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Given consumer environment, consumer capability is an important factor for consumer economic wellbeing. Financial capability can be considered an ability of applying appropriate financial knowledge and performing desirable financial behaviors to achieve financial goals and enhance financial wellbeing. Empirical research finds that financial literacy in many countries is much lower than expected. Consumers often engage in less desirable financial behaviors. This chapter first examines the concepts of consumer financial capability, financial literacy, and financial behavior. Next, the concept of financial wellbeing is discussed. Following that, the relationship between financial capability and financial wellbeing is presented. The final section summarizes the chapter and discusses future research directions.

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## Financial Capability

### Concept of Financial Capability

Financial capability can be considered a combination of financial literacy and financial behavior to achieve financial wellbeing. In recent years, led by UK (Atkinson, McKay, Kempson, &

Collard, 2006), several countries such as Austria (Fessler, Schürz, Wagner, & Weber, 2007), Canada (Arrowsmith & Pignal, 2010), Ireland (O'Donnell & Keeney, 2009), and the USA (Lusardi, 2011) have moved their focus from promoting financial literacy to financial capability among consumers.

Research on financial capability and financial literacy seeks to understand and to improve how consumers make financial decisions. On the one hand, this concerns the financial knowledge of consumers. On the other hand, it concerns the actual behavior of consumers and its prerequisites such as skills and attitudes (Hoelzl & Kapteyn, 2011).

Financial capability is considered a broader concept that also highlights action and behavior of the individual and the relevance of outside institutions and regulations, especially those working with low-income populations (Johnson & Sherraden, 2007). To facilitate low-income consumers to engage in desirable financial behaviors, free or low cost access to financial counseling and planning services are needed.

Financial capability is researched in different ways. Financial capability can be distinguished in three areas that influence behavior: (1) knowledge and understanding, (2) skills, and (3) confidence and attitudes (Kempson, Collard, & Moore, 2005). In the UK survey of financial capability, this concept is measured in five different domains of financial capability: (1) managing money: making ends meet, i.e., having little problems dealing with financial obligations; (2) managing

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money: keeping track, i.e., having an overview of expenses; (3) planning ahead, i.e., being future oriented; (4) choosing products, i.e., deciding reasonably in financial matters; and (5) staying informed, i.e., seeking information about financial products and the economy (Atkinson et al., 2006). Some researchers argue that variations in financial capability are more related to psychological than informational differences. They list several cognitive biases that would hinder the transformation of sufficient information into goal-directed behavior: mental accounting, information overload, status quo bias, procrastination, regret, and loss aversion. These cognitive biases may not be easy to overcome, and more research on debiasing in the financial domain is needed. They argue that financial capability programs should not only rely on education but also take the additional factors into account (De Meza, Irlenbusch, & Reyniers, 2008).

UK is the first country in the world to conduct national financial capability survey. Based on the Baseline Survey of Financial Capability (BSFC), researchers describe the distribution of financial capability and look for groups of people with similar skills (Atkinson et al., 2006). They also explore ways of identifying people most at risk of becoming over indebted (Kempson & Atkinson, 2006). The financial capability of people with literacy and numeracy needs is also analyzed with the BSFC data (Atkinson, 2007). These British researchers have shown that there is considerable diversity in the financial capability scores of adults with literacy and numeracy needs. It would not be appropriate to assume that financial capability needs are an inevitable consequence of literacy or numeracy needs. Their survey results show quite clearly that keeping track of finances is not an area of concern for most of the adults that have been studied. Yet budgeting in particular is an aspect of financial capability that very often gets special attention on courses that cover personal finances.

The US National Financial Capability Study in 2009 consists of three linked surveys: (1) National Survey; (2) State-by-State Survey; and (3) Military Survey. According to Lusardi (2011), the overarching research objectives of the US

financial capability survey are to benchmark key indicators of financial capability and evaluate how these indicators vary with underlying demographic, behavioral, attitudinal, and financial literacy characteristics. Financial capability cannot be judged simply by looking at one indicator. Rather, it covers several aspects of behavior. Consistent with the surveys that have been done in other countries, these behavioral aspects include how people manage their resources, how they make financial decisions, the skill set they use in making such decisions, and the search and information elaboration that goes into those decisions. Lusardi (2011) focused on four main areas to assess Americans' financial capability: (1) Making ends meet; (2) Planning ahead; (3) Choosing and managing financial products; and (4) Financial literacy and self-assessed skills. This survey was conducted again in 2012 (FINRAIEF, 2013).

