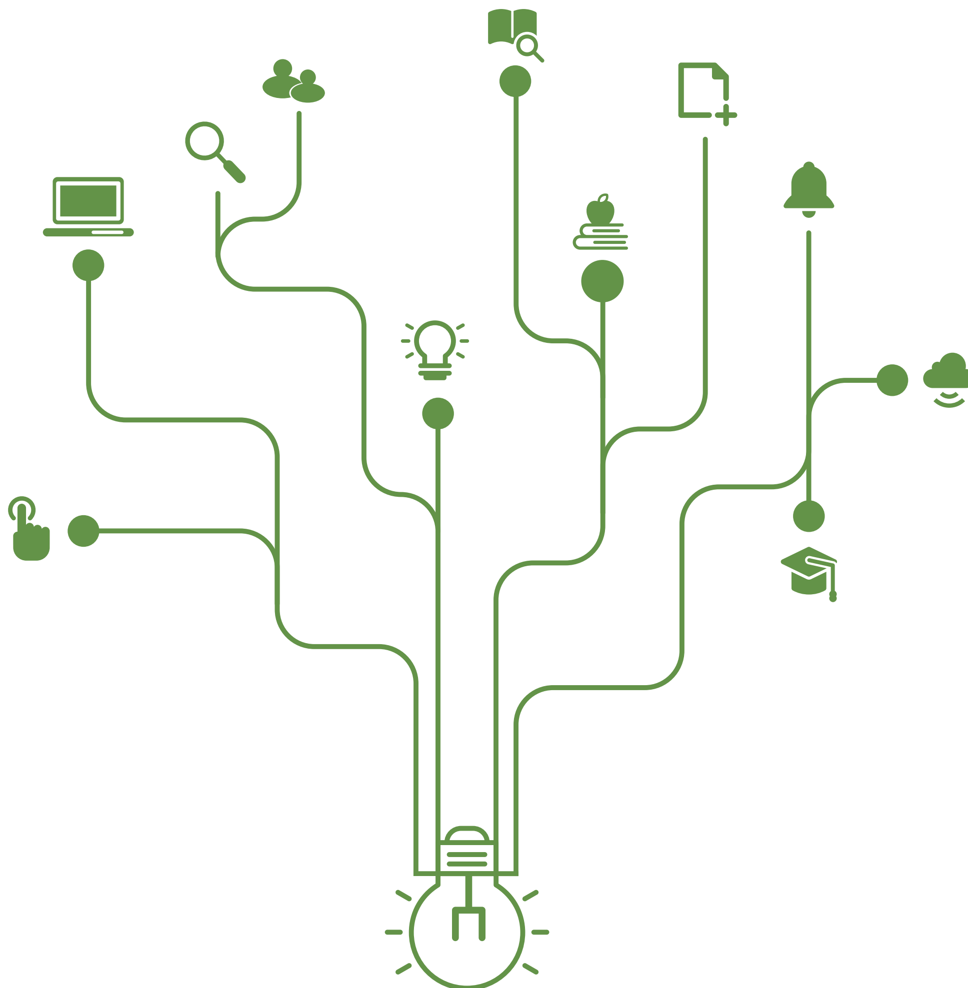
Development Studies Series DP21-04

Financial Consumer Protection in the Era of Digital Transformation: A critical survey of literature and policy practices

Man Cho (KDI School of Public Policy and Management)
Soojin Park (KEPCO International Nuclear Graduate School)



KDI SCHOOL
KDI School of Public Policy and Management

Financial Consumer Protection in the Era of Digital Transformation: A critical survey of literature and policy practices

Submitted as a part of the final report to the KDI School sponsored research project

First draft: March 20, 2021

Man Cho

KDI School of Public Policy and Management

Soojin Park

KEPCO International Nuclear Graduate School

Financial Consumer Protection in the Era of Digital Transformation: A critical survey of literature and policy practices

Abstract

This study aims to shed light on how to foster a welfare-enhancing policy regime for financial consumer protection (FCP), mainly through a literature and institutional survey on three pillars of FCP policy - financial education, ex ante (or before point of sale) FCP measures, and ex post policy instruments. To that end, we first conceptualize the typical behavioral patterns in the demand- and supply-side of the financial markets, to be tamed through an FCP policy regime, and also attempt to reflect the ramifications of the on-going global trend of digital transformation. As to the first pillar, most of the literature claims that no consensus exists as to the goal of financial education (FE), one that is clear, specific, and measurable enough to guide empirical endeavor to gauge its effectiveness. On this issue, we suggest three dimensions of financial capability as possible targets of measuring the effectiveness of FE – knowledge dimension, choice and decision dimension, and outcome dimension, and discuss a possible testing strategy. Another issue stressed is that, given the inherent complexities in most financial products, the second letter "E," i.e., pedagogy and timing, should be given a higher weight than the first one "F," i.e., contents, in designing a FE strategy. In the supply-side, three sets of policy instruments are discussed as the key FCP elements: that is, the self-regulation mechanisms such as code of conduct, and training and certification programs for business ethics; the behavioral principles along with rules and regulations to ensure fair and ethical consumer treatment (FECT); and, internal governance structure to align FECT with incentives of employees of financial institutions. In addition, dispute resolution mechanism along with the legal responsibility of service providers if and when FECT is violated are also discussed. Using the key findings, we develop a template, or a checklist, by interacting the key behavioral patterns to be tamed with the FCP policy instruments, and suggest a set of indicators based on the matrix developed to be used for international comparison.

Keywords: Digital transformation, financial consumer protection, financial education, conflict resolution, financial consumer policy

I. Introduction

Protecting consumers' right and interest in the financial markets, henceforth to be termed as Financial Consumer Protection (FCP), essentially boils down to ensuring two behavioral principles - informed and sound (i.e., financially-savvy) decisions by consumers in choosing financial products and services and, at the same time, fair and ethical treatment of the consumers by financial institutions (FIs) and their employees, despite the fact that their primary incentive is in maximizing profit. There are ample cases in the history of financial markets where those principles are widely violated such that both welfare of financial consumers and long-term profitability of FIs are compromised in a big scale, as demonstrated by the recent subprime mortgage debacle that ignites the Global Financial Crisis (GFC) and the Great Recession. Question is, how, or through what policy instruments, can one promote and ensure those desirable behavioral patterns? The main objective of this manuscript is to shed light on that question by laying out three key elements (or pillars) of a welfare-enhancing policy framework for FCP – financial education and counseling for consumers, ex ante (or before point of sale, POS) FCP measures in the supply-side, and ex post policy instruments such as conflict resolution mechanisms. To that end, we will survey the findings in the literature as well as the good (or best) practices observed from different countries with respect to each of the three pillars.[1]

One particular global trend to be reflected in this survey is the digital transformation (DT), a tsunami that is profoundly affecting virtually all sectors of economy, but the financial service sector in particular in both developing and developed countries in the world. As surveyed by Cho (2020), the rise of data·platform·AI driven financial intermediaries is fundamentally changing the landscape of the industry, whether it is banking, insurance, or investment. Taking P2P lending and crowdfunding as an example, those new breeds of internet or mobile based financial intermediation are greatly enhancing the efficiency and convenience for consumers by reducing time and cost involved with financial transactions; But, at the same time, they also introduce new types of risk to financial consumers in the forms of identity theft, voice phishing, and other fraudulent transactions. In this survey, we will attempt to relate the key ramifications of this on-going global trend in designing a welfare-enhancing FCP policy framework.

Before going into the question of "how" (to ensure FCP), it will be important to pose a question of "what," i.e., what behavioral patterns should one target in designing the FCP policy framework? In the economics literature, there has long been a research endeavor to clarify some of the typical behavioral patterns in the financial markets, e.g., credit rationing by FIs in response to a certain type of information asymmetry (i.e., the lemon problem) (Stiglitz and Weiss (1981), de Meza and Webb (1987), and Waller and Lewarne (1994)), and myopic and present-time bias in decision-makings by financial consumers (Miles (2004), Campbell (2006), Evans (2008), Campbell et al. (2011)). In addition, the new breed of online service providers, conveniently referred to as FinTech intermediaries, is revolutionizing the way

[1] This study is a part of three sequential papers by the authors: (1) a survey on the global trend of digital transformation (DT), entitled "FinTech Megatrends: An Assessment of Their Industrial and Welfare Implications"; (2) an institutional survey to derive the optimal policy design for FCP (this manuscript); and, (3) an empirical paper to gauge the effects of DT in the Korean financial service sector (on-going).

that financial services are delivered to consumers, by essentially combining them with various online-to-offline transactions (the phenomenon often termed as "a bank in your pocket"). (Cho (2020)) In terms of product development and risk management, the FinTech service providers are also shown to have an edge over existing FIs, thanks to the collection of alternative data on consumer behavior through online platforms ("soft data" or "digital footprint") and use them to evaluate consumers' creditworthiness. (Iyer et al. (2009), Lin et al. (2013), Puri et al. (2017), Hildebrand et al. (2017), and Freedman and Jin (2018), Berg et al. (2018)) Based on the theories and conceptual arguments put forth, we identify the following specific behavioral patterns to be tamed in a viewpoint of establishing a FCP policy regime:

- Pro-cyclical lending and investment, or excessive pursuance of short-term profit, by FIs and their employees (in the supply-side);
- Credit rationing caused by "Type-A" information asymmetry (i.e., the service providers' being disadvantaged as to financial consumers' creditworthiness);
- Misrepresentation or incomplete sale caused by "Type-B" information asymmetry (i.e., financial consumers being disadvantaged in understanding arcane financial products);
- Pseudo or fraudulent intermediation by illegal service providers caused by "Type-C" information asymmetry (e.g., theft of private data, voice phishing, and a ponzi investment scheme);
- Overleverage by liquidity-constrained financial consumers (in the demand-side)
- Herd behavior or uninformed investment by liquidity-surplus financial consumers; and,
- Other myopic and uninformed decisions by consumers caused by a lack of basic financial concept and knowledge.

As the demand-side FCP measure, financial education (FE) programs of various sort are being offered in many countries, for the purpose of enhancing consumers' financial literacy and capability. One overall question raised in the literature is whether or not those programs are "effective," or through what variable(s) their effectiveness can be measured and assessed. One consensus that is made in the literature is that: first, financial literacy should be a multi-dimensional concept, e.g., a knowledge dimension and an application dimension (Huston (2010)); and, hence, the effectiveness of any FE program should not be assessed by a mere addition of knowledge and should encompass its impact on consumer behavior. (Nicolini (2019), OECD/INFE (2016), and CFPB[2] (2016) and (2017)) If so, then what should be the goal of FE that is clear, specific, and measurable enough to guide empirical endeavor to measure its effectiveness? To this issue, Cude (2020) argues that there is generally no consensus in the literature, while CFPB (2016) claims that "financial wellbeing (F-WB)," the level of satisfaction that a consumer has with state of his/her financial condition, should be an ultimate consequence of any FE program. One guiding principle suggested in the literature is that, while educating school-age

[2] Consumer Financial Protection Bureau

children (including college students) on basic financial concepts to enhance the knowledge dimension of financial literacy is generally worthwhile, the best practice for adults' FE programs should be "just-in-time" training or counseling because conveying right information in right timing in the context of actual decision making should be more effective than other pedagogical methods. (Mandell (2006), Lynch et al. (2013), and Cude (2020))

For the sake of measurement, an individual consumer's financial capability can be defined at least in three dimensions, as we argue, and each of them can serve as a target for measuring the effectiveness of FE: that is, (1) knowledge dimension; (2) (actual) decision and choice dimension; and, (3) outcome dimension (of the choice made). As the literature argues, measuring impact of FE in terms of (1) will give us a limited and incomplete picture as to its effectiveness, and it will be more desirable to cover the second or third dimension is more likely to indicate whether or not FE actually leads to a better "or more welfare-enhancing" choice or state of economic wellbeing. Implementing an empirical study to that end will obviously be more challenging in terms of data compilation, e.g., a household panel covering an outcome variable in the left-hand-side (LHS) and consumers' choice or welfare variable(s) along with controls in the right-hand-side (RHS). As a related point, we argue that the ultimate outcome of FE should be gauged in term of a broader economic wellbeing (rather than financial well-being, F-WB) such as appropriate (and affordable) consumption smoothing, fair return to investment, and proper protection against illegal or fraudulent online financial transactions. Empirical study of this kind may require long-term observations for both LHS and RHS variables, which would be difficult but more likely to yield meaningful and generalizable empirical evidences as to the best practice in designing and implementing a welfare-enhancing FE program. One particular empirical method that scholars in this field can consider is the randomized experiment method, which is being popularized as a sound research design in other fields of social science research, e.g., development economics, education, environmental economics, public health, and public finance. As an overall argument, we claim that, given the inherent complexities in most financial products, the second letter "E," i.e., pedagogy and timing, should be given a higher weight that the first one "F," i.e., contents, in designing a national FE strategy.

In the supply-side, ensuring the fair and ethical treatment of consumers by FIs and their employees (knowing that their primary incentive is in profit-maximizing) can be done via three layers: (1) the self-regulations enabled by code of conduct, and training and certification programs on business ethics; (2) the legal and regulatory requirements to ensure the desired behavioral patterns, i.e., the fair and ethical consumer treatment (FECT); and, (3) internal governance structure (or controls) to align FECT with incentives of employees of financial institutions. For the first layer, the good practices observed in this regard include the code of conduct to be read and signed by the employees, which usually emphasizes such values as professionalism, integrity, objectivity, and responsibility. In addition, in a number of countries, the industry organizations offer the training courses on business ethics, usually as a part of a professional certification program. (Jung et al. (2020)) Taking the UK CBI (the Chartered Bank Institute) example, those ethics courses are provided in two levels – basic concepts (e.g., ethics and law, radical subjectivism, moral relativism, moral objectivism, ethical reasoning, consequentialism, deontology, and virtue ethics) and their business applications (e.g., the purpose and responsibilities of business, the rights and responsibilities of employees, ethics in the financial sector, the ethics of advertising, international business ethics, and whistleblowing); And those courses are the required ones in getting a professional

certificate for the employees, “Certificate in Professionalism and Ethics” by CBI.

The next layer includes various legal and regulatory, hence, mandatory, requirements. For example, the FCP Act of 2020 in Korea promulgates six principles of business conduct as to how to treat financial consumers fairly and ethically, based on which more specific implementation rules are currently being elaborated. Similar to other existing international norms,[3] those principles advocate suitability and appropriateness of financial products (to consumers), duty to explain, prohibition of unfair business activities, and fair and clear advertisement. One notable attribute of the Korean law is its attempt to depart from the previous sector-specific regulations (e.g., banking, insurance, securities, credit cards, and mutual savings) by promulgating the so-called “the same-function-same-regulation” principle (i.e., as long as financial institutions engage in the same types of activities or conduct, they should be regulated in a same fashion). However, it remains to be seen whether or not the implementation rules for those principles (or specific rules and regulations) will also be uniform across the different sectors. The literature also identifies two particular omissions from the law, which were hotly debated in the course of congressional deliberation – allowance of class action lawsuit and the governance structure of FCP policies (i.e., separation of the prudential regulations and business conduct regulations, or the issue of single-peaked vs. twin-peaked supervision structures). (Ko (2020), and Huh (2020)) The final layer of the ex ante FCP measures is the internal governance mechanism, for which FCP-related KPIs are generally included as key indicators used in evaluating FIs and their branches (the Korean case is discussed as an example).

