bond Theory

The social bond theory suggests that an individuals' obedience to or deviance from social norms depends on the strength of their relationship with four distinct elements. According to Kempf-

Leonard & Morris (2012), these elements are: (1) attachment to others; (2) conformity; (3) involvement in conventional activities; and, (4) belief in a legitimate order. A strong relationship between an individual and these four elements promotes obedience to social norms, whereas a weak relationship between an individual and one of these four elements can promote deviance from social norms. For instance, conformity and belief in a legitimate order are negatively related to drunk driving (Durkin, Wolfe, & May, 2007) and illegal computer hacking (Young & Zhang, 2007). Neely and Vaquera (2017), in contrast, find that student engagement in extracurricular activities reduces the likelihood of dropping out of high school, arguing that such engagement strengthens attachment, conformity, involvement, and belief.

Although borrowing from alternative financial services is not a deviance from social norms per se, the social bond theory is somewhat consistent with the subjective norms component of the conceptual framework we developed as well as the theory of planned behaviour. If social norms influence the use of AFS and the degree of attachment, conformity, involvement and belief form social norms, then they influence the outcome of an AFS borrowing decision through social norms. For instance, individuals with a high level of attachment and conformity sense are likely to follow the advice received from peers — either supporting or disapproving of AFS borrowing.

9.2.3 Prospect Theory

The prospect theory relates to decision-makers' differing perceptions of gains and losses. Although expected utility theory predicts that individuals are rational, behaving in a utility-maximising way and having equal utility for a given level of consumption, prospect theory suggests otherwise. Kahneman and Tversky (1979) posit that the value function of utility is much steeper for losses than for gains, suggesting that the utility for a given level of consumption is relative to a reference point. Therefore, the same level of consumption will provide a different utility depending on whether this level of consumption was reached by an upward variation, a downward variation, or no variation at all. Thaler (2016), similarly, reports that identical outcomes presented in different ways, i.e., framing, lead to different behaviour. Prospect theory suggests that decision-makers become more risk-averse when faced with the prospect of a gain as they prefer a certain small gain as opposed to an uncertain larger gain. They become risk seeking when faced with the prospect of a loss. Thus they prefer an uncertain solution that potentially leads to complete loss avoidance as

opposed to a certain opportunity to reduce the level of loss. Although this theory is frequently used in the behavioural finance literature, it can also be applied in the context of AFS borrowing.

Behavioural biases like overconfidence and present bias can alter the decision-maker's perceived gain or loss. For these individuals being unable to purchase an asset, which they would like to obtain out of either impulsive desire or necessity, could be perceived as a loss. This would thereby push them to increase their tolerance for risk and to make risky decisions in an effort to mitigate this loss, such as AFS borrowing.

Further, it can be argued that the alternative financial service industry's marketing practices manipulate decisions via framing. For instance, payday lenders frequently advertise their loans as "get a $200 loan for a cost of $20" rather than "pay more than 300% APR for a $200 loan", thus emphasising the gain and concealing possible losses. Such advertisements attempt to convince consumers that they can experience a gain with few associated costs. This takes advantage of consumers' low levels of financial knowledge. Likewise, higher levels of financial knowledge would presumably increase the awareness of the high levels of fees and the likelihood of losing from such borrowing arrangement.

9.2.4 Self-regulation Theory

Self-regulation theory suggests that behaviour emerges from a discrepancy between the actual self and the ideal self. According to Carver and Scheier (1981), self-regulation is guided by a *discrepancy-reducing feedback loop*, which starts with a comparison between the actual state and the goal state, i.e., the *standard* that regulates behaviour. If a discrepancy is observable then the individual performs a chosen behaviour that is an attempt to eliminate the gap between the actual state and the goal state. A comparison between both states is then assessed, which dictates whether additional action is required to reach the goal state. If the goal state is reached, then the feedback loop closes. Likewise, the loop goes on until the goal state is reached.

Baumeister and Vonasch (2015) apply self-regulation theory to addiction-related human behaviours. They argue that the self-regulation could either facilitate or restrain addictive behaviour. That is, when a gap exists between the actual self and the ideal self, individuals with addictions are likely to attempt to reduce this gap and feel better by consuming a product or service to which they are addicted, thereby facilitating the addiction. However, the presence of incentives

— either positive, i.e., a reward, or negative, i.e., a cost, — could reduce the consumption of the addicted product or service if the goal state is attained by benefiting from the incentives rather than consumption.

From the viewpoint of self-regulation theory, borrowing can be regarded as a tool that individuals can use in order to reach their goal state as borrowed funds can be used to finance the costs necessary to attain it. Applying the framework put forth by Baumeister and Vonasch (2015), on the one hand, individuals — especially those with behavioural biases — are more likely to buy a product or service on credit to eliminate any existing gap between the actual self and the ideal self. On the other hand, individuals — especially those with an adequate level of financial knowledge — can assess the loan proposition, leaving them to decide whether the borrowing behaviour would effectively eliminate any existing gap between the actual self and the ideal self. In the first scenario, the feedback loop encourages borrowing whereas in the second scenario, the awareness of negative incentives, i.e., increased costs, can cause the individual to refrain from borrowing. These mechanisms are consistent with the framework of AFS borrowing that this study has developed based on the theory of planned behaviour.

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