Another UK researcher proposed a second way to measure consumer capability. His measure is to combine items describing both financial behaviors and financial outcomes, which is different from the approach used by (Atkinson et al., 2006). Using data from the British Household Panel Survey, the results show that the lowest financial capability is found among young unemployed single adults living in households with other unrelated non-working adults. In contrast, older men and women in full-time work with an employed spouse have the most financial capability (Taylor, 2011).

The author of this chapter and colleagues use a different approach to measure financial capability. This is a comprehensive measure that includes objective financial literacy, subjective financial literacy, desirable financial behavior, undesirable financial behavior, and perceived financial capability. Using data from the 2009 US State-by-State Survey of Financial Capability, the results indicate a positive association between perceived financial capability and financial satisfaction. The findings suggest that desirable financial behavior increases financial satisfaction, whereas undesirable financial behavior decreases financial satisfaction. Subjective financial literacy is also found to contribute positively to

financial satisfaction. The positive association between objective financial literacy and financial satisfaction is found in bivariate analyses but not in multivariate analyses. The results imply that to enhance consumer financial wellbeing, consumer financial education programs should emphasize action taking and encourage consumers to avoid risky financial behavior, engage in desirable financial behavior, and improve financial self-efficacy (Xiao, Chen, & Chen, 2014).

Using the similar approach, researchers examine age differences in financial capability. In this study, financial capability is measured by five variables: objective financial literacy, subjective financial literacy, desirable financial behavior, perceived financial capability, and financial capability index (a sum of Z scores of the former four variables). Financial capability is expected to increase with age during a person's active life. Data from the 2012 National Financial Capability Study is used for data analyses. Multiple regression results indicate that age differences in four financial capability variables showed similar patterns. After controlling for demographic and economic characteristics, young adults aged 18–24 have the lowest scores of objective financial literacy, subjective financial literacy, perceived financial capability, and financial capability index. Age patterns of financial behavior are complicated. The results have implications for consumer educators to provide effective financial education for all age groups (Xiao, Chen, & Sun, 2015).

The same measure of financial capability is used to examine the association between financial education and financial capability among American consumers. Based on data from the 2012 National Financial Capability Study, results show that, after controlling for demographic and financial variables, respondents who ever received financial education have higher scores in objective financial literacy, subjective financial literacy, desirable financial behavior, perceived financial capability, and financial capability index. In addition, high school, college, and workplace financial education variables also show positive associations with the five financial capability variables. The results imply

that financial education in high school, college, and workplace may enhance consumer financial capability (Xiao & O'Neill, 2014).

## Financial Literacy

According to the standard economic theory, consumers are fully informed and can make rational choices in long term financial planning to maximize their utilities over life cycle stages. However, empirical research indicates that consumers, in fact, are not fully informed and cannot make rational choices even when the information is available or can be obtained at low/no cost.

Consumer economists have a long history of conducting financial education research (Hira, 2010). For example, many members of the American Council on Consumer Interests (ACCI) have started to teach and write personal finance issues in the early 1980s. The Association for Financial Counseling and Planning Education (AFCPE) was founded by a group of consumer economists in 1983 to focus on consumer financial education (Burns, 2008). In recent decades, researchers in economics, finance, and marketing also pay attention to financial literacy education research. Lusardi (2011), an economics professor and leading researcher on financial literacy, provides a review of economic literature on financial literacy. Over the last 2 decades, researchers have started to explore whether individuals are well equipped to make financial decisions. In the economics literature, studies by Bernheim (1995, 1998) were among the first to document that many US consumers display low levels of financial literacy. Most Americans fail to understand basic financial concepts, particularly those relating to bonds, stocks, and mutual funds (Hilgert, Hogarth, & Beverly, 2003). A study of Washington state residents finds that people frequently fail to understand terms and conditions of consumer loans and mortgages and that this problem may persist over time (Moore, 2003). The National Council on Economic Education's report shows a widespread lack of knowledge regarding fundamental economic concepts among high school students (NCEE, 2005),

confirming similar findings by the Jump\$tart Coalition for Personal Financial Literacy (Mandell, 2008). Lack of financial sophistication is not only an American problem; researchers document low levels of financial literacy in several other countries (Smith & Stewart, 2008). Similarly, respondents from a large scale survey in Europe score poorly on financial numeracy and literacy scales (Christelis, Jappelli, & Padula, 2010). Consistent with the findings in the USA, UK borrowers have a poor understanding of mortgages and interest rates (Miles, 2004).