The key ex post FCP measure discussed in the literature is the dispute resolution mechanism, i.e., access to an affordable and adequate mechanism to resolve dispute between consumers and FIs, as a last resort before going to court. For example, the World Bank (2012) suggests ombudsman or other conflict resolution mechanisms along with clear procedures for handling complaints received as well as access to an affordable, efficient, and professionally-qualified contact to resolve dispute (either in person or online). In a number of countries, a multi-step procedure is in place, in which consumers can file a complaint (in writing) to FI in question as a first step to reconcile the dispute; If and when that does not produce a satisfactory outcome, then they can go to the next level such as ombudsman (e.g., the Financial Ombudsman Service in UK) or a dispute resolution committee run by regulator or professional organization (the UK case was discussed as an example). It appears that the research as to how effective this resolution mechanism is scare, at least in the economics field, which appears to be one of the important future research areas.

Based on the key survey outcomes, we discuss several policy implications, one of which is the linkage between ensuring FCP and other policy objectives. That is, it is not possible in our view to design a welfare-enhancing FCP policy regime in isolation with other policy goals in the financial markets, in particular, the prudential regulations as well as the financial inclusion strategy (i.e., providing access to financial service for more marginal consumers). Provided that one way to assess

[3] Those existing norms include the six principles in the Fair Consumer Treatment (FCT) regimes adopted by UK and South Africa (see Schmulow (2020) for details), and the good practices of FCP as suggested by the World Bank (2012), Cho et al. (2017), among others.

overall performance of an FCP policy regime in a given country with all three pillars in place is to examine how effective it is in deterring a large-scale incomplete sale, we discuss some of those real-world cases of incomplete sale to clarify the inter-connected nature of FCP policy with other regulatory goals. As the final output, we develop a template, or a checklist, by interacting the key behavioral patterns to be tamed with those multiple dimensions of FCP policy, and also suggest a list of indicators that can be used in an inter-country comparison of the FCP policy regimes.

The rest of the manuscript consists of the following five sections: the current state of FCP policies in different countries (Section II); a conceptual framework to delineate key players, incentives, and behavioral patterns that are relevant to FCP (Section III); the good (or best) practices for the three pillars of FCP (Section IV); policy implications (Section V); and, concluding remarks (Section VI).

II. FCP: Current Practices

The post-GFC trends of relevancy

Violation of the two general behavioral principles – sound and informed decisions in the demand-side, and fair and ethical treatment in the supply-side, is prevalent both in a normal market condition as well as in a stress environment. The recent global financial crisis (GFC) erupted from 2007 represents a good illustration as to the sequence of events that can lead to a significant compromise in consumers' welfare. As summed up by Blinder (2008) in his talk, "who drop the ball?", there were several inter-connected key causes of GFC: that is, the excessive trade of the high-risk and arcane subprime mortgage and MBS[4] products by FIs during the ebullient time, in order to maximize their short-term profits at the cost of long-term credit losses; the overheated speculative behavior on the part of financial consumers via levered home purchases, propelled by the ill-guided assumption of the "permanent" home price appreciation; the overly favorable bond ratings by the rating agencies on the mortgage related derivative products; however, facing the reversing market trends (i.e., rising defaults, declining home prices, and heightening market interest rates), the abrupt changes of business behavior by the big banks and investors, i.e., fire sales of the MBS products and adoption of more restrictive margin calls and lending standards that eventually led to the liquidity trap and the freeze of the global capital markets in the second half of 2008; and, while all these were happening, the lack of proper actions by financial regulators to stabilize the huge credit cycle. In consequence, the large-scale welfare losses in both demand-side and supply-side of the financial markets in the U.S. and other countries occurred, e.g., a large number of foreclosures for home owners, a steep decline of their property values, numerous bankruptcies among the mortgage lenders and MBS traders, all of which contributed to the contagions to real economy in the forms of negative wealth effect, negative investment effect, and the mal-functioning financial service sector for several years.[5]

What should be done to help prevent such a big-scale financial crisis from happening again? And what should be specific FCP measures to be designed to protect financial consumers from a similar sequence of the events? These questions have been receiving a growing attention from academia and policy circles since GFC, as evidenced by the special laws enacted such as the Dodd-Frank Act in the U.S. In addition, the global effort, particularly by the multi-lateral agencies, put forth a set of "good" (not necessarily the best) practices for FCP, e.g., OECD (2011) and the World Band (2012). For example, OECD (2011) promulgated the ten high-level principles for FCP, which have been commented on by various stakeholders and are still be revised accordingly. And the World Bank (2012) proposes a set of more specific FCP principles, i.e., the 39 common good practices around four themes: (1) information provision (to financial consumers); (2) financial literacy and capability; (3) sales practices (by FIs and their employees); and, (4) conflict resolution mechanism. Although it may be too early to judge what are the best practices for each of those themes, it will be useful to stock conceptual arguments and

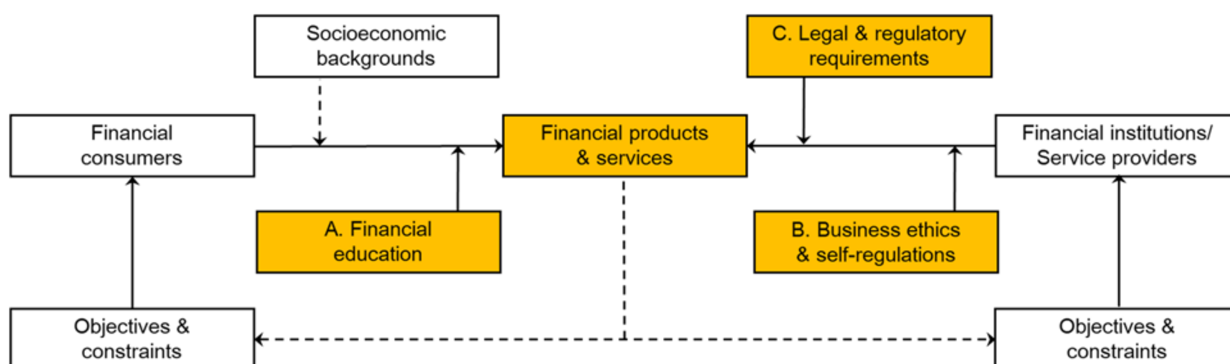
[4] Mortgage Backed Securities

[5] See Cho (2017) for a survey of literature on the causes and consequences of the subprime mortgage debacle.

empirical evidences as to the welfare-enhancing FCP measures observed across different countries.

To describe the structure of this study, Figure 1 provides a schematic view as to the linkages across key players and the main FCP measures.[6] In both sides of financial transaction, consumers and FIs will behave according to their own objectives and constraints, the topic to be discussed in Section III. In the demand-side, financial consumers' decisions in terms of choosing specific financial products or services (e.g., deposit or lending products, insurance contracts, and investment vehicles) will be influenced by their own socioeconomic backgrounds as well as by levels of financial literacy. For the latter, there has been a sustained global effort to systematically measure financial literacy, thanks to the multi-country programs such as the PISA survey,[7] a 15-year old survey program initiated by OECD. Related to that, a large number of studies since GFC in the realms of behavioral finance and behavioral economics documents that consumers in general tend to be automatic (rather than deliberate) and systematically-biased in making their decisions, and a nudge can be an useful remedy in guiding them to make a more rational and welfare-enhancing decision.[8] One such remedy that is being popularized in the demand-side is financial education of various sorts targeting different consumer cohorts, whose scope, goal, and other related issues will be discussed in Section IV-1.

Figure 1. Key elements of FCP from demand- and supply-side of financial markets



[6] The players identified in the figure are obviously not exhaustive in that some of omitted parties play a significant role in the financial markets. For example, special interest groups (including lobbyists) for existing firms or for potential entrants appeal for general and special matters in policy-making process.

[7] The PISA survey was implemented in 43 countries and economies in the first assessment (32 in 2000 and 11 in 2002), 41 in the second assessment (2003), 57 in the third assessment (2006), 75 in the fourth assessment (65 in 2009 and 10 in 2010), 65 in the fifth assessment (2012) and 72 in the sixth assessment (2015). In 2018, 79 countries and economies participated in PISA." (We owe this point to Robert Kerton at Waterloo University, Canada.

[8] The World Development Report, WDR (2015)) In particular, by summarizing the findings of the hundreds of studies in the realms of behavioral economics and finance, WDR reports that: consumers in general think automatically, rather than deliberately, by considering what automatically comes to their mind, are effortless in thinking rather than effortful, and are associative rather than based on reasoning.

Source: The authors

In the supply-side, the literature delineates two main FCP measures – various legal and regulatory requirements that govern both ex ante (pre-contract) and ex post behavior of FIs and their employees, and self-regulation mechanisms to induce the fair and ethical treatment of financial consumers (e.g., code of ethics, and training and certification programs for business conduct in dealing with financial consumers). Those instruments will be surveyed in Sections IV-2 and IV-3, whose ultimate goals should be enhancing welfare in both sides, i.e., increasing utility (or satisfaction) of financial consumers and enhancing safety and soundness of FIs in a long run.

As one example of the FCP-related legal requirements, the Korean congress passed the FCP Act of 2020 in March (to be in effective in March 2021) after a long delay since 2011 when the bill was first introduced.[9] The delay was due in large part to the differences in opinion among the interested parties, e.g., financial institutions, financial consumer civic groups, among others, but it was passed in March 2020 because of the well-publicized cases of incomplete sale in the private equity fund sector in the country. As to some specifics, the law defines four product types – (1) deposit-type products (e.g., time or demand deposits and installment deposits), (2) loan-type products (e.g., loan instruments, credit card receivables, installed payment products), (3) investment-type products (e.g., securities –stocks and bonds, and financial derivative products), and (4) insurance-type financial products (e.g., life insurance products, and casualty insurance products), and three types of service providers - (1) direct sellers, (2) agents or brokers for selling financial products, and (3) independent financial advisors (IFA) as a new business category. One spirit introduced by the law is "the same-function-same-regulation" principle: that is, as long as financial institutions selling financial products or providing financial advice engage in the same activities or conduct, same regulations should apply to all financial institutions, regardless of their types and of the products sold, which represents a departure from the previous subsector-specific regulation (e.g., banking, insurance, securities, credit cards, and mutual savings). As another notable attribute, the law introduces the following six principles for business conduct, which are applied slightly differently to different products, intermediaries, and consumer segments (as shown in Table 1). In Sections IV, we will re-visit these topics by discussing the related FCP practices observed from different countries.

a. Suitability rule: Prohibition to recommend financial products that are not suitable to financial consumers when taking into account their assets or income, investment experiences, or creditworthiness[10]

b. Appropriateness principle: Requirement to notify financial consumers of the inappropriateness and then obtain their confirmation, if financial products that they want to purchase are believed to be unsuitable for them (taking into consideration of the same factors

[9] See Ko (2020) for a good summary of key attributes of the law.

[10] The descriptions of the principles are paraphrased ones from Ko (2020).

as a)

c. Duty to explain: Requirement to explain details of financial products including the interest rate or its change and prepayment penalties in case of loan-type financial products, when recommending financial products to consumers or when being asked by consumers to do so

d. Prohibition of unfair business activities: Prohibition to conduct unfair business activities, e.g., forcing financial consumers to execute contracts against their will or requiring unfair collaterals in relation to executing contracts in cases of loan-type financial products, and infringing on rights of financial consumers

e. Prohibition of unfair recommendation activities: Prohibition to provide unfair recommendations in selling or providing advice on financial products, e.g., misrepresenting the contents of financial products, providing misleading information on financial products, describing only favorable information on financial products, and comparing with other financial products without any objective grounds or without disclosure of comparison standards on financial products

f. Fair and clear advertising: Requirement to make advertising on financial products fairly and clearly, without misleading financial consumers' understanding; Also prescribing certain elements to be listed in the advertisements, e.g., contents of financial products, names of financial product sellers or advisors, investment risks in case of investment-type financial products, and terms of loans in case of loan-type financial products

Table 1. Business conduct principles as promulgated by FCP Act of 2020 in Korea

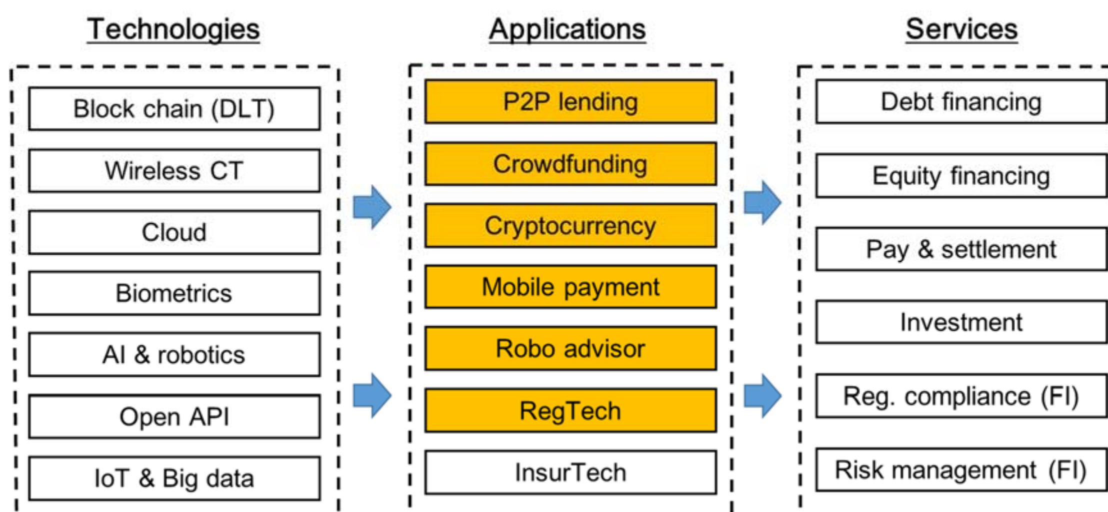
Principle	Product applied	Service provider applied	Consumer applied
Suitability Rule[a]	Insurance type Investment type Lending type	Financial product sellers; Financial advisors	Only to unsophisticated financial consumers, not to accredited financial consumers
Appropriateness Principle[b]	Insurance type Investment type Lending type	Financial product sellers	Only to non-accredited financial consumers
Duty to Explain[c]	Insurance type Investment type Lending type Deposit type	Financial product sellers; Financial advisors	Only for unsophisticated financial consumers
Prohibition of Unfair Business Activities[d]	Lending type (Possibly extending to other products)	Financial product sellers; Financial advisors	To all financial consumers
To Prohibition of Unfair Recommendation Activities[e]	Insurance type Investment type Lending type Deposit type	Financial product sellers; Financial advisors	To all financial consumers
Fair and Clear Advertising[f]	Insurance type Investment type Lending type Deposit type	Financial product sellers; Financial advisors	To all financial consumers

Sources: Ko (2020); Huh (2020)

Role of the on-going global trend of digital transformation

The technology and platform based financial services (generally referred to as FinTech, or Financial Technology) have been disrupting the conventional modes of financial intermediation, by introducing highly efficient, convenient, and innovative modes of service provision. FinTech, generally defined as "those financial services enabled by innovative technologies and digital data that potentially supplement or replace human-based services in the financial service sector,"[11] is already having a profound impact on the conventional branch- and human-based financial intermediation. For example, the magnitude of the online capital-raising services in the world (i.e., P2P lending and crowdfunding) increased from $11.7 billion in 2013 to $301.7 billion in 2018, a 25-fold growth within five years; The alternative payment and settlement mechanisms (alternative to fiat money) such as mobile payment platforms and cryptocurrencies are rapidly spreading across the globe, as evidenced by the fact that the mobile payment volume in China reaches to 16 percent of GDP in 2018; And similar phases of rapid expansion in other alternative financial services are also observed in the investment consultancy (via robo-advisors) and the regulatory compliance (via RegTech). As shown in Figure 2 and Table 2, a diverse set of technologies are currently being utilized, covering pretty much all major categories of financial service to consumers and business entities.