Lusardi and Mitchell (2014) developed a life cycle saving model that addresses the role of financial literacy. This model predicts that financial literacy is endogenously determined over the life cycle. Consumers invest in financial knowledge to the point where their marginal time and money costs of doing so are equated to their marginal benefits. These predictions suggest that consumers who receive financial education would increase their ability to manage their money and perform financially better than their counterparts who do not receive financial education. Previous research also shows that financial education is associated with financial literacy and encourages desirable financial behaviors among consumers (Xiao, Serido, & Shim, 2012; Xiao & O'Neill, 2014; Xiao, Ahn, Serido, & Shim, 2014).

In the research of financial literacy, subjective and objective measures are distinguished by researchers. Research finds that the two types of measures have different effects on consumer financial behaviors. For example, a study based on a sample of first-year college students show that subjective financial knowledge does more to prevent risky credit behaviors than objective financial knowledge (Xiao, Tang, Serido, & Shim, 2011).

## Financial Behavior

Financial behavior refers to human behaviors relevant to money management (Xiao, 2008). Common financial behaviors include behaviors related to earning, spending, borrowing, saving, and protecting. Desirable financial behavior

should enhance consumer economic wellbeing, while undesirable financial behaviors hurt economic wellbeing. Performing desirable financial behavior implies financial capability. Being able to engage in desirable financial behavior is based on consumer possession of adequate financial literacy.

Research on financial behavior can be categorized as special topic research and general topic research. Specific financial behaviors have been researched extensively such as spending, borrowing, and saving behaviors. Some researchers also treat financial behavior as a construct and have developed scales to measure it. Using data from a nationally representative sample of adults, researchers have developed a scale of financial management behaviors. The scale has four subscales: cash management, credit management, savings and investment, and insurance. They also examine the psychometric properties of the scale and find that the scale is highly associated with other measures of financial management behaviors and is predictive of participants' actual levels of savings and consumer debt (Dew & Xiao, 2011).

Professionals who care about consumer economic wellbeing should better understand consumer financial behaviors and help consumers develop desirable financial behaviors. In the research literature, there are many theories for understanding consumer behaviors and helping consumers develop desirable behaviors. For example, both the theory of planned behavior and transtheoretical model of behavior change have been applied to consumer financial behaviors in recent years (Xiao, 2008).

## Theory of Planned Behavior

*Description of the Theory* The theory of planned behavior (Ajzen, 1991) is an extension of the theory of reasoned action (Fishbein & Ajzen, 1975). The purpose of this theory is to predict and understand human behavior. According to the theory of reasoned action, a person's behavior is determined by her/his behavior intention. Further, intention is determined by this person's attitude toward the behavior, the subjective

norm, and the relative importance between the attitude and the subjective norm. The development of the theory of reasoned action was motivated by the fact that existing attitude theories could not predict behavior (Ajzen & Fishbein, 1980). Later, the theory developer added to the model the component of perceived control to determine the behavior intention and behavior, and renamed the model as the theory of planned behavior (Ajzen, 1991).

The theory of planned behavior focuses on factors that determine individuals' actual behavioral choices. According to this theory, three factors influence behavioral intention: the positive or negative valence of attitudes about the target behavior, subjective norms, and perceived behavioral controls. In turn, behavioral intention influences one's actual behavior (Ajzen, 1991). An attitude toward a behavior is recognized as a person's positive or negative evaluation of a relevant behavior and is composed of a person's salient beliefs regarding the perceived outcomes of performing a behavior. A subjective norm refers to a person's perception of whether significant referents approve or disapprove of a behavior. To capture non-volitional aspects of behavior, the theory of planned behavior incorporates an additional variable—perceived behavioral control, which is not typically associated with traditional attitude-behavioral models (e.g., Fishbein & Ajzen, 1975). The perceived behavioral control describes the perceived difficulty level of performing the behavior—reflecting both past experience and anticipated barriers. As a general rule, the more favorable the attitude toward performing a behavior, the greater the perceived social approval, and the easier the performance of the behavior is perceived to be, the stronger the behavioral intention will be. In turn, the greater the behavioral intention, the more likely the behavior will be performed. In addition, the perceived control may affect the behavior directly (Ajzen, 1991). The theory of planned behavior and its former version, the theory of reasoned action, have been applied in many subject areas. A comprehensive reference list of papers using the theory of reasoned action and the theory of planned behavior was compiled by Icek Ajzen

and posted on his website (<http://www-unix.oit.umass.edu/~aizen/index.html>).

*Evaluation of the Theory* Several meta-analyses have been conducted to evaluate the efficacy of the theory of planned behavior and its former version, the theory of reasoned action. An evaluation research examining 185 independent studies indicate that the theory in general is valid (Armitage & Conner, 2001). However, this evaluation research identifies several issues relevant to the application of the theory. First, self-reports are not a reliable information source. If possible, researchers should use objective and observed variables to measure behavior. Second, perceived control is a concept different from self-efficacy, unlike the common assumption that they are the same measure with two different names. Compared to perceived control, self-efficacy is a better predictor of behavior. Third, there are alternative measures for intention, such as desire and self-prediction, in which intention and self-prediction are better predictors for behavior compared to desire. Fourth, subjective norm is a weak predictor of intention compared to two other variables, attitude and perceived control. Therefore, alternative categorizations are needed, such as moral and descriptive norms.

*Applying the Theory to Consumer Behavior* Several studies have applied the theory of planned behavior to consumer behavior in financial services such as investment decisions, mortgage use, and credit counseling. The theory is used to investigate investment decisions with data from a sample of British consumers. The results show that the influence of friends and relatives (subjective norm) and the importance of easy access to funds (perceived control) strongly contribute to the investment decision (East, 1993). Using data from a sample of mortgage clients, researchers examine customer service switching behavior. They find that interactions between perceived control and intention, between perceived control and attitude, and between attitude and subjective norms significantly affect behavior intention (Bansal & Taylor, 2002). Using survey and account data from a sample of clients of a national

consumer counseling agency, researchers examine factors that are associated with consumer behavior in completing a debt management plan. They find that attitude toward the behavior and perceived control affect the actual behavior, but subjective norm does not. In addition, satisfaction with the service, a factor not specified in the theory, also contributes to the actual behavior (Xiao & Wu, 2008). Researchers have applied the theory of planned behavior to investigate how college students form financial behaviors regarding cash, credit, and saving management (Shim, Xiao, Barber, & Lyons, 2009; Xiao et al., 2011). The theory of planned behavior is also applied to consumer behavior in the setting of e-commerce, such as online shopping (Lim & Dubinsky, 2005; Shim, Easlick, Lotz, & Warrington, 2001) and e-coupon use (Fortin, 2000; Kang, Hahn, Fortin, Hyun, & Eom, 2006).

### **Transtheoretical Model of Behavior Change**

*Description of the Theory* The transtheoretical model (TTM) of behavior change was developed in the 1970s by Prochaska and his colleagues (Prochaska, 1979; Prochaska, DiClemente, & Norcross, 1992). They formed the model by highlighting major psychological theories in a uniform framework for the purpose of helping people change their undesirable behaviors. “Transtheoretical” in the title means to transform theories into applications, which implies that this model was developed for the applied purpose of counseling. The model was first applied to cessation of smoking and then to a variety of other health-related behaviors, including alcohol abuse, drug abuse, high fat diet and weight control, psychological distress, and sun exposure (Prochaska, Redding, Harlow, Rossi, & Velicer, 1994). A few studies applied TTM to other areas, such as organizational change (Prochaska, 2000) and collaborative service delivery (Levesque, Prochaska, & Prochaska, 1999). More information about this model and its accomplishments can be found from the website of ProChange Behavior Systems: <http://prochange.com/>.

Major constructs of TTM include stage of change, process of change, self-efficacy, and decisional balance. TTM identifies five stages of behavior change: precontemplation, contemplation, preparation, action, and maintenance. If a person is not willing to change in 6 months, s/he is in precontemplation. If a person is willing to change in 6 months, s/he is in contemplation. If s/he is willing to change in 30 days, s/he is in preparation. If s/he has started to change for less than 6 months, s/he is in action. If s/he has been changing for over 6 months but less than 18 months, s/he is in maintenance. If s/he has changed the behavior for more than 18 months, we consider her/his behavior has been changed. Some people may relapse to previous stages. At times, behavior change may take several cycles. TTM also identifies ten processes of change, in which processes are strategies or interventions for facilitating the behavior change. According to TTM, these strategies could be used more effectively if they are matched with appropriate stages of change.