Figure 2. Technologies and FinTech services



[11] The definition is from Cho (2020). The study also identifies four main FinTech sectors: (1) online capital raising services (P2P lending and crowdfunding of various types); (2) alternative payment services (cryptocurrency- or mobile platform-based payment and settlement services); (3) financial advisory services (or robo-advisors); and, (4) regulatory compliance services (RegTech).

Source: Cho (2020)

Table 2. Total online alternative finance volume for capital-raising activities

(a) Outstanding volume (million USD)

	2013	2014	2015	2016	2017	2018
China	5,600	24,300	102,200	243,300	358,300	215,400
USA	4,400	11,560	28,400	34,530	42,810	61,140
Europe(ex.UK)	400	800	1,100	2,300	3,800	7,700
Asia-Pacific (ex.China)	100	300	1,100	2,000	3,600	6,100
Middle East	36	91	159	177	347	801
Africa	44	61	83	182	104	209
Global	11,680	40,112	137,942	288,689	417,061	301,750

(b)Annual growth rate (%)

	2014	2015	2016	2017	2018	μ(16~18)	Σ(16~18)	CV
China	334%	321%	138%	47%	-40%	48%	89%	0.54
USA	163%	146%	22%	24%	43%	29%	12%	2.53
UK	173%	63%	27%	31%	28%	29%	2%	13.84
Europe (ex. UK)	100%	38%	109%	65%	103%	92%	24%	3.90
Asia-Pacific (ex. China)	200%	267%	82%	80%	69%	77%	7%	11.54
Middle-East	153%	75%	11%	96%	131%	79%	61%	1.29
Africa	39%	36%	119%	-43%	101%	59%	89%	0.67
Global	243%	244%	109%	44%	-28%	59%	40%	4.90

Source: Cho (2020)

What are welfare implications of this on-going DT in the financial service sector? Using the arguments put forth by Cho (2020), several points are made as an answer. First, thanks to the much cheaper, faster, and more convenient intermediation based on an internet or mobile platform, the FinTech service providers have greatly enhanced the efficiency of financial intermediation. (IMF (2017), Buchak et al. (2017), Fuster et al. (2018), Frost et al. (2019), Jagtiani and Lemieux (2019), OECD (2019), FSB (2019)). However, the FinTech can also lead to over-leverage for some consumer segments: that is, while consumers use the borrowed funds to consolidate their credit card debts, which reduces the card balances and improves their credit scores right after the funding; but, after several quarters, the platform-based borrowers tend to receive additional credit from their existing bank or credit card relationships, resulting in a higher aggregate indebtedness and a significant increase in ex post credit card defaults. (Chava and Paradkar (2018), and DiMaggio and Yao (2018))

Second, as to the financial inclusion, the FinTech service providers tend to serve those borrowers with low credit scores or thin filers (i.e., those consumers with no or low records of financial transaction) more, and their lending activities penetrate those areas with fewer bank branches per capita, as well as those where the local economy is not performing well. (Jagtiani and Lemieux (2018) and De Roure et

al. (2108)); In a viewpoint of developing countries, the FinTech industry tends to fill the gap left out by the formal financial service sectors in those countries, by leap-frogging the conventional financial service mediums (e.g., checking and savings account, insurance contract, investment account, and credit card). (Mbiti and Weil (2011), Jack et al. (2013), Citi GPS (2018), Gathoto (2018)) As another form of financial inclusion, the expansion of the investment consultancy enabled by robo-advisors, which lowers the cost of such service and, hence, includes more consumers to that particular service sector, the phenomenon often termed as "democratization of investment consulting service." (Lee (2018))

Third, the FinTech service providers are shown to be reducing the effect of information asymmetry between borrower and lender by collecting and utilizing various types of soft data for ex ante credit evaluation for financial consumers, such as social or friend network (within a particular peer/customer network), digital footprint (online shopping and other consumer behavior data), location of borrower, and indicators of trustworthiness. And, as it turns out, doing so helps grasp a fuller and more real-time picture about consumers' financial lives and their creditworthiness and, accordingly, significantly enhances the accuracy of the default incidence (or probability of default, PD) model. (Lin et al. (2013), Iyer et al. (2016), Puri et al. (2017), Hildebrand et al. (2017), and Freedman and Jin (2017), Berg et al. (2018))

Last but not least, those BigTech-affiliated financial services are spreading rapidly across the globe, which blurs the traditional divisions among different industries, in particular, between banking and commerce. One common characteristic of these BigTech-driven ecosystems is the fact that they offer a mobile payment service and use that as an inlet for collecting diverse data on consumer behavior, which are subsequently used for consumer profiling, product differentiation, as well as risk management. (Citi GPS (2018)) In so doing, innovations introduced by one company within the group can be shared with others in the ecosystem, which makes it possible to provide upgraded financial and non-financial services to consumers, often in a non-rivalrous fashion with zero marginal cost. In particular, the BigTech-affiliated financial service providers can contribute to macroeconomy in two main ways: first, by imposing competition and contestability to existing financial institutions; and, second, by increasing factor productivities of the firms within a BigTech-driven innovation ecosystem. (Frost et al. (2019))

III. Players, Incentives, and Policy Targets: A conceptual framework

An effective FCP policy framework should properly reflect incentives of key players in both demand-side and supply-side of financial markets. This section delineates the typical optimization problems of service provider and financial consumer based on the existing literature, for the purpose of identifying key behavioral patterns of market participants and of formulating a conceptual base in laying out a set of incentive-compatible FCP policy elements.

Service provider's optimization problem

What does FCP mean to a representative economic agent in the supply-side of financial markets? To answer that question, suppose a for-profit service provider has the following short-term excess yield, EY_t, formulae that relates the main revenue and cost factors from its operation[12]:

$$(1) \quad EY_t = r_t^l - r_t^f - \delta_t - E_t[Loss_{t+k}]$$

where r_t^l is a lending rate (an average across all loans issued during a given time period t), r_t^f is a funding rate (or an average risk-free rate for comparable maturities for the loans made), and δ_t is a per-period operational cost (including both fixed and variable costs) expressed as a percent to each dollar lent. The last term in the right-hand side represents an expected credit loss that can happen in future (time t+k) and is evaluated today (time t).

In general, EY_t is viewed as an indicator of social cost of financial intermediation, and, ceteris paribus, the lower EY for a given financial service sector, the more efficient its service provision is. However, as shown in the case of GFC, the service providers in the financial markets exhibit a tendency of pro-cyclical operation, which can be characterized as maximizing short-term EY at the cost of long term financial losses: that is, the service provider under-estimate the future expected loss, $E_t[Loss_{t+k}]$, either intentionally or unintentionally (due to incomplete information in estimating the loss). Hence, such behavior should be a target not only for prudential regulations but also for FCP policy, for which one can monitor size, composition, and long-term dynamics of EY as an indicator in designing a welfare-enhancing FCP policy.

In the case of the U.S. financial service sector, Philippon (2015) demonstrates that EY_t has been consistently and unjustifiably high since the early 1980s, and he refers to a monopoly or oligopoly rent resulted from the increased market power of existing FIs through active merge-and-acquisitions as a possible reason. In a follow-up study, he also claims that the existing service providers in the U.S. did not properly reflect the reduction in the intermediation cost, δ_t, caused by the automation and other data·ICT-driven innovations in the intermediation process, in the lending rate to financial consumers. (Philippon (2016))

One of the main implications of his finding is that a short-term maximization of EY_t (e.g., annual

[12] This EY specification and the descriptions of the included factors are from Cho (2020).

profit) can lead to an excessive risk-taking. From the equation (1), the EY_t will increase if financial institutions get a high level of r_t^l by chasing risky lending. It may result in high level of compensation to managers in a short term perspectives. However, if the future credit loss is properly estimated and reflected, this short-term increase in EY will not be sustained.

When the risk premium charged for a given product is lower than a long-term equilibrium level of $E_t[Loss_{t+k}]$ for a prolonged period, and when gap is eventually realized after a certain time period, the outcome can become a source of large-scale damage to the welfare of financial consumers as well as to the profitability, or even survival, of FIs in a long-term basis. The pursuance of excessive and pro-cyclical EY by the key service providers as demonstrated during GFC (e.g., subprime mortgage lenders, and MBS issuers and traders) is a good example of such supply-side behavior, which should be a critical policy target to ensure FCP. Specific policy measures to this end include governance structure of financial supervision (single-peaked vs. twin-peaked supervision structures), mechanism to ensure a proper "skin-in-the-game" (or risk-sharing), those micro- and macro-prudential regulations, and also various FCP measures to ensure fair and ethical transactions.

Information asymmetry is another phenomenon that is relevant to FCP. In fact, the asymmetry – an advantage enjoyed by one party of financial transaction over the other - can go either way as the theory suggests. Traditionally, the credit rationing, one type of market failure caused by information asymmetry, has long been a topic of investigation in the finance literature. (Stiglitz and Weiss (1981), de Meza and Webb (1987), and Waller and Lewarne (1994)) The theory goes that, like in a used car market, a buyer of service knows more about his own credit quality or other risk attributes than a service provider; And, as the risk premium to reflect $E_t[Loss_{t+k}]$ (as a part of r_t^l) goes up for all consumers, then low-risk consumers self-select out of credit market causing an adverse selection problem for the service provider. Knowing that an increase in r_t^l will cause a faster drop out by low-risk consumers than by high-risk ones, at a certain level of risk premium, the lender either reduces or even stops supplying credit, creating a gap (or excess demand) in the market.

Solution to the above type of information asymmetry, to be labeled as "Type A Info-asymmetry," is a separate, rather than a pooled, equilibrium: that is, if a service provider is capable of measuring segment-specific risk levels (for high-risk vs. low-risk consumers) and of reflecting them in underwriting, pricing, and other risk management practices, then the above-mentioned possibility of adverse selection and credit rationing can disappear. The implication of this risk-based consumer segmentation and pricing goes beyond the efficiency in risk assessment in that such supply-side behavior can expand financial service to marginal consumer segments (e.g., borrowing-constrained households in lending market, and those excluded from a particular type of insurance contract). In fact, more accurate risk assessment and charging actuarially-fair risk premium can actually enhance the welfare of marginal borrowers in that they are more likely to be included in formal financial service sector and are less likely to be steered to a more costly, or even informal, service sector (i.e., 2nd- or 3rd-tier FIs for which consumers must pay much higher interest rates). Hence, a more refined and accurate credit evaluation by using various alternative data (e.g., digital footprints to describe online consumer behavior), which is already happening as discussed in Section II, i.e., the FinTech lenders' use of digital foot print and other soft data in the credit evaluation. That essentially constitutes a more accurate

consumer segmentation that enables both more incentive-compatible product development and a better management of consumers' counterparty risk.

However, the asymmetry can go the other way when financial consumers are disadvantaged in understanding arcane financial products in terms of risk-return profiles thereof. In fact, it is well-documented that financial consumers in general tend to be myopic, present-time biased, and lacking even basic understandings of financial products. (Miles (2004), Campbell (2007), Campbell et al. (2011)) Hence, they are vulnerable if a profit-driven service provider sells a product by charging an excessive amount of risk premium or by misrepresenting embedded product risk (i.e., under-stating $E_t[Loss_{t+k}]$). General solution to this problem, to be labeled as "Type B Info-asymmetry," is to make a leveled playing field between service provider and consumer, through appropriate (or effective) financial education programs in the demand-side and various legal and regulatory measures in the supply-side. Those supply-side measures can be instituted both before and after signing a contract (or point-of-sale).

Another question to be posed related to the supply-side behavior is whether or not, or how much, subsector issues (e.g., deposit, lending, insurance, and investment) should be addressed in designing a FCP policy regime. Obviously, the products in those subsectors are different, which would require a more tailor-made approach in ensuring FCP in each sector; Nonetheless, there may exist common characteristics as the supply-side behavior that cuts across all sectors, as embedded in the spirit of "same-function-same-regulation" principle as discussed in Section II. This issue will be elaborated later when discussing the supply-side policy instruments and their welfare implications in Sections IV and V.

Financial consumer's optimization problem

To depict the typical objective and constraint of a representative financial consumer in choosing financial products and services, the consumer's dynamic optimization problem is specified below with a forward-looking expected utility function with two arguments – housing as a durable good, h, and a non-durable consumption good, c (a numeraire) – along with a resource constraint[13]:

$$(2)\ \max_{c,\,h}\ E_t\left[\sum_{i=1}^{\infty}\beta^i u(c_{t+i},h_{t+i})\right],$$

$$(3)\ \text{s.t.}\ \ c_{t+i}+R_{t+i}h_{t+i}+s_{t+i}=y_{t+i}+\sum\nolimits_j \alpha^j_{t+i}\cdot W^j_{t+i}\ ,$$

where β is a discount factor, R is per-period per-unit rental price of housing service, s is saving, y is a labor income ($y_{t+i} = l_{t+i}\cdot w_{t+i}$ with l and w being labor supply and market wage), and W^j is accumulated wealth from both housing and non-housing assets ($W^j_{t+i}=W^h_{t+i}+W^n_{t+i}$, j = h, n), and $E_t[\cdot]$ is the

[13] The model is from Cho (2017). Inclusion of housing is mainly to show the role of collateral lending in the consumer's optimization problem.

expectation operator. The time horizon assumed is infinite, and the coefficient α represents the marginal propensity to consume (MPC). The usual solution of the dynamic optimization of the above sort is through the Euler equation[14], out of which one can derive the steady-state demands for h and c as a function of commodity price (in this case, asset and rental prices of housing), labor income, and accumulated wealth, and a perceived change in any of those factors will impact the steady-state demand levels as $E_t[h^*_{t+i}\ \ c^*_{t+i}]\ \forall i$.[15]

Among the factors in equation (2), the housing demand, h_{t+i} can be expressed as a function of implicit rent, r_{t+i} and permanent household income, HI_{t+i}. The X_{t+i} represents for set of other demographic variables in the equation (4).

$$(4)\ \ h_{t+i} = f(r_{t+i},\ HI_{t+i}:\ \ X_{t+i})$$

$$(5)\ \ Where,\ r_{t+i} = LTV \times i \times (1 - t_y) + \delta + t_p - \pi_e \times (1 - t_s)$$

The equation (5) shows the implicit house rent, r_{t+i} is a function of Loan-to-Value Ratio (LTV), mortgage rate (i), income tax rate (t_y), depreciation (δ), property tax (t_p), expected capital gain (π_e), and sales tax (t_s).[16]

Given this setting, one can identify several distinct consumer segments, and can discuss different FCP measures that can affect their optimal utility levels. First, financial consumers can divided into: (1) savers (those with liquidity surplus), whose available financial resource (the right-hand side of equation (3)) at a given time point exceeds the steady-state bundle for c and h, $E_t[h^*_{t+i}\ \ c^*_{t+i}]$, and, hence, there is no need to borrow to achieve c^* and h^*; and, (2) borrowers (those with liquidity deficit), who do not have sufficient financial resource to achieve the steady-state consumption and need to borrow. For the first group (savers), the primary FCP measure will have to be a protection from misguided, or even fraudulent, investment product (that is, from irrational or exuberant investment decisions), for which there should be an appropriate skin-in-the-game measure in the demand-side as well. For the second group, on the other hand, the right FCP measure should be an assurance for appropriate lending product with fair financing cost, i.e., fair lending rate, r^l_t, that reflects its three underlying determinants as specified in equation (1) - risk-free rate, intermediation cost, and actuarially-fair credit risk premium[17].