Two indicators of success of behavior change are decisional balance and self-efficacy (or confidence). When people are at a later stage, they will perceive more benefits and fewer costs of behavior change, and they are more confident in avoiding the targeted, undesirable behavior when they face difficult situations.

Compared to other behavior change models, this model has the following unique features: (1) it integrates essentials of major psychological theories in a framework to offer more effective interventions; (2) it defines multiple stages of behavior change, which is different from an action paradigm, and has the potential to reach both ready and not ready to change the targeted behavior; (3) it matches intervention strategies to different stages of behavior change, which makes it more effective compared to other intervention programs; and (4) it focuses on enhancing self-control (Prochaska, Redding, & Evers, 1996).

*Evaluation of the Theory* TTM is one of the multi-stage theories. Among five multi-stage theories reviewed by two psychologists, TTM is the one that most empirical studies support. Compared to motivational theories, multi-stage

theories are more sophisticated (Armitage & Conner, 2000). However, these authors raised several questions for multi-stage theories. These questions include: (1) psychologically, what actually happens at each stage, (2) do people go through each stage sequentially when they change their behaviors, and (3) are different stages really different in terms of determinants of the behavior change?

*Applying TTM to Financial Behavior* Application of TTM to financial behavior started in the last two decades. Kerkman (1998) discussed how to use TTM in financial counseling and presented a case to demonstrate her approach. Bristow (1997) suggested that this model could be used to change people's financial behavior in Money 2000, a USDA Cooperative Extension program. Money 2000 was a successful financial education program, which was adopted by 29 states and reported a total dollar impact of almost \$20 million (O'Neill, 2001). Based on data collected in 1998 among the program participants in New Jersey and New York, preliminary evidence indicated that certain processes of change were used more frequently by participants who reported behavioral changes (Xiao, O'Neill, et al. 2004). A group of researchers has applied TTM in the credit counseling setting to develop a measure to help consumers change behaviors to eliminate undesirable credit card debts (Xiao, Newman, Prochaska, Leon, & Bassett, 2004; Xiao, Newman, Prochaska, Leon, Bassett, et al., 2004). TTM is also applied in financial education programs for low-income consumers, in which specific educational strategies under the framework of TTM are developed (Shockey & Seiling, 2004). In addition, TTM is used to provide advice for women on being better investors (Loibl & Hira, 2007), among others.

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## Financial Wellbeing

### Concept of Financial Wellbeing

Financial wellbeing refers to a financial status in that a consumer or family has adequate resources to live a comfortable life. Doing financially well

also refers to a financial status that is better than the average compared to a reference group. Financial wellbeing can be measured by both objective and subjective indicators. Common objective indicators of financial wellbeing are income, expenditure, debt, asset, and combinations of these indicators such as net worth and debt/income ratio. Common subjective measures of financial wellbeing are financial satisfaction and satisfaction of specific categories of financial resources such as income satisfaction and saving satisfaction.

### Objective Measures of Financial Wellbeing

American consumers may consider whether they are doing well financially by comparing with the national average statistics provided by relevant government agencies such as the US Bureau of Census for income, the Bureau of Labor Statistics for expenditure, and the Federal Reserve Board for debt and asset statistics. For example, based on the latest national statistics, for a family the median income is \$51,017 in 2012 (DeNavas-Walt, Proctor, & Smith, 2013), median expenditure is \$51,442 in 2012 (U.S. Bureau of Labor Statistics, 2013), and median financial asset amount is \$21,500 in 2010 (Bricker, Kennickell, Moore, & Sabelhaus, 2012). In addition, some combined measures can also be used, such as median net worth amount or median debt/income ratio. Generally speaking, if a consumer's financial situation is above national averages, he or she should be considered financially doing well.

Financial wellbeing can also be compared in the time dimension. For example, in 1967 the median household income is \$42,934 while in 2012 the amount is \$51,017, both in 2012 dollars (adjusted for inflation factors) (DeNavas-Walt et al., 2013). Then financial wellbeing is considered being improved based on the measure of income.

Debt is a special indicator for measuring financial wellbeing. For debt measures, the evaluation is not straightforward. For debt access, the broader access the better. But it is difficult to measure financial wellbeing directly with debt

levels. Several debt-related measures are used to measure financial difficulties or financial ill-being. For example, based on Federal Reserve Board researchers, debt/income ratio being over 40 % is considered an indicator of financial difficulty (Bricker et al., 2012).