---

[14] This optimization problem is based on the discussion in Cho (2017). The Euler equation requires that the marginal utility with respect to each good (u_c and u_h) is constant over time in a present value sense: that is, the marginal expected utility from one-period ahead consumption level discounted by β_1 is same as that from the current period consumption; and, the marginal rate of substitution (MRS) between c and h is simply the housing rent R (given c being numeraire).

[15] That is, $\partial h^*_{t+i} / \partial \widetilde{P}^h_{t+i} < 0,\ \partial h^*_{t+i} / \partial \widetilde{R}_{t+i} < 0,\ \partial h^*_{t+i} / \partial \widetilde{y}_{t+i} > 0,\ \partial h^*_{t+i} / \partial \widetilde{W}^j_{t+i} > 0$, where the sign wiggle indicates a perceived forward-looking fundamental variable at time t+i. The outcome is specified as $[h^*_{t+i}(P^h_{t+i}, R_{t+i}, y_{t+i}, W^j_{t+i})\ c^*_{t+i}(y_{t+i}, W^j_{t+i})]$.

[16] As related references, see Linneman and Wachter (1989), Ermisch (1996), and Park and Cho (2020)

[17] This represents an expected amount of credit loss from segment j that is assessed today, time t, but should

To assist their product choice, appropriate financial education programs for the school age (K-12 and university) people as well as adults in different lifecycle stages should be designed and instituted as the main demand-side FCP measures.

Second, FCP policy should deal with a possibility of over-indebtedness, i.e., an excessive level of borrowing by certain categories of consumers. To this issue, Alleweldt et al., (2013) suggests the main sources of over-indebtedness as two categories: endogenous and exogenous ones. The examples of endogenous causes are wrong economic behavior and poor financial choices, while those for exogenous factors include cost of living (utility, housing, children, health care, insurance and financial service), unemployment, and personal circumstances. The equation (3) shows how the increase in cost of living ('c_{t+i}' from the equation (3)) may cause over-indebtedness by increasing negative savings ('s_{t+i}' from the equation (4)) of borrowers when the right-hand side variables are constant. In the same context, if the per-period per-unit rental price of housing service, R_{t+i} increases, the over-indebtedness of borrowers ('s_{t+i}' from the equation (4)) will be deteriorated. A downturn of macroeconomy or unemployment will decrease the labor income, y_{t+i} in equation (4) and thus can decrease savings (s_{t+i}) or cause over-indebtedness.

One large segment of consumer debt is mortgage lending, a cyclical behavior of which has become a main cause for consumers' welfare loss as well as financial crisis in many countries. Related with the mortgage lending, a decrease in interest rate, i or sharp rise of expected capital gain, π_e in equation (5) can cause a decrease in the implicit house rent, r_{t+i} and again increase the housing demand, h_{t+i} of the equation (4). The rise in housing demand, h_{t+i} in a short period can cause over-indebtedness (negative savings, s_{t+i}) in equation (3) if the right-hand side is constant.

Third, to achieve an optimal consumption level (i.e., $E_t[h_{t+i}^* \ c_{t+i}^*]$), the liquidity-constrained households will have to borrow, some (e.g., low-income households) for c^* and most for h^* (a durable good with multiple years' consumption). The main policy issue for this type of financial consumers is to balance between credit risk management and financial inclusion for borrowing-constrained households (i.e., those who are constrained in terms of income, wealth, and creditworthiness to achieve [c^* h^*]). On the viewpoint of credit supplier, the borrowing constraints represent a reaction to the Type-A information asymmetry, i.e., the credit rationing, which, at the same time, can create an exclusion of those constrained households or can steer them to a more expensive service sector (tier-2 or tier-3 consumer lenders).[18] The general policy framework for this issue should be in incrementally expanding the formal financial services to more marginal consumer segments (i.e., to those who are borrowing-constrained) along with enhancing risk-management capability via new data and analytics to deal with those added (usually high-risk) consumer segments. For example, in the case of residential mortgage lending, relaxing those underwriting criteria such as loan-to-value (LTV) and debt-to-income (DTI) ratios will expand financial inclusion by making the credit available to wealth- and income-constrained

reflect forward-looking scenarios of state variables for a future time period (i.e., t through t+k).

[18] See Park and Cho (2020) and Kim et al. (2020) for the role of borrowing constraints in the residential mortgage lending sector in Korea.

households, which should be dealt with an improved credit evaluation and a risk-based pricing in estimating RP in equation (1).

Fourth, there should be an overall enhancement of financial capability of consumers such that they can protect themselves from misrepresentation or incomplete sale caused by Type-B information asymmetry as discussed earlier. Yet, there exists another type of information problem, often called as a pseudo (or fraudulent) intermediation by illegal transaction counterparties, such as stealing private data through hacking, threatening financial consumers through "voice phishing" (fishing private information for the purpose of demanding money transfer through mobile phone or other means), and spreading a ponzi scheme to recruit investors for a fake investment product (e.g., fake private equity funds, stock listings, derivative contracts, and cryptocurrency trades). This type, to be labeled as "Type C info-asymmetry, largely requires a legal remedy and protection, but the conventional FCP measures such as FE programs with appropriate materials and pedagogical methods for consumers in different stages of life cycle (e.g., students, young adults, middle-age consumers, retirees) can also be useful. In so doing, the issue of digital divide and other consumer issues in the era of DT should be given a special attention in formulating a welfare-enhancing FCP policy regime.

Behavioral patterns to be targeted in designing a FCP policy framework

- **Pro-cyclical operation by FIs to maximize short-term EY**: As shown in GFC and other cases of financial crisis, FIs exhibit a tendency of pursuing an excessive and pro-cyclical EY, usually by taking a high degree of financial risk now that involves large financial losses later on, a repeating behavioral pattern that should be policed and tamed by financial regulators; In fact, size, composition, and dynamics of EY for whole financial service sector as well as major FIs that can pose a systemic risk, which should be monitored not only in a viewpoint of prudential regulation but also in a perspective of FCP.

- **Credit rationing or misrepresentation by FIs caused by Type-A and Type-B Info-asymmetry**: Information asymmetry in the financial markets can flow in both directions: as discussed, the service providers can be disadvantaged over financial consumers as to their creditworthiness (Type A Info-Asymmetry), which can result in adverse selection and credit rationing; at the same time, the consumers can be disadvantaged in understanding arcane financial products (Type B Info-asymmetry), a source of misrepresentation of financial product and incomplete sale. While the first type can be dealt with a better risk management, e.g., a more accurate consumer segmentation and a full-blown risk-based (or marginal cost) pricing and underwriting, the second type requires both demand-side action (e.g., financial education) as well as supply-side remedies (i.e., various ex ante and ex post rules and regulations to ensure fair and ethical treatment of financial consumers).

- **Pseudo or fraudulent transactions by illegal intermediaries**: As to the pseudo or fraudulent financial intermediation, which constitutes another form of asymmetry (Type C Info-asymmetry), such as theft of private data, threatening financial consumers through "voice phishing," and a ponzi scheme with a fake investment product. These practices generally target senior or less financially-savvy segments of consumers, for which a different FCP strategy

should be designed to combat these illegal financial transactions both through education and through dissemination of actual cases happened.

- **Overleverage by liquidity-constrained financial consumers**: There are those financial consumers who are liquidity-constrained and need leverage for their intertemporal consumption smoothing; The main policy issue for them is financial inclusion, i.e., extending financial services to more marginal borrowers over time in a sound risk-based fashion, for which setting strategy for serving more underserved households by reducing the hurdles (i.e., borrowing constraints with respect to income, wealth, and creditworthiness) for them to access formal financial service sectors.

- **Herd behavior by liquidity-surplus financial consumers**: There are those who have surplus (or savings) to invest, or liquidity providers, for whom key FCP measures should include proper education and information provision to help avoid excessive or ill-guided investment practices (e.g., herd behavior) in choosing their investment products. This behavioral pattern also applies to those who are cheated by the fraudulent intermediation agents (e.g., a ponzi scheme or other fraudulent investment products).

- **Myopic and uninformed decisions by financial consumers**: There are basic concepts and knowledge bases that financial consumers should be aware of to make sound financial planning and decision-making throughout their stages of their lifecycle, for which appropriate education programs should be designed and executed.

In the next section, three pillars of FCP policy will be surveyed, for the purpose of designing a matrix with the behavioral patterns to target in one dimension (as listed in the above) and specific FCP policy instruments in another dimension: (1) financial education in the demand-side to enhance financial literacy, capability, and wellbeing; (2) ex ante FCP measures in the supply-side (e.g., information provision, ethics training and accreditation, internal controls, and so on); and, (3) ex post FCP measures by the legal and regulatory requirements (e.g., post-contact workout provisions, ombudsman mechanism, conflict resolution system, and lawsuit).

IV. Toward the Best-Practice FCP Policies

1. Enhancing Financial Literacy

In the literature, financial literacy is defined as a multi-dimensional concept, e.g., a knowledge dimension (a stock of knowledge acquired through education and/or experience related to financial concepts and products) and an application dimension (ability and confidence to efficiently apply or use the knowledge acquired in making personal financial decisions). (Huston (2010)) The extent of financial literacy is generally measured through a survey for specific consumer groups or for a whole country. For example, based on the household surveys done in several European countries, Nicolini (2019) assesses the extents of financial knowledge and behavior by focusing on ten specific concepts – interest rates, inflation, investments, bonds, bank accounts, payments, savings and investments, loans and debts, and retirement and planning. The multilateral international agencies adopt similar survey-based measurement, including OECD/INFE (2016) which publishes the financial literacy scores for different countries and different consumer cohorts. As a related concept, CFPB (2016) introduces "financial wellbeing (F-WB)," the level of satisfaction that a consumer has with state of his/her financial condition, which, as the agency claims, should be an ultimate consequence of any financial education program. CFPB (2017) actually measured the F-WB scores (in a scale of 0~100) among American financial consumers, which were shown to be highly and positively correlated with such usual suspects of general monetary welling as liquid savings (its existence and amount), household income, and ability to absorb unexpected expense.

For the purpose of enhancing financial literacy, there usually exist numerous financial education (FE) programs in different countries to target different consumer cohorts. Using Korea as an example, a diverse group of public and private institutions – Financial Supervisory Service, Bank of Korea, various FI-sponsored organizations, and non-profit organizations - are currently offering FE programs, from which about one million people (out of 50 millions) are trained each year. (See Appendix 1.) Those programs are generally focusing on three particular groups – teenagers, university students, and soldiers (46%, 14%, and 13%, respectively), mainly because they are relatively easier to assemble. The programs are offered both online and offline but, in most cases, take a form of one-time lecture rather than a sustaining program with a long-term goal of impacting their behavior. In our view, it is fair to say that, despite a fairly long history (about three decades or more) of instituting FE programs in Korea and other countries, the best practice in designing and delivering those programs and academic research in this regard are still in an infant stage.

In terms of the contents, the Korean programs are accompanied by quite elaborate materials that are differentiated for those in different lifecycle stages. For example, as shown in Appendix 1 (Table A.1.1), those materials disseminated by the Financial Supervision Service (FSS) cover basic financial concepts for school-age students (K to 12), such as money and allowance management, consumption and financial planning, and savings and investment vehicles, for which cartoon and game are often utilized. For adults in different age groups, the materials also cover appropriate topics for consumers in respective lifecycle stages, e.g., those issues related to financial planning and asset-liability management (ALM) of college students and young adults (e.g., student loan, tax return, housing loan, and seed money for investment), those issues for middle and old age adults in their 30s to 50s (e.g.,

family financial planning, child education, housing acquisition and expansion, child marriage, and preparation for retirement), and those for retired individuals (e.g., income and wealth management for retired life, inheritance plan, prevention of financial fraud, and other ALM and risk management issues of relevancy).

How can one design an effective FE program for the purpose of FCP? To answer this, a series of sub-questions are posed below, which we will attempt to answer based on the typical behavioral patterns of financial consumers as described in Section III.[19]

- Goal setting: What should be the goal of FE that is clear, specific, and measurable enough so that its effectiveness can actually be empirically assessed?
- Research deign: What should be a conceptually sound research design in measuring and monitoring its effectiveness?[20]
- Timing and pedagogy (or mode of delivery): What should be right timing, and mode of delivery, of particular FE programs? And who, or through what governance structure, should these details be planned and validated?
- Role of digital transformation: How should the on-going trend of digital transformation be reflected in designing and executing FE programs?

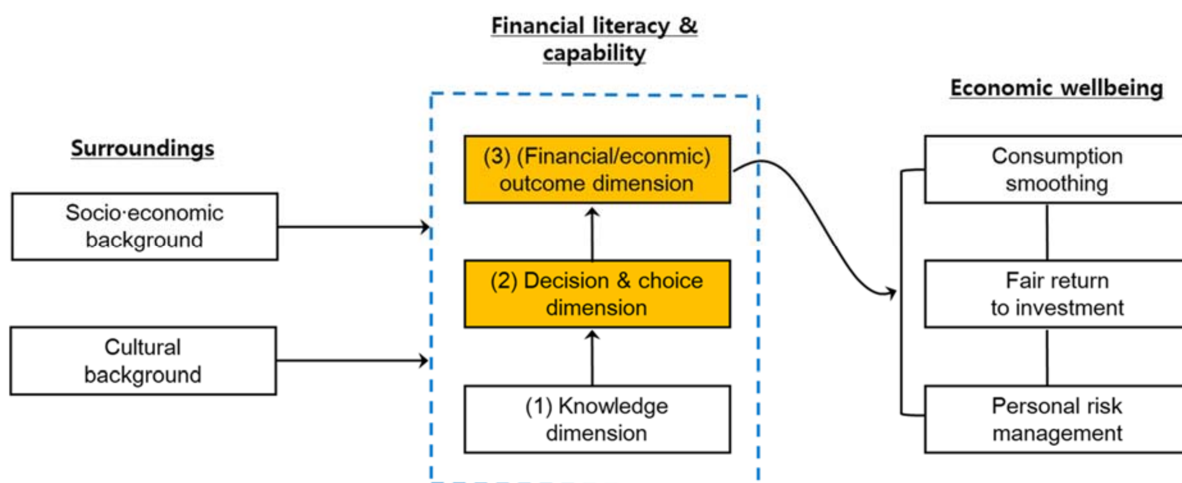
As to the goal setting, Cude (2020) argues that there is generally a lack of consensus in the literature as to what should be the objective of financial education. To clarify this point, Figure 3 delineates the key building blocks to that end. To begin with, the financial literacy in a consumer's point of view is influenced by his/her surroundings, e.g., socio-economic and cultural backgrounds. Given that, the individual's financial literacy and capability can be viewed as a three-dimentional sequence: (1) knowledge dimension (i.e., extent of knowledge on financial concepts related to personal financial management); (2) decision and choice dimension (i.e., action to decide or choose, or not to choose, particular financial products or services); and, (3) outcome dimension (i.e., consequence of the decision made in terms of its long term impact on financial outcomes or broader economic well-being). As is argued in the literature, the goal of financial education should go beyond mere addition of knowledge, i.e., dimension (1), and should further enhance consumer's decision-making capability, dimension (2), or its consequence, dimension (3). However, one can pose another question: that is, given that finance is a mean to an end, how far should one go in defining the ultimate goal of FE? Alternatively put, should we go to a broader economic wellbeing (rather than financial well-being) in terms of dimension (3), i.e., all the way to the utility-enhancing outcomes such as fair return to investment, better consumption smoothing, and more sound financial planning? Without such a clear goal-setting, it is not possible to

[19] See Nicolini (2019) for a review of studies on conceptualizing and measuring financial literacy.