Money may bring happiness in most cases. For most indicators of financial wellbeing, the higher the value the happier, which is the case for income, expenditure, and asset based on experts and ordinary consumers. However, the relationship between money and happiness is complicated (Xiao, 2014). Research shows that the association between income and happiness is nonlinear. For low and moderate income consumers, the positive association between income and happiness is stronger than that of high income consumers (Diener & Biswas-Diener, 2002). In addition, associations of money and different types of happiness may differ. Based on a large scale survey, a consumer's happiness level is positively associated with life satisfaction, but the association between income and daily happiness is curvilinear with an optimal point, in which a person with household income of \$75,000 is the happiest (Kahneman & Deaton, 2010).

### **Subjective Measures of Financial Wellbeing: Financial Satisfaction**

The most commonly used subjective measure of financial wellbeing is financial satisfaction that measures self-perceived overall financial status. Other subjective measures of financial wellbeing include income satisfaction, retirement saving adequacy, etc., which are used for different research purposes. Financial satisfaction can be used to describe consumer financial wellbeing based on national surveys. Based on the 2012 National Financial Capability Survey, nearly a quarter of respondents (24 %) report being very satisfied with their current personal financial condition (8–10 on a 10-point scale), up from 16 % in 2009, the year of great recession (FINRAIEF, 2013).

Financial satisfaction plays an important role in life satisfaction. Easterlin (2006) examined the association between overall happiness and satis-

factions for four life domains (finance, family, health, and work) and found that financial satisfaction contributes most to overall happiness compared to other domain satisfactions. Based on data from the Gallup World Poll, results show that financial satisfaction is the strongest predictor of life evaluation (Ng & Diener, 2014). Controlling for debt and several demographic variables, financial satisfaction is the most important predictor of financial anxiety based on a sample of college students (Archuleta, Dale, & Spann, 2013).

Previous studies have examined factors associated with financial satisfaction. Income is identified as an important determinant of financial satisfaction. For instance, data from General Social Surveys in the USA is used to examine the association between several income definitions and financial satisfaction and results show that income equivalence scales and per capita income are better income predictors of financial satisfaction than family income among of American elders (Hsieh, 2004). Research based on data from a national survey in Spain indicates that not only income but also income expectation affects financial satisfaction (Vera-Toscano, Ateca-Amestoy, & Serrano-del-Rosal1, 2006). A study based on a sample of American consumers finds that perceived income adequacy is positively associated with financial satisfaction (Grable, Cupples, Fernatt, & Anderson, 2013). Japanese data show that the relationship between income satisfaction and others' income is negative, and more negative for those who report greater income comparison intensity (Clark, Senik, & Yamada, 2013).

Research indicates life cycle pattern of financial satisfaction shows a U-shape that is different from income's life cycle pattern being hump shaped. A researcher explores the determinants of this life course financial satisfaction pattern, taking into account not only income but also the possible impact of assets and liabilities. Results based on data from the US National Survey of Families and Households show that while income has the expected positive relation, increasing financial satisfaction at older age can be partly explained by decreases in liabilities and increases in financial assets (Plagnol, 2011). The findings

are consistent with a Norwegian study of older consumers where financial circumstances such as levels of assets and debts affect financial satisfaction (Hansen, Slagsvold, & Moum, 2008). People at different life stages may have different determinants of financial satisfaction. The effect of labor income on financial satisfaction is largely limited to the earliest life stage, with investment income and housing equity playing a more important role later on in the life cycle (Brown, Durand, Harris, & Weterings, 2014).

Working patterns may affect financial satisfaction. Using the data on financial satisfaction from the European Community Household Panel from 1994 to 2001, the researcher compares married and cohabiting women from five industrialized European countries. Results indicate that it is not relative income or pure employment that matters the most for a woman's financial satisfaction but, more likely, the choice of continuous and full-time labor market involvement. A home-making career may be as beneficial for a woman's financial satisfaction as continuous employment, while a discontinuous employment path seems to be detrimental for a woman's financial satisfaction (Kulic, 2014).

Financial satisfaction may differ in sexual orientations. Using data from the 1989–2010 General Social Survey, a researcher analyzes disparities in economic outcomes and financial wellbeing that vary by gender and sexuality. The findings show that heterosexual men are the highest paid, followed by gay/bisexual men, then lesbian/bisexual women, and finally heterosexual women. Lesbian/bisexual women have the greatest probability of greater financial satisfaction, and heterosexual women and gay/bisexual men have the lowest probability of greater financial satisfaction (Matthews, 2013).

Financial satisfactions differ among households with different characteristics. Data from nine European countries show that household characteristics explain 30 % of the variances regarding financial satisfaction (Seghieri, Desantis, & Tanturri, 2006). Based on a sample of individual investors in India, the results show that factors such as age, marital status, occupation, work-experience, income, saving rate, nature of household accommodation, and invest-

ment tenure are associated with financial satisfaction levels (Sahi, 2013).

Research also identifies other factors associated with financial satisfaction. A study conducted in a transitional economy, Albania, reveals that workers in informal sectors are less financially satisfied than their counterparts in formal sectors (Ferrer-i-Carbonell & Gërçhani, 2011). Researchers test the relative association of three financial ratios on financial satisfaction with data from the 2008 Health and Retirement Study and find that the solvency ratio is most strongly associated with financial satisfaction levels, and changes in the investment asset ratio are most strongly associated with changes in financial satisfaction over time (Garrett & James, 2013).

## **Financial Capability and Financial Wellbeing**

Consumer economists hope that higher financial capability should be associated with financial wellbeing. Based on data from the 2009 US State-by-State Survey of Financial Capability, results indicate the positive association between perceived financial capability and financial satisfaction. Desirable financial behavior increases while undesirable financial behavior decreases financial satisfaction. Subjective financial literacy is also found to contribute positively to financial satisfaction (Xiao, Chen, & Chen, 2014). Data from a sample of individual investors in Malaysia show that financial literacy is found to be a significant antecedent variable of financial planning and financial planning is an important determinant of financial satisfaction (Ali, Rahman, & Bakar, 2014).

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## **Summary and Future Research Directions**

### **Summary of Research**

Financial capability refers to the ability to apply appropriate financial knowledge and perform desirable financial behaviors to achieve financial

goals and enhance financial wellbeing. Financial capability can also be shown through consumer financial self-efficacy and perceived financial capability. Financial capability is low as shown in the low level of financial literacy and prevalence of undesirable financial behaviors among many consumers. To improve consumer capability, consumers need to perform more desirable financial behaviors for improving financial wellbeing. Behavior science theories such as the theory of planned behavior and the transtheoretical model of behavior change (TTM) can be applied to help consumers improve their behaviors.

Financial wellbeing can be measured by both objective and subjective indicators. Common objective indicators of financial wellbeing are income, expenditure, and asset, which are usually positively associated with financial wellbeing. Debt-related measures are also used to measure financial wellbeing. For example, net worth (total asset—total debt) is a measure that is positively associated with financial wellbeing. Some debt-related measures, such as debt/income ratio, are considered negatively associated with financial wellbeing. Financial satisfaction is a common subjective measure of financial wellbeing. Other subjective measures are income satisfaction and retirement saving satisfaction among others. Research shows that life course financial satisfaction is in a U-shape that is different from the life course income pattern that is hump shaped. Thus, financial satisfaction is not determined by only income but also other factors. In addition, financial satisfaction is an important factor to determine overall life satisfaction. Research shows that consumer financial capability is positively associated with financial satisfaction.

### **Future Research on Financial Capability**

More research can be conducted to clearly define financial capability and how to effectively measure this important concept. In addition, associations between financial capability, financial literacy, and financial behavior need attention in future research. Theoretically, we assume that

the three concepts should be positively associated with each other, an assumption that needs to be validated with empirical data. Also, how the three concepts are associated with consumer financial wellbeing can be examined in future research. Some research evidence shows that financial capability variables such as financial literacy, financial behavior, and perceived financial capability are associated with subjective financial wellbeing (Xiao, Chen, & Chen, 2014).

In many research studies, financial capability is measured by financial behavior. More depth research on financial behaviors can also be conducted. Researchers need to develop an inventory of financial behaviors that covers all aspects of behaviors relevant to consumer finance. In many existing studies, financial behaviors are defined for specific research purposes and many of them are not comprehensive. An inventory of financial behaviors with acceptable reliability and validity would be helpful for financial educators and researchers when they evaluate financial education programs and measure social impacts of the programs on people's behavior change and quality of life. Researchers are also encouraged to partner with commercial and nonprofit organizations to access data of actual financial behaviors.

Future financial capability research could use approaches developed by behavioral economic research. Behavioral economic studies identified many consumer biases in financial behaviors and decisions (Benartzi & Thaler, 2007; Lai & Xiao, 2010). Researchers could use these research results to develop interventions or choice architectures to help consumers enhance financial capabilities and make better financial decisions (Thaler & Sustein, 2009).