[20] It is reported that those existing programs are in general not effective with little progress on improving consumers' financial literacy, at least among adult populations in the U.S. (Miller et al. (2014), Collins and O'Rourke (2010), Willis (2008))

gauge effectiveness of any FE program in terms of the dimension (3).

Figure 3. Concept and dimensions of financial literacy and capability



Source: The authors

The literature argues that, while educating school-age children (including college students) on basic financial concepts to enhance the knowledge dimension of financial literacy (i.e., enhancing human capital by training general financial skills), the best practice for adult FE programs should be "just-in-time" training or counseling because conveying right information in right timing for actual financial decisions, which usually require specific skills, should be more effective than any other pedagogical method. (Mandell (2006), Lynch et al. (2013), and Cude (2020)) Another inherent difficulty in acquiring and using the specific skills and knowledge on financial products, in addition to their general complexity, is the fact that so many new products and services arrive quite frequently, making it very much challenging to keep up human skill through training with dynamically changing market conditions, the phenomenon often termed as the informational vulnerability in the financial service sector. (Kerton and Ademuyiwa (2018)) That, for many financial services, consumers purchase rarely makes the imbalance of power between them and service providers more skewed to the latter.

The next issue to discuss is the research design, or measurement framework, in assessing the effectiveness of FE program. If we are to test its impact on the knowledge dimension, then the design can be simple and similar to a school exam, i.e., giving a lecture (or a series thereof) to a group of students, taking an exam afterward, and grading the answer sheets to score the knowledge levels. As mentioned earlier, this design is incomplete in that the knowledge acquired will be forgotten over time, and may or may not be properly used in a real-world context of financial decision-making and of its welfare consequence. Though it will be more difficult and complicated, testing behavioral or welfare outcome of FE is certainly doable if one compiles a "right" data matrix, e.g., a household panel covering an outcome variable in the left-hand-side (LHS) and consumers' choice variable(s) along with a set of

controls in the right-hand-side (RHS). The data matrix may require long-term observations for LHS and RHS variables, which may be a challenge but is being done in some sub-fields of economic research. Also, such study will yield more meaningful and generalizable empirical evidences as to the best practice in designing and implementing a welfare-enhancing FE program. One particular area of empirical research that scholars in this field can refer is the randomized experiment method, which is being popularized as a sound research design in various fields of social science, e.g., development economics, education, environmental economics, public health, and public finance. (See Banerjee and Duflo (2005), Duflo (2007), and Angrist and Pischke (2010) among others.)

In designing an FE strategy, our bias is that the contents of FE, the first letter "F" part, are less important than pedagogy and timing, the second letter "E" part, mainly because, given the inherent complexities in financial products, it will be extremely difficult to design and implement an FE program a priori that can offer a meaningful help when making real-world financial decisions later on. Hence, in designing FE programs for adults, it will be useful to institute onsite education or counseling programs to be executed by qualified and impartial instructors and to inform consumers about their availability and encouraging them to use their service when making particular financial decisions. Such "just-in-time" FE programs also appear to be necessary for low-income and other vulnerable groups, and combining such program with some particular products targeting them (e.g., residential mortgage loans, insurance products, and investment products), with low or no fee, would be welfare-enhancing. In addition, as to Type C Info-asymmetry (voice phishing and other illegal intermediations), collecting and disseminating actual cases of such illegal transactions, along with some nudge devices (warning in the internet banking and others), will also be helpful in preventing consumers from getting into similar cases.

Another issue to discuss is about the governance structure to monitor and administer various FE programs that target different lifecycle and other consumer cohorts. That is, there should be a clearing house to standardize contents, pedagogical methods, and other elements of FE programs by setting a nation-wide strategy, an industry-wide norm, and an implementation and monitoring scheme for designing effective FE programs. In such effort, forming a council of involved parties (educators, regulators, consumer groups, academia, local governments, and so on) would be desired. For example, under the FCP Act of 2020 in Korea, the Financial Education Council (FEC) will be formed as a government-sponsored organization as a control tower in streamlining and raising effectiveness of financial education programs in Korea.

Last but not least, one has to factor in the current market dynamics, the on-going trend of digital transformation in particular, in designing an effective FE program. In general, more participatory and behaviorally-structured programs should be considered given the current trend of digital transformation, e.g., LivingLab and PBL (Project Based Leaning) methods with AI- or game-driven pedagogical methods. In addition, those on-going data-driven initiatives in the financial service sector that are relevant to financial consumers, e.g., MyData, can also be included as a part of FE programs for adults.

2. Instituting ex ante FCP measures

Given the Type B Info-asymmetry (i.e., financial consumers being disadvantaged in understanding risk-return profiles of products or services), it is always likely that the service providers misrepresent and over-sell certain products for a short-term maximization of EY, as discussed in Section III. The incentive of doing so is well-recognized in the literature: that is, due to the asymmetry, the suppliers can be tempted to introduce and sell "financial lemons," those harmful low-quality financial innovations, in the market place, in order to fulfill their get-rich opportunity, the outcome of which is often neither efficient (in a dynamic sense) nor fair and can also inflict a systemic risk. (Kerton and Ademuyiwa (2018)) As a protection mechanism against such behavior, there are essentially three lines of defense: (1) self-regulation (or self-control) enabled by code of ethics, and ethics training and certification programs; (2) legal and regulatory requirements to induce certain behavior patterns as mandatory, and (3) internal control mechanisms (within FIs) to incentivize their employees to act such way. In the following, good practices for each line of defense as observed from different countries are discussed and assessed.

The first element, the self-regulations, includes the code of conduct, which can serve as merely a declaration purpose but can also be effective depending on how it is designed and implemented. As an example, the American Bankers Association (ABA) put forth the code that emphasizes the conduct, competency, knowledge, professionalism, integrity, objectivity, and responsibility of each person, and require each candidate for the qualifying positions to read, sign, and agree to ten specific conducts to comply with the minimum ethical standards.[21] (See Appendix 2 for the ABA code of ethics.) The sectors (insurance, security, mutual or saving banks, and so on) also adopt their own codes that reflect sector-specific characteristics; Based on them, individual companies in each sector in turn develop their own codes to ensure ethical behavior for their employees. Similar hierarchical codes are also observed in Korea, in that the Financial Services Commission (FSC) published the standard code in 2015 for the whole financial service sector in the country, and using that as a basis each sector (banking, investment, insurance, savings bank, among others) developed and adopted their own standard codes, which served as a platform for individual companies in each sector employed their own codes.

The next element of the self-regulation includes the ethics training and certification programs. As shown in Table 3, various institutions in the financial service sectors offer such programs: for example, in UK, those institutions are Chartered Bank Institute (CBI), London Institute of Banking and Finance (LIBF), Chartered Institute for Security and Investment (CISI), and Chartered Insurance Institute (CII); and, similar industry organizations in the U.S. and in Korea also provide similar programs. In particular, the UK program, administered by the Financial Conduct Authority (FCA) employs three types of financial supervisory mechanisms to ensure fair and ethical business conduct by employees in the UK financial service sector:

- Senior Management and Certification Regime (SM&CR): Senior managers of FIs, as defined

[21] See 'ABA Professional Certifications' Code of Ethics' by visiting https://www.aba.com/training-events/certifications/maintaining-your-certification/certification-code-of-ethics

by FCA Handbook, should be pre-approved by FCA before starting their duties, and FIs should certify them at least once a year while they are on their jobs; Those employees who should be assessed and certified at least once a year about their fitness and propriety to their jobs because their actions can inflict a significant harm to company even though they are not senior managers

- Conduct Rules (CR): Applied to all employees of FIs, in headquarter as well as branches, defining minimum standards of their conducts that consists of three elements - individual conduct rules, senior manager conduct rules, and company conduct rules
- Training and Competence Regime (T&CR): Regulatory mechanism to ensure properly qualified and regulated financial sector employees to service consumers, with two main elements - high-level competence requirements and more detailed requirements for certain retail activities

Table 3. Institutions that provide the ethics training for financial service sector

Country	Training institutions	Training programs
United Kingdom	Banking: Chartered Bank Institute (CBI); London Institute of Banking and Finance (LIBF)	CBI: Certificate in Professionalism and Ethics; Included as required course in other certificate programs LIBF: Level 4~6 certificate programs
	Security: Chartered Institute for Security and Investment (CISI)	Certificate in Professionalism; Included as required course in other certificate programs
	Insurance: Chartered Insurance Institute (CII)	Financial Services, Regulation, and Ethics (Levels 4 and 4)
USA	Banking: American Bankers Association (ABA)	Ethical Issues for Bankers, a certificate program for all employees
	Security: Financial Industry Regulatory Authority (FINRA); Certified Financial Planner (CFP) Board; Certified Financial Analyst (CFA) Institute	Ethics courses included in the FINRA training, and the CFP and CFA certificate programs
	Insurance: Insurance Institute of America (IIA)	Ethics courses included in the certificate programs (e.g., Ethical Decision Making in Risk and Insurance)
Korea	Korea Banking Institute (KBI)	Ethics course required in their certificate programs
	Korea Insurance Institute (KII)	Ethics course required in their certificate programs

The actual contents of the training program on business ethics is worth noting. Using the UK CBI case as an example (Table 4), there are two levels of training – basic concepts ("Ethical Theory and Ethical Reasoning") and their applications in real world ("Corporate Ethics"), which are required courses to get a professional certificate, e.g., "Certificate in Professionalism and Ethics" by CBI, and Levels 4~6 certificate programs by LIBF. Relevant concepts covered include definition of ethics, relationship between ethics and law, radical subjectivism, moral relativism, moral objectivism, ethical reasoning, consequentialism (including utilitarianism), deontology, and virtue ethics, which are applied

in the second level assuming various real-world settings (e.g., the purpose and responsibilities of business, the rights and responsibilities of employees, the Senior Managers and Certification Regime (SM&CR), ethics in the financial sector, the ethics of advertising, international business ethics, and whistleblowing).

Table 4. The contents of the UK CBI Ethics Certification Program

Unit 2: Ethical Theory and Ethical Reasoning	
Objective	To teach various theories and approaches on ethical thinking, and to assess how they can help resolve ethical dilemma and debates
Scope of assessment	• Discerning ethical demand vs. legal demand • Discerning different claims and assessing contrary views: Extreme subjectivism, moral relativism, moral objectivism, consequentialism, deontology, virtue ethics • Discerning legality and soundness • Assessing how helpful constructive moral claim can be in resolving moral discord • Assessing how moral reasoning can be used in challenging perceived unethical behavior in job place
Questions posed	• What is ethics? • What relationship is between ethics and law? • On the key concepts covered: Radical subjectivism; Moral relativism; Moral objectivism; Ethical reasoning; Consequentialism (including utilitarianism); Deontology; Virtue ethics
Unit 4: Corporate Ethics	
Objective	To teach various views on corporate responsibility, and to assess ethical problems and tasks in the banking sector
Scope of assessment	• Discerning and assessing various views on corporate responsibility • Assessing the way that the corporate responsibility is related to individual responsibility • Identifying and assessing main ethical problems and tasks faced by the banking sector • Identifying main ethical problems that can happen in advertisement and international business • Investigating ethical issues related to status of whistle blowing
Questions posed	• The purpose and responsibilities of business • Ethical stance • The responsibilities of employees • The Senior Managers and Certification Regime • Ethics in the financial sector • The rights of employees • The ethics of advertising • International business ethics • Whistleblowing

Source: Jung et al. (2020)

The next ex ante FCP measure to discuss includes those legal and regulatory requirements. In this regard, the six principles of business conduct as promulgated by the FCP Act of 2020 in Korea offer a general guidance, based on which more specific conduct rules and regulations should be developed for

the different subsectors and for different consumer groups. As it appears, the effectiveness (or level of welfare enhancement) of those principles will be largely dependent upon how they are implemented, i.e., how those principles are translated into specific rules and regulatory requirements for the different subsectors as well as how those rules and requirements developed are implemented, enforced, and monitored. On this point, Huh (2020) argues that, while those six principles appear to be meaningful in the spirit of applying same regulations for same intermediation functions, a large portion of the specific rules (or details) are likely to differ for different subsectors (i.e., banking vs. insurance vs. investment).

Nonetheless, putting those principles into a law is potentially meaningful in clarifying the source of responsibility in case of dispute between consumers and FIs. That is, those principles can serve as a basis to judge which transaction counterparty is responsible for monetary and non-monetary damage caused; If it is proven that the damage is caused by a violation of any of those six principles, then FIs will have to compensate the damage. In the case of the FCP Act, it makes it clear that the supply-side (FIs and their employees) has a burden of proof for non-violation of the principles, and that, if and when it is proven as violated, then FIs will incur a heavier penalty than before. (Ko (2020))

As to the more specific ex ante FCP rules, the World Bank (2012) and Cho et al. (2017) identify the following: A short one or two page summary statement on the product details, for which it is open to FIs what format, or how much details, to be included for different products; Adequate training for FI staff on products & services, such that qualified and knowledgeable FI staff can assist financial consumers; Ready and free access by financial consumers to their credit reports from credit registers, with appropriate procedures for correcting any mistakes found in credit reports. In the Korean case, almost all these rules as identified by the World Bank (2012) have been in place (as listed in Appendix 2), with some of them being instituted even before GFC. Nonetheless, gauging how effective those implemented measures are appears to be in the realm of future research.

The final line of defense for the ex ante FCP measures is through various internal control mechanisms that can ensure fair and ethical treatment of financial consumers. It is usually the case that FCP is one of the elements of KPIs to assess different FIs in a given country/subsector or different branches within a given FI. Using Korea as an example, the Financial Supervision Service (FSS) uses FCP as one KPI along with other usual ones such as profitability, business volume, financial soundness, and audit and other internal control mechanisms. In turn, FCP will have its own KPIs as listed in Table 5, with five quantitative elements and five qualitative elements (with their own weights), which is applied to virtually most of the banking, security, and insurance companies. FSS computes the scores (or weighted sums of all ten items in the table), and categorizes those scores into five grades to be used as an input to guidance or supervisory action for areas of improvement. Those scores are also disclosed through FSS or subsector associations' websites.

Table 5. FCP Assessment Elements (FSS in Korea, 2018)

Category		Wt.	Element
Quantitative items	1	15%	Number of consumer complaints (level & change)
	2	15%	Effort for resolution (average time taken, % of reconciliation)

	3	10%	Number of lawsuits (total, number of lawsuits during reconciliation)
	4	5%	Operational sustainability (financial soundness indicators)
	5	5%	Financial accident cases (total number, & amount)
Qualitative items	6	10%	Organization and institutionalization for FCP
	7	10%	Development and operation of FCP structure during product development stage
	8	10%	Development and operation of FCP structure during product selling stage
	9	10%	Development and operation of complaint management system
	10	10%	Information disclosure system for consumers

Source: FSS of Korea (2018)

3. Instituting ex post FCP measures

The World Bank (2012) identifies specific rules and regulatory requirements, which can be categorized as the ex post FCP measures. For example, financial consumers can have the right to withdraw their offers to contracts regarding financial products within 7, 10, or 15 days (depending on the types of contract) after execution of the contracts, referred to as the cooling off period. As a similar but longer-term FCP measure, the consumers can also terminate unlawful contracts within five years after execution of contracts when it is discovered that financial product sellers or advisors had violated any required rule or regulation (e.g., those six principles as identified by the FCP Act of 2020 in Korea and their derivative requirements[22]). As another FCP measure, FIs should provide an individual and immediate notification in writing of changes in product characteristics (e.g., interest rate charged in the case of adjustable lending products, prepayment penalty, or any yield-related rules). As to the collection practice, there is usually a prohibition of abusive debt recovery practices in dealing with delinquent or under-water financial consumers. The overall intent of the ex post FCP policy instruments is in reducing sub-optimal (or non-Pareto-optimal) behavior so as to increase the quality of product offerings and related services in the financial market.[23]

One major ex post FCP measure is the dispute resolution mechanism, i.e., access to an affordable and adequate mechanism for dispute resolution between consumers and FIs as the last resort before going to court. For example, the World Bank (2012) suggests a periodic survey of customer complaints (by sector), ombudsman or other conflict resolution mechanisms, clear procedures for handling complaints received, as well as access to an affordable, efficient, respected, professionally-qualified contact to resolve dispute (either in person or on line). Obviously, the magnitude and content of the complaints differs widely across the subsectors: using Korea as an example, there were about 78,000

[22] The law also introduces a punitive administrative financial penalty scheme by imposing financial penalties up to the maximum 50% of relevant total revenues when direct sellers of financial products or financial advisors engage in unlawful business conduct such as violation of the explanation duty, unfair business activities, unfair recommendations, or violation of advertising regulations. (Ko (2020))

[23] We owe this point to Robert Kerton in his comments to our earlier version.

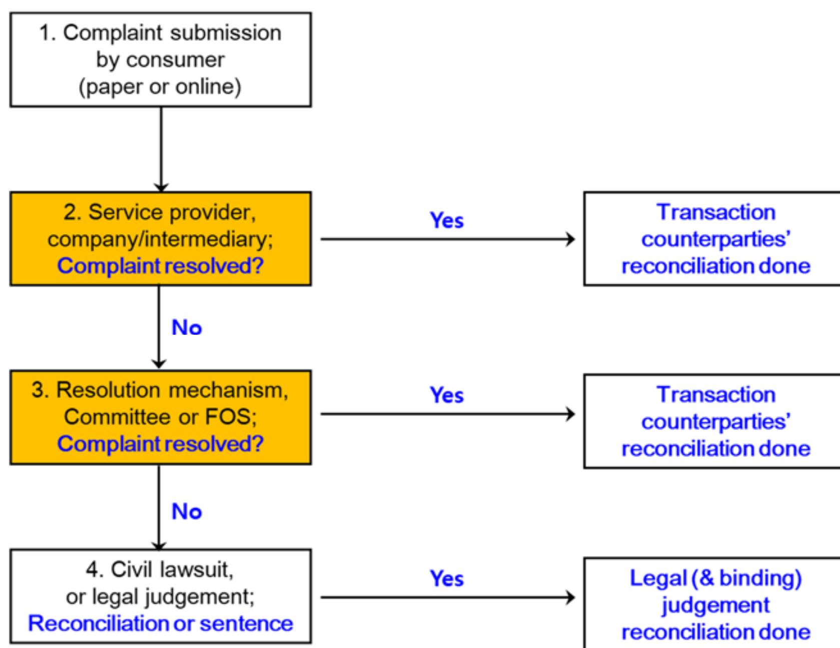
consumer complaints each year, out of which about one third went through the dispute mediation mechanisms; according to the 2019 statistics, the insurance sector takes the highest share with 62%, followed by the non-bank FIs (20%), the banks (12%), and the security and investment companies (only 5%), although the last sector infrequently inflicts a large-scale and highly-publicized cases of incomplete sales in the country with large welfare losses to financial consumers. Among the insurance related complaints, there is a difference even between life insurance (46% related to collection agents, 19% for insurance payment and amount, and so on) vs. casualty insurance (43% for insurance payment and amount, 10% for contracting and its cancelation, and so on). (Kim and Choi (2020))

As shown in Figure 5, there are three general steps involved with a typical conflict resolution mechanism. First, consumers has to file (in writing) a complaint, either to FI in question or to financial supervisor. Even if it is the latter case, the supervisor generally recommends a reconciliation with the FI as the initial step: for example, FCA in UK advises the consumers to go through a voluntary (or non-binding) mediation procedure with FI. Upon receiving the complaint, the firm should confirm the reception of the complaint (also in writing) as soon as possible in writing, and must send their response within eight weeks (with the statement as to whether or not the complaint is successful or why they need more time to investigate). In the case of Payment Service Providers and e-money issuers, FCA requires them to respond to the consumers within 15 business days.

Second, financial consumers can file a mediation request to the next-level mediation groups, which tend to differ in different countries as well as in the different subsectors. For example, in Korea, financial consumers can go to the multiple channels of conflict resolution: that is, financial customers can go to the respective professional associations depending on what type of service they have problem with (i.e., the Korea Federation of Banks, KFB, the Korea Financial Investment Association, KFIA, and the Korea Life Insurance Association, KLIA, or the General Insurance Association of Korea, GIAK), or they can use the government-sponsored organization - the commissions run by Financial Supervision Service (FSS) or Korea Consumer Agency (KCA). In UK, on the other hand, the channel appears to be simpler in that, for any case that is not resolved between consumer and FI, FCA guides to file the complaint to the Financial Ombudsman Service (FOS), a free and independent service for settling disputes between financial services firms and their customers which covers a wide range of financial matters – from pet insurance to stocks and shares. FOS can ask the financial firm to explain what it thinks happened, and decides whether to uphold your complaint. The process can take 8 weeks or 15 days depending on the type of firm.[24]

Figure 5. General steps involved in a typical conflict resolution mechanism

[24] Ombudsman office (since 2016 in Korea): Consisting of five members (three from FIs by subsector, one consumer representative, and chairperson), to monitor financial regulations and consumer complaints. The office receives complaints and suggestions from both financial consumers and FIs, and between February 2016 to September 2017 those filed by FIs (65 cases) are far greater than those by consumers (16 cases).



Source: The authors

The final step is to take the matter to court: If you do not want to accept a decision by the Financial Ombudsman Service and you have not used an independent complaints scheme, as a last resort you may be able to take your case to court. In general, it is prohibited for FIs to bring a lawsuit to a court for cases of disputed amounts below 20 Million Won (approximately US$17,000) initiated by unsophisticated financial consumers and also to bring the cases that are still in the process of financial dispute mediation.[25] To sum up, it appears that the research as to how effective these dispute resolution mechanisms are scare, at least in the economics field, and that future research, hopefully in an inter-disciplinary fashion, on this topic is warranted.

Table 7. Consumer complaints statistics in Korea

---

[25] There are many companies that offer to complain on your behalf. These are usually known as claim handlers, claims firms or claims management companies (CMCs). We regulate financial services and financial products CMCs operating in Great Britain. CMCs will charge you a fee for handling the complaint. Some companies will manage your claim on a 'no win, no fee' basis. If your claim is successful, they will deduct a proportion of your compensation as a fee. If you cancel your claim, you may also be charged.

		2014	2015	2016	Unit of change	Rate of change
Financial complaint(overlapped complaint)		78,779 (119,067)	73,212 (96,126)	77,966 (10,0267)	△4,754 (4,141)	△6.5% (4.3%)
Dispute complaint		26,835	23,130	26,608	△3,478	△15%
Sector	Bank	11,415	10,061	8,928	△1,133	△11.3%
	Non-Bank	19,466	14,021	15,536	△1,515	△10.8%
	Insurance	43,678	46,148	50,213	△4,065	△8.8%
	Financial Investment	4,220	2,980	3,289	△309	△10.4%

Source: Financial Supervisory Service (2017)

4. Putting It All Together

To sum-up our discussions in this section, a matrix is developed in the table below by interacting two dimensions of the involved factors - the seven behavioral patterns to target and the three sets of FCP policy instruments. And the former includes: (1) excessive and pro-cyclical pursuance of EY, (2) credit rationing caused by Type-A info-asymmetry, (3) misrepresentation caused by Type-B info-asymmetry, (4) pseudo or fraudulent intermediation (as outcome of Type-C info-asymmetry), (5) overleverage by the liquidity-constrained consumers, (6) herd behavior by the liquidity-surplus consumers, and (7) uninformed financial planning and decisions caused by the lack of basic financial concepts and planning; while the latter encompasses (1) financial education (for three groups – school-age children, young and mid-age adults, and senior citizens), (2) ex ante business conduct (self-regulation, legal and regulatory requirements, and internal governance structure), and (3) ex post business conduct (legal and regulatory requirements, and dispute resolution mechanism). The template provided in Table 8 can be used as a checklist in assessing whether or not a set of essential FCP measures are in place in a given country, possibly as a prior step in assessing their effectiveness in terms of taming the target behavioral patterns.

Table 8. Behavioral patterns to target interacted with alternative FCP

	1. Financial Education[a]			2. Ex ante business conduct[b]			3. Ex post business conduct[c]	
	School-age children	Young & mid-age adults	Senior citizens	Self-regulations	Legal/regulatory requirements	Governance structure	Legal/regulatory requirements	Dispute resolution (DR)
A. Excessive and pro-cyclical pursuance of EY	NA	NA	NA	Yes/No (Code of conduct; business ethics training & certification)	Yes/No (Prudential regulations; FECT rules ~ info provision, duty to explain, & other fair business activities)	Yes/No (FECP-related internal controls & KPIs; Enhanced credit assessment)	Yes/No (Cooling-off, cancellation, & other rules; Lawsuit-related provisions, e.g., penalty, burden of proof)	Yes/No (Multi-tier DR mechanism; ombudsman, & special committee; DR statistics)
B. Credit rationing caused by Type-A info-asymmetry	NA	NA	NA	Yes/No (Code of conduct; business ethics training & certificate)	Yes/No (Consumer segmentation & risk mgt.; FECT rules ~ suitability rules, info provision, duty to explain, & others)	Yes/No (FECP-related internal controls & KPIs; Enhanced credit assessment)	Yes (Cooling-off, cancellation, & & other rules; Lawsuit-related provisions, e.g., penalty, burden of proof)	Yes (Multi-tier DR mechanism; ombudsman, & special committee; DR statistics)
C. Misrepresen-tation caused by the Type-B info-asymmetry	NA	NA	NA	Yes/No (Code of conduct; business ethics training & certificate)	Yes/No (FECT rules ~ info provision, duty to explain, & other fair business activities)	Yes/No (FECP-related internal controls & KPIs; Enhanced credit assessment)	Yes (Cooling-off, cancellation, & & other rules; Lawsuit-related provisions, e.g., penalty, burden of proof)	Yes (Multi-tier DR mechanism; ombudsman, & special committee; DR statistics)
D. Pseudo or fraudulent intermediation caused by the Type-C info-asymmetry	Yes/No (Training on cyber security & cases)	Yes/No (Training on cyber security & cases)	Yes/No (Training on cyber security & cases)	Yes/No (Rules & regulations on cyber security; case collection dissemination)	Yes/No (Rules & regulations on cyber security; case collection dissemination)	Yes/No (Rules & regulations on cyber security; case collection dissemination)	Yes (Legal investigation, compensation)	Yes (Legal investigation, compensation)

E. Liquidity-constrained consumers	NA	Yes/No (Training on debt-mgt., lifecycle-specific ALM & other F-planning issues; Risk-based consumer credit assessment)	Yes/No (Training on pension & debt mgt.; Wealth mgt. for retired life)	NA	NA	NA	NA	NA
F. Liquidity-surplus consumers	NA	Yes/No (Training on sound investment, lifecycle-specific ALM & other F-planning issues; Counseling with AI)	Yes/No (Training on pension, investment & debt mgt.; Wealth mgt. for retired life; Reducing digital divide)	NA	NA	NA	NA	NA
G. Myopic and uninformed decisions by financial consumers	Yes/No (Training on money, savings, investment, & other basic financial concepts)	Yes/No (Training on lifecycle-specific ALM & other F-planning issues)	Yes/No (Training on ALM for retired life; Inheritance & other planning issues)	NA	NA	NA	NA	NA

a. Financial Education: Goal setting; Design of contents, timing, and target; Measuring effectiveness; Governance structure; Role of digital transformation (or digital divide)

b. Ex ante FCP measures: Micro- and macro-prudential regulations; Self-regulation mechanisms; Legal and regulatory requirements, e.g., FECP (Fair & Ethical Consumer Protection) rules and regulations; Internal governance structure

c. Ex post FCP measures: Legal and regulatory requirements; Dispute resolution (DR) mechanisms

V. Implications to International Endeavor for FCP

Although this study focuses on several countries in its institutional survey (i.e., mostly, those practices observed from the U.S., UK, and Korea), the authors intend to shed light on, and contribute to, the on-going international endeavor to develop and share good practices for FCP.[26] Obviously, different countries have different market and institutional conditions. However, there are so much to share through international collaborations on involved research and policy agenda with coming up with effective (or welfare-enhancing) FCP measures. In this section, we attempt to link our survey to a broader international context.

As one particular policy issue to be considered, it is not possible in our view to design a welfare-enhancing FCP policy regime in isolation with other main policy goals in the financial markets, in particular ensuring safe and sound financial intermediaries (i.e., prudential regulations) and expanding access to financial service to more marginal consumers (i.e., financial inclusion strategy), because those regulatory goals must be closely inter-linked. Accordingly, assessing the FCP policy framework in a given country should be done broadly, with a set of indicators for those three pillars of FCP discussed as well as for those macroeconomic and financial market conditions of relevancy. One criterion for such assessment is how effective a FCP policy regime is likely to be in deterring a large-scale case of incomplete sale that can constitute a systemic risk event, e.g., GFC and other large-scale financial crises happened in different countries. To examine these issues, the first part of this section briefly surveys the recent cases of incomplete sales in Korea, to depict the inter-connected nature of the multiple regulatory goals, which will be followed by a sketchy of a set of indicators, both qualitative and quantitative, that can be considered in an inter-country comparison of the FCP policy regimes.

Cases of incomplete sale and their implications

It is well-established in the literature that there is usually an endogenous, or mutually-reinforcing, relationship between financial sector development (or financial market deepening) and economic growth: that is, a positive association between the size of private credit and the GDP growth rate is fairly well-established, more clearly so for developing, rather than developed, countries (King and Levin (1993), Rajan and Zingales (1998), Manning (2003), Pagano and Pica (2012)).[27] Korea is not an

---

[26] In fact, a number of international collaborative works for FCP are underway. For this, Kerton and Ademuyiwa (2018) identifies the following as the major ones: the International Academy of Financial Consumers IAFICO) as an international association; Consumers International (CI), the European Consumer Organization (BEUC), the American Council of Consumer Interests (ACCI), the OECD Committee on Consumer Policy, ISO—COPOLCO, and the International Consumer Protection Enforcement Network as both advocacy and policy institutions; and, the International Financial Consumer Protection Organization (FinCoNet) as the policy-sharing organization among 24 full member countries.