### **Future Research on Financial Behavior and Education**

The two theories reviewed in this chapter have been applied to certain financial behaviors and certain populations, and they could be applied to more behaviors and more diverse populations. For example, many states have tax return sites to

help low-income consumers receive tax refunds. Another example is the *Go Direct* campaign launched by the US Department of Treasury, which encourages electronic deposits of benefit checks issued by the US Social Security Administration. Consumer economists could partner with government agencies and financial institutions to apply these theories to design effective education and outreach programs so these social initiatives would have a greater impact.

TTM is considered a multi-stage theory with advantages to help consumers change undesirable behaviors and form positive financial behaviors stage by stage. Strategies based on this theory could be developed to work with mass populations, emphasizing specific strategies for certain behavior change stages for greater social impact, and a cost-effective approach. However, even mass approaches need a degree of personalized design. An example would be online self-assessment tools that could reach millions of people but provide each user with a personalized response, based on their individual responses (O'Neill & Xiao, 2006).

The behavior theories reviewed in this chapter have been tested in numerous scientific studies and are well established. Consumer finance researchers could utilize the strategies, techniques, and tactics based on this line of research to generate practical information for financial policy makers, professionals, educators, and consumers.

Self-help websites based on these theories can be developed to help consumers change their undesirable financial behaviors themselves. Self-help manuals could also be developed for the same purpose. Use of these self-help websites and manuals could be monitored and studied to identify factors that are more effective than others in motivating and facilitating the behavior change. Researchers also need to beware of the self-selection bias since people who really need help may not go to these self-help sites and use the tools.

One of the purposes of research on consumer financial behavior is to better understand factors that affect the formation and change of financial

behaviors. Specifically, financial educators are interested in knowing the role of financial education in behavior formation and change. In addition, financial educators need to know the important characteristics of financial education programs that will not only provide financial knowledge but also encourage consumers to form positive financial behaviors and change undesirable financial behaviors. Future research should generate information that has direct implications for financial educators to develop such education programs.

Future research also needs to examine how financial education, financial behavior, and quality of life are associated. The mission of many financial educators, especially those at land grant universities, is to improve people's quality of life by providing effective financial education. They hope the education will have a direct impact on these people's financial behaviors and eventually help improve the financial wellbeing of these people. Data on financial education, financial behavior, and quality of life could be collected to provide insights in to this topic.

There are two issues that are not addressed by the behavior theories reviewed in this chapter: the structure of financial behaviors and interactions between financial behaviors. The first issue asks if there is a pattern when consumers adopt various financial behaviors. Some previous studies suggest the adoption of financial behaviors may have a hierarchical pattern and consumers adopt some financial behaviors before others. According to a study by Federal Reserve staff (Hilgert et al., 2003), it seems consumers adopt cash management behavior first, and then credit behavior, followed by saving and investing behavior. Studies on saving motives (Xiao & Noring, 1994) and financial asset shares (Xiao & Anderson, 1997) also show such a pattern. Is this pattern valid in general? If so, what is the theoretical foundation? The second issue is to ask if positive financial behaviors enhance each other. Do positive financial behaviors beget positive financial behaviors? If so, we may focus on promoting one particular financial behavior and hope the formation of that behavior will influence the formation of other positive financial

behaviors. Some evidence shows that self-perceived financial behavior performance is associated with self-reported positive financial behavior (Xiao, Sorhaindo, & Garman, 2006). More theoretical and empirical studies are needed to address these issues.

## Future Research on Financial Wellbeing

The current consumer research literature seems to uphold the assumption that the higher the value of an objective measure such as income or net worth, the better the financial wellbeing outcome. Is there an optimal value that is not the highest but the most appropriate for a consumer? Some theoretical work could be done to address this issue.

The association between objective and subjective measures of financial wellbeing has also been studied by some researchers. Current research shows that the life course patterns of income and financial satisfaction are inconsistent, asset and debt may play a role in the process. More research could be done to help understand this phenomenon.

Research on financial capability and financial wellbeing has been emerging. Evidence shows that financial literacy, financial behavior, and perceived financial capability are associated with financial satisfaction, the subjective measure of financial wellbeing. More research could be conducted to investigate the effects of financial capability related variables on both subjective and objective measures of financial wellbeing.

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