[27] In addition, it is also documented in the literature that an inverse U-shaped relationship between economic growth and the ratio of private credit to GDP is also documented, implying that the financial market deepening can have a detrimental effect on the growth after a certain threshold (e.g., the 100% of the ratio of private credit

exception to that development pattern: that is, the three key service sectors for financial consumers – banking (deposit and lending services), insurance, and investment – all showed a steady growth path along with the sustained economic growth from the 1970s (e.g., the total household lending has grown from 3.6% of GDP in 1975 to 99.1% in 2018); reflecting the growing liquidity in the economy, the market interest rates have shown a steady declining pattern since the outset of the new century, from the two-digit figures in 1990s to the 2~3 APR ranges right now; and, the consumer lending sector has rapidly grown after the Asian Financial Crisis (AFC) in the 1990s, thanks to the deregulation in the sector after the crisis. However, as the consumer lending sector rises in size from the early 2000s, there has been a series of the nationally-publicized cases of incomplete sales, as listed below.

- The credit card lending debacle (2001~2003), which involved with a rapid and excessive expansion of the credit card sales, as a part of economic recovery after AFC, with a poor underwriting and risk assessment practice on the part of the service providers (as it was done to achieve the broader policy goal). The outcome was a large number of credit-impaired financial consumers who experienced a prolonged difficulty in their personal financial management. The event also triggered the instituting various financial education programs in the country.

- The PF (Project Finance) lending and the savings bank crisis (2011~13), which was caused by a large amount of high-risk lending to the construction firms by the savings banks during the construction boom in 2003~07. However, during the downturn afterward, the savings banks sold the mezzanine (high-risk) bond products to their deposit holders, which resulted in a large scale principal losses for the consumers due to the high incidence of bankruptcies among the construction firms as well as the failures of several savings banks.

- The KIKO (Kick-In Kick-Out, an exchange rate hedging product) crisis (2008~10), which involved with a large amount of sales of the foreign currency hedging product (referred to as KIKO) by the commercial banks to SMEs that were in the international trading businesses. After GFC, the protection buyers incurred big monetary losses due to the high volatility in the value of Korean Won against the major foreign currencies.

- The DLS-DLF (Derivatives Linked Securities / Funds) crisis (2019), in which two commercial banks sold the derivative products to seniors and other household investors, whose values were linked to the interest rates, currencies, and other financial products of in the developed countries. The buyers incurred a large amount of principal losses (over 90% in many cases) when the German government bond rates dropped below zero percent in 2019.

- The Lime Asset Management (LAM) crisis (2020, on-going), in which one asset management company, LAM, grew explosively during several years (with the total AUM – Asset Under Management – jumping from about 16m USD in 2016 to 1.2b in 2019, a 75 times growth within three years). In the process, the company issued a large number of private equity funds (PEFs) and sold them to household investors through the commercial banks, which, according the on-going criminal investigation, appeared to be a Ponzi scheme in that LAM promised the

---

to GDP as reported), possibly due to an overinvestment in non-trading (or less productive) sector of economy (Cecchetti and Kharroubi (2012), Arcand et al. (2012), and Cournède and Denk (2015)).

PEF investors a high return that was mostly met by issuing the new PEFs. Behind this incidence, there was the loosening regulatory requirements from 2015 for PEFs to promote the market for venture capital to fund start-ups and SMEs, e.g., changing the minimum equity requirement to start PEF from six billion KRW to two billion in 2015, and further to one billion in 2017 (accordingly, the number of PEFs in the country growing from 20 in 2015 to 233 in May 2020).

These cases show that ensuring a proper FCP policy regime is closely inter-twined not only with the micro- and macro-prudential regulations toward FIs but also with the overall development of the financial service sector of a given country, the latter of which is also tied to extent of financial inclusion in various services (e.g., payment, saving, lending, insurance, and investment). Hence, in our view, it is necessary to develop a comprehensive set of indicators, both quantitative and qualitative, that goes beyond the three pillars of FCP policy as discussed earlier and include the market and institutional conditions of relevancy in assessing the FCP policy regime. As a candidate, the list below shows a set of such comprehensive indicators under five categories: (1) macroeconomic and financial market conditions; (2) indicators for digital transformation; (3) those for financial education; (4) those for ex ante measures for FECT (in the supply-side); and, (5) those for ex post measures for FECT.

- Macroeconomic and financial market conditions
  - General descriptors (GDP per capita, disposable income per capita, % urban population, & other socio-economic indicators)
  - Value-add by the financial service sector, & its components (% to GDP)
  - Sizing of financial markets (including stock, insurance, & lending sectors) (% to GDP)
  - Interest rates, and other price/cost indicators for financial services
  - Governance structures for the prudential regulations
  - Governance structures for the business conduct regulations
- Indicators for digital transformation & financial inclusion
  - Number of bank branches (per 100,000 adult population)
  - Number of ATMs (per 100,000 adult population)
  - Access to bank account (% of total population)
  - Access to a high-speed internet (% of total population)
  - Access to a smartphone (% of total population)
  - Number of inter/mobile banking accounts (per 100,000 adult population)
  - Completeness of the FinTech service sector (availability of crowdfunding, P2P lending, mobile payment, robo-advisor, & InsurTech)

- Adequacy of privacy and data security law & its enforcement (from "DFCPI")

- Indicators for financial education (FE)
  - Lifecycle-specific programs & materials (School-age vs. young & mid-age, seniors)
  - Availability of "just-in-time" programs (online & offline) & of independent advisors (and DT-based counselling)
  - FE clearing house (for QC and standardization)
  - Special programs for vulnerable groups (to deal with digital divide and other issues)
  - Special programs for fraudulent intermediation (to deal with Type-C info asymmetry)
  - Periodic monitoring & survey of financial literacy and capability
- Indicators for ex ante measures for FECT (in the supply-side)
  - Prudential regulations, micro & macro (to deal with Type-A info asymmetry)
  - Risk-based credit assessment & consumer segmentation system (to deal with Type-B info asymmetry), & financial inclusion strategy
  - Self-regulation mechanisms (code of ethics, training & certificate)
  - Legal and regulatory requirements (FECT rules and regulations)
  - Corporate governance structures, including internal controls (FCP-related KPIs) and audit department
- Ex post business conduct (in the supply-side)
  - Legal and regulatory requirements (Cooling-off, cancellation, & others)
  - Dispute resolution mechanism (DR committee, ombudsman, & others)
  - Lawsuit related arrangements (e.g., burden of proof, penalty level)

VI. Conclusion and Next Steps

The main objective of this study is to elaborate key elements of a welfare-enhancing policy regime for financial consumer protection, by focusing on three pillars - financial education, ex ante (or before point of sale) FCP measures, and ex post policy instruments, for the purpose of helping identify the best practices of FCP policies. In so doing, we also attempt to conceptualize the typical behavioral patterns in the demand- and supply-side of the financial markets and to reflect the ramifications of the on-going global trend of digital transformation. As mentioned at the outset, the ultimate goal of any FCP policy regime should be in ensuring two behavioral outcomes – sound and informed decisions by financial consumers, and fair and ethical treatment of consumers by FIs and their employees, and those elements of the three pillars discussed in this manuscript should all contribute to achieve that. In a sense, this study sets a stage for future research and collaboration by laying out a template of broad scope of issues related to how to establish a FCP policy regime that is effective and compatible to the incentives of market participants. Several future agenda as a follow-up of this study are discussed below.

First, as to future research topics, there should be a heightened level of empirical investigation on whether or not those FCP policy elements actually have an impact on actual behavioral outcomes, as well as on what types of nudge can one institute to increase such behavioral effects. Financial education represents one particular area that will benefit from such research endeavor in future. Nonetheless, some of the supply-side FCP policy elements discussed in this study should also be the topics of similar empirical tests going forward. For example, effects of different training programs for business ethics, of specific rules and regulations to reflect the principles of business conduct (e.g., those six principles specified by the Korean FCP Act), and of alternative dispute resolution mechanisms can all be the targets of empirical investigation as to whether or not they actually derive a better behavioral outcome in the supply side. In addition, inter-play between FCP and other public policy goals (safety and soundness of the intermediaries, and expansion of financial inclusion) should also be a topic of future research, theoretically as well as empirically.

Second, the human dimension of the FCP policy regime should also be investigated. That is, even if a country has the best possible FCP institutions in both demand- and supply-side, they will not be effective and deliver the intended results unless the policy regime is run by professional, capable, and committed personnel. Hence, there should be a conscientious effort and strategy to develop and place such people in key positions, whether they are educators, counselors, or regulators. In the end, it is more likely to be those who run rather than to be the system itself that can make the system awry and can cause a large-scale systemic problem such as GFC and, hence, the statement, “it is singer not the song,” should also apply to designing the FCP policy. Another related point to make is about the need for capable personnel to implement welfare-enhancing FCP measures in the era of digital transformation, including those who can develop and institute AI-based FE programs, protection mechanisms to safely share private data, and even data-driven and automated routines for detecting fraudulent financial transactions.

Finally, there should be a long-term and international research collaboration on the various topics that warrant sound and careful research in the future. Given the diverse topics for future research in this

space as discussed in the above, the nature of the research should also be interdisciplinary in our view, among financial economists, legal scholars, education experts, and others in related fields. In addition, lessons learnt by one country, whether they are positive or not, can be useful to other countries, which represents another argument for the international research collaboration. To that end, it is also important to work with those existing organizations, e.g., the international academic and policy-coordination bodies such as IAFICO, CI, FinCoNet, and others as quoted earlier, which can serve as sustainable forums to share research findings and policy practices among interested scholars and, further, to advance our understanding on various issues relevant to the FCP and other consumer related issues in the financial markets.

References

Alleweldt, F., S. Kara, R. Graham, E. Kempson, S. Collard, S. Stamp, & N. Nahtigal (2013). THE OVER-INDEBTEDNESS OF EUROPEAN HOUSEHOLDS: UPDATED MAPPING OF THE SITUATION, NATURE AND CAUSES, EFFECTS AND INITIATIVES FOR ALLEVIATING ITS IMPACT. Civic Consulting of the Consumer Policy Evaluation Consortium (CPEC), Potsdamer Strasse 150, D-10783 Berlin, P95.

Angrist, J.D., & J. Pischke, (2010). The Credibility Revolution in Empirical Economics: How Better Research Design is Taking the Con out of Econometrics. *Journal of Economic Perspectives*. 24(2), 3–30.

Arcand, J. L., E. Berkes, & U. Panizza, (2012). *Too Much Finance?*(IMF Working Paper 12/161).

Banerjee, A., (2005). New development economics and the challenge to theory. *Economics and Politics Weekly*. 40(40), 4340–44.

Banerjee, A. & E. Duflo, (2005). *Growth theory through the lens of development economics* (MIT Department of Economics Working Paper. 05-01).

Berg, T., V. Burg, A. Gombović, & M. Puri, (2018). On the Rise of FinTechs – Credit Scoring using Digital Footprints. *Presented at the 2018 CCAF Conference.*

Blinder, A, (2008). *Origins of Financial Mess*. http://academicearth.org/lectures/origins-of-financial-mess, lecture video.

Buchak, G., G. Matvos, T. Piskorski, & A. Seru, (2017). *Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks*(NBER Working Paper 23288).

Campbell, J. Y., (2006). Household Finance. *Journal of Finance*. 61, 1553-1604.

Campbell, J., H. Jackson, B. Madrian, & P. Tufano, (2011). Consumer Financial Protection. *Journal of Economic Perspectives*. 25(1), 91-114.

Cecchetti, Stephen G. & Enisse Kharroubi, (2012). *Reassessing the Impact of Finance on Growth* (BIS Working Papers No.381). BIS Monetary and Economic Department.

Citi GPS, (2018). *BANK OF THE FUTURE: The ABCs of Digital Disruption in Finance*. March 2018.

Consumer Financial Protection bureau (CFPB), (2017). *Financial well-being in America*. CFPB Report, September 2017.

CFPB, (2015). Financial well-being: The goal of financial education. CFPB Report, January 2015.

Chava, S., & N. Paradkar, (2018). *Winners and Losers of Marketplace Lending: Evidence from Borrower Credit Dynamics* (Georgia Tech Working Paper 18-16), SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3178322.

Cho, M., (2020). *FinTech Megatrends: An Assessment of Their Industrial and Welfare Implications.* manuscript, KDI School.

Cho, M., (2017). Contagious Housing Price Cycles: Drivers, Contagion Channels, and Policy Responses. *Real Estate Finance*, Winter 2017.

Cho, M., (2009). Managing Mortgage Credit Risk: What Went Wrong with the Subprime and Alt-A Mortgage Markets. *International Real Estate Review*. 12(3), 295-324.

Cho, M., S.D. You, & Y.M. Lee, (2017). Financial Consumer Protection in the Household Lending Sector: An Assessment of the Korean Experience. *The International Review of Financial Consumers*, 2(1).

Cournède, Boris & Oliver Denk, (2015). *Finance and Economic Growth in OECD and G20 Countries* (OECD Economics Department Working Papers 1223). ECO/WKP(2015)41, OECD, 16 June.

Cude, B., (2020). Financial Education in the United States. *The International Review of Financial Consumers*. 5(2), 25-31.

De Meza, D. & Webb, D.C., (1987). Too Much Investment: A Problem of Asymmetric Information. *Quarterly Journal of Economics*. 102 (2), 281–292.

Duflo, E., (2007). *Field experiments in development economics. In Advances in Economic Theory and Econometrics*. ed. R Blundell, W Newey, T Persson; Econ. Soc. Monogr. 42, chpt. 13, Cambridge, UK: Cambridge Univ. Press.

Ermisch, J. F., Findlay, J., & K. Gibb, (1996). The Price Elasticity of Housing Demand in Britain: Issues of Sample Selection. *Journal of Housing Economics*. 51, 64-86.

Financial Stability Board (FSB), (2019). Decentralised financial technologies: Report on financial stability, regulatory and governance implications. FSB.

Freedman, S., and G. Jin (2017) “The Information Value of Online Social Networks: Lessons from Peer-to-Peer Lending,” International Journal of Industrial Organization, 51, 185–222.

Frost, J., L. Gambacorta, Y. Huang, H.S. Shin, & P. Zbinden. (2019). *BigTech and the changing structure of financial intermediation* (BIS Working Papers No 779).

Fuster, A., M. Plosser, P. Schnabl, & J. Vickery. (2018). *The Role of Technology in Mortgage Lending* (NBER Working Paper 24500).

Gathogo, A., (2018). *DIGITAL CREDIT, SAVING BEHAVIOR AND CREDIT MARKET: EVIDENCE FROM KENYA*. Ph.D dissertation, KDI School of Public Policy and Management.

G20/OECD/INFE (2017). *G20/OECD INFE REPORT on ADULT FINANCIAL LITERACY IN G20 COUNTRIES*. OECD, Paris.

Huh, Y.K., (2020). *Implications of the Financial Consumer Protection Act of 2020 in Korea: Focusing on the same-function-same-regulation principle*. mimeo (in Korean).

Huston S., (2010). Measuring Financial Literacy. *Journal of Consumer Affairs*. 44(2), 296-316.

Hwang, S. J. (2020). Financial Development and Economic Growth in Korea. *KDI Journal of Economic Policy*. 42(1).

International Monetary Fund (IMF). (2017). *Fintech and Financial Services: Initial Considerations*. IMF Discussion Note.

Iyer, R., A. Khwaja, E. Luttmer, & K. Shue, (2016). Screening Peers Softly: Inferring the Quality of Small Borrowers. *Management Science.* 62(6), 1554-1577.

Jack, W., Ray, A., & Suri, T., (2013). Transaction networks: Evidence from mobile money in Kenya.

American Economic Review, 103(3), 356-61.

Jagtiani, J., & C. Lemieux. (2019). The Roles of Alternative Data and Machine Learning in Fintech Lending: Evidence from the Lending Club Consumer Platform. Philadelphia Fed Working Paper.

Jung, W.Y., W.J. Park, & S.J. Hwang, (2020). *Certification on the Financial Business Ethics: An international comparison*. mimeo (in Korean).

Kerton, R., & I. Ademuyiwa, (2018). Financial Consumer Protection in Canada: Triumphs and Tribulations Chapter 3 in "An International Comparison of Financial Consumer Protection," ed. Tsai-Juh Chen; Published by the International Academy of Financial Consumers and Springer Singapore.

Kim, J.B., & Kim, J. H. (2017). Empirical Analysis on Financial Literacy in Korea, and Policy Tasks for Financial Educations. *Korea Institute of Finance (KIF) Financial Report* (in korean).

King, B. & R. Levine. (1993). Finance and Qrowth: Schumpeter Might be Right. *Quarterly Journal of Economics*. 108, 713-737.

Ko, D., (2020). Policy Framework for Financial Consumer Protection in Korea: Focusing on the Financial Consumer Protection Act of 2020. *The International Review of Financial Consumers*, 5(2), 1-1.

Lee, S.B., (2018). *Robo-Advisor Algorithm and Regulatory Direction for Untact Business*. Presentation material, Korea Capital Market Institute (in Korean).

Levine, R., (2005). Finance and growth: Theory and evidence," In P. Aghion and S. N. Durlauf (Eds.), Handbook of Economic Growth, 1A, 865–934. Amsterdam: Elsevier.

Lin, M., N. Prabhala, & S. Viswanathan, (2013). Judging Borrowers by the Company They Keep: Friendship Networks and Information Asymmetry in Online Peer-to-Peer Lending. *Management Science*, 59(1), 17-35.

Peter, L. & Susan, W. (1989). The Impacts of Borrowing Constraints on Homeownership. *AREUEA Journal*, 17(4), 1989.

Lynch, J. G., Fernandes, D., & Netemeyer, R. G., (2013). The effect of financial literacy and financial education on downstream financial behaviors. *National Endowment for Financial Education*, https://www.nefe.org/research/research-projects/completed-research/2013/effect-of-financial-literacy-on-financial-behavior.aspx

Mandell, L., (2006). Does just-in-time instruction improve financial literacy?. *Credit Union Magazine*, 72(1), 7-9.

Manning, M. J., (2003). Finance Causes Growth: Can We Be So Sure?. *The B.E. Journal of Macroeconomics*, 3(1), 1-24.

Mbiti, I., & Weil, D., (2011). Mobile banking: The impact of M-Pesa in Kenya (NBER Working Paper, No. w17129).

Nicolini, G., (2019). The Assessment of Financial Literacy: The Case of Europe. *The International Review of Financial Consumers*, 4(2), 1-11.

OECD (2013). *PISA 2012: Financial Literacy Framework," in "PISA 2012 Assessment and Analytical Framework*. OECD.

OECD. (2011). *High-Level Principles on Financial Consumer Protection*. (OECD Working Paper).

OECD/INFE, (2016). OECD/INFE International Survey of OECD/INFE International Survey of Adult Financial Literacy Competencies. OECD, Paris, www.oecd.org/finance/OECD-INFE-International-Survey-of-Adult-Financial-Literacy-Competencies.pdf.

Park, S., & M. Cho, (2020). Welfare implications of credit rationing for financial consumers: An empirical investigation on the case of the Korean residential mortgage sector. *The International Review of Financial Consumers*, 5(1), 13-24.

Pagano, M. & G. Pica, (2012). Finance and Employment. *Economic Policy*, 27(69), 5-55.

Pennachi, G., (2012). Narrow banking. *Annual Review of Financial Economics*.

Philippon, T. (2016). The FinTech Opportunity (NBER Working Paper Series).

Philippon, T., (2015). Has the us finance industry become less efficient? on the theory and measurement of financial intermediation. *The American Economic Review*, 105(4), 1408–38.

Puri, M., J. Rocholl, & S. Steffen, (2017). What do a million observations have to say about loan defaults? Opening the black box of relationships. *Journal of Financial Intermediation*. 31, 1-15.

Rajan, R. & L. Zingales, (1998). Financial Dependence and Growth. *American Economic Review*, 88, 559-586.

Schmulow, A., (2020). Consumer financial well-being in South Africa’s Twin Peaks regulatory regime: from measurement to confidence in outcomes. *The International Review of Financial Consumers*, 5(2), 11-18.

Shiller, R., (2012). *Finance and the Good Society*. Princeton University Press.

Stiglitz, J E., & Weiss, A., (1981). Rationing in Markets with Imperfect Information. *American Economic Review*, 71(3), 393-410

Tennyson, S. (2016). Can Regulations Improve Financial Information and Advice. *International Review of Financial Consumers*, 1(1), 1-8.

The World Bank. (2012). *Good Practices for Financial Consumer Protection*. The World Bank, June 2012.

The World Development Report (WDR). (2015). *Mind, Society, and Behavior*. The World Bank Group Flagship Report.

Waller, C. & Stephen, L. (1994). An Expository Model of Credit Rationing. *Journal of Macroeconomics*, 16 (3), 539–545.

Willis, L. E. (2008). Against financial-literacy education. *Iowa Law Review*. 94, 197-285.

Appendix 1. Financial Education Programs in Korea

Table A.1.1. Beneficiaries of the financial education programs in Korea

Cohort	'17	'18. 10	'18 (expected)
Teenager	549,347	294,042	426,917
University students	122,520	114,840	132,744
Soldier	98,705	99,790	120,023
Job seeker	67,878	76,415	87,749
Senior	29,055	25,232	28,929
Citizen (including merchants, teacher s, housewives, etc.)	51,665	23,863	28,563
The rest *	85,696	86,410	101,805
Sum	1,004,866	720,592	926,730

Table A.1.2. Institutions that provide financial education programs in Korea

Category		Institution and Organization
Government		Financial Education Council, Ministry of Economy and Finance
Special Purpose Company		Financial Supervisory Service, The Bank of Korea, Korea Deposit Insurance Company, Credit Coun seling and Recovery Service
Public Institution / Organization		Labor Education Center, Small Enterprise Support Center, Korea Post, The Small and Medium Busi ness Administration, Korea Inclusive Finance Agency, Korea Consumer Agency, Haja Center, Kore a Securities Depository, KDI Economic Information and Education Center
Private Institution and Organ ization	Profit	- Institute of Economic Education, Ivitt Lab for Teen's Biz, Econoi - Financial Corporation: Kwangju Bank, Industrial Bank of Korea, NongHyup Life Insurance Co.,Ltd. , Nonghyup, Mirae Asset Global Investments, Busan Bank, Samsung Securities Co., Ltd., Shinhan I nvestment Corp., Woori Bank, Jeonbuk Bank, Jeju Bank, Kiwoom Securities Co., Ltd., Hana Bank, Citi Bank, BNK Kyongnam Bank, DGB Daegu Bank, KB Kookmin Bank, Standard Chartered Bank Ko rea Limited - Press Agency: Moneytoday, Maeil Business News Korea, Edaily, Korea JoongAng Daily, The Kore a Economic Daily
	Non-Profit	- Green Consumer Network in Korea, The Korea Chamber of Commerce and Industry, YMCA, KRX Happy Foundation - Korea Life Insurance Association, General Insurance Association of Korea, The Credit Finance As sociation of Korea, Center for Free Enterprise - Korea Federation of Savings Banks, Korea Federation of Banks, Korea Council for Investor Educa tion - Korea Association for Community Education, Financial Education Council Primary Economic Education Information Center, Korean Federation of Teachers' Associations, Ko rea Economic Research Institute - Korean Women Entrepreneurs Association, Junior Achievement (JA) Korea - Network for Teaching Entrepreneurship (NFTE) Korea, etc.

Source: Koh (2019)

Table A.1.3. Main topics for financial education, by life-cycle stage

	General concept	Insurance	Borrowing	Investment	Pension	Risk Management
School-age children (K-12)	Money & allowance mgt.; consumption & financial planning (mainly via game & cartoon)			Decisions on saving and investment (different savings & investment vehicles, opening bank account)		
Adult (1) (college students, & 20s)	Financial planning for young adults (student loan, year-end tax return and refund, housing loan, investment seed money)	Insurance and savings products (health insurance, indemnity insurance, contract savings for home purchase)	Student loans, housing loans, credit card receivables, marriage fund, among others	Asset-liability mgt. (ALM) for young adults; Investment decisions stock, fund, bond, ETF, and mezzanine product; Liability mgt. (credit card, housing, & others)		Using insurance contracts to manage personal risks; Making sound ALM
Adult (2) (age of 30 to 60)	Financial mgt. for mid-age adults (savings for child education, emergency expenses, housing purchase & expansion, credit & debt mgt., retirement prep.); Financial education for their children or help for financial	Insurance and savings products for family members (health & indemnity insurance, contract savings); Start preparing retirement savings	Housing loans (for acquisition, expansion, and for rental housing – Chonsei deposits in Korea; Child marriage)	ALM for mid-age adults (objective-driven financial investment – home purchase as an example, time horizons, and appropriate ALM plan)	Preparation of pension and savings for retirement (plan for public pension, corporate pension, and IRP - Individual Retirement Pension; Plan on tax savings)	Credit and debt management for emergency expenditures (family ALM and cashflow planning and mgt.; For unemployment, disease, and other emergency expenses; Retirement planning & ALM for that; Protection from financial

	self-reliance					fraud)
Adult (3) (retirement period)	Financial mgt. for retired life (stable income, wealth mgt., residence mgt., inheritance plan, tax mgt.)	Decisions on insurance and savings contract (cancer, health care, and other old-age related insurance)	Debt mgt. for retirees (Housing loans, credit card receivables, child-related expenses)	ALM for retirees (financial objectives, time horizons, and appropriate ALM plan)	Pension mgt. (public, corporate, individual pension programs, "housing pension" - reverse mortgage)	Prevention of financial fraud (voice phishing, messenger phishing, mobile app, and others); Risk mgt. & ALM (medical expenses, and others)

Source: Financial Supervision Service (FSS)

Appendix 2. ABA Professional Certifications' Code of Ethics

Preamble: ABA recognizes the importance of promulgating a code of ethics that emphasizes the conduct, competency, knowledge, professionalism, integrity, objectivity, and responsibility of each person qualifying as a candidate for certification. Therefore, ABA Professional Certifications has received and adopted the following

Code of Ethics:

Whereas: Certified professionals must maintain a high standard of conduct, competency, knowledge, professionalism, integrity, objectivity, and responsibility as they discharge their duties in the practice of their profession.

Therefore, let it be known, that the Code of Ethics embodies the standards of professional behavior expected of all ABA Professional certification holders.

Therefore, I, by applying for an ABA Professional certification, agree to abide by the Code of Ethics at all times.

Furthermore, I understand that I have a responsibility to all those who use my professional services. This includes customers, other financial institutions, governments, investors, the business and financial community, and all others who rely on the performance of my duties. I agree to:

1. Conduct my professional affairs in a manner that avoids a conflict of interest or the appearance of a conflict of interest. If I become a party to a conflict, or the appearance of a conflict is created, I shall inform my supervisor as soon as possible.

2. Conduct my personal and business affairs in a manner that does not damage the reputation of my employer. If self-employed, conduct my personal and business affairs in a manner that does not damage the reputation of my company.

3. Place my employer’s interest above my own in all business matters, and exhibit a high degree of loyalty to my employer and to whomever I am rendering a service.

4. Owe a solemn duty to uphold the integrity and honor of my profession and to encourage respect for it. I further agree to promote the continual development of the financial services industry, as well as my respective specialization.

5. Avoid any activity that might create the appearance of potential personal financial instability, such as excessive gambling, excessive indebtedness or excessive speculation.

6. Not use information that is not publicly available to invest in the stock of a company that is a customer, borrower, client or supplier of my employer, or share such information with the investment department or investment banking subsidiary of my employer, unless it is legally permissible.

7. Safeguard the confidential nature of information concerning the business transactions and condition of my employer and of my employer’s present and prospective customers, clients, borrowers or suppliers, except where disclosure of such confidential information is required by state or federal law or regulation.

8. Not have signed, nor will I sign, a consent decree with the Securities and Exchange Commission (SEC) or any state securities agency or be found guilty nor will I be found guilty in a competent court of jurisdiction or a federal or state regulatory proceeding of any of the following offenses: (1) securities law violations; (2) embezzlement; (3) fraud; (4) fraudulent conversion; (5) misappropriation of funds; (6) restraint of trade; (7) knowingly filing a false report with a federal or state bank or bank holding company regulatory agency; (8) failure to comply with any law or regulation governing the reporting or disclosure of a conflict of interest; (9) willful failure to file a state or federal income tax return; (10) violation of state or federal election campaign laws; and (11) participation in violations of the Bank Secrecy Act.

9. Strive to become and remain proficient in carrying out my professional duties. If I accept responsibility for handling new and unusual professional activities, but I find that it is beyond my competency, then I agree that I am expected to become competent by diligently undertaking the work and study necessary ABA Professional Certifications' Code of Ethics | American Bankers Association to qualify myself, or to obtain the assistance of a professional possessing the necessary skills or competency.

10. Use reasonable care in expressing opinions involving and related to the performance of my professional duties, and obtain sufficient evidence to warrant an opinion.

As evidenced by my acknowledgement, I have read and understand the information provided regarding eligibility requirements as well as ABA Professional Certifications' Code of Ethics statement and I wish to apply for certification. I attest that all information that I have provided on this application and its required supporting documentation is correct. I further agree to abide by the stated code of ethics and program requirements as long as I remain a candidate for certification or a certified professional.

Appendix 3. Relevant FCP Measures Suggested (for consumer lending sector)

	FCP measure suggested	Description
A. Information provision	a. Summary statement	Ex ante: A short one or two page summary statement on the product (Principle 8)
	b. Qualification of FI staff	Ex ante: Adequate training for FI staff on products & services (Principle 14)
	c. Change in lending terms	Ex post: Individual & immediate notification in writing of changes in products (Principle 16)
	d. Consumer credit data	Ex ante: Ready and free access to their credit reports from credit registers, and provides procedures for correcting mistakes in credit reports (Principle 20)
B. Financial literacy	e. Programs for financial literacy	Developing and implementing the financial literacy programs by a wide range of organizations (Principle 33)
	f. Monitoring financial literacy	FE: Measurement of financial literacy of consumers through broad-based household surveys (Principle 36)
	g. Financial advisor	FE: On forward and reverse mortgage contracts; For low-income, low-wealth, and less creditworthy borrowers
C. Sales practices	h. Cooling-off period	Ex post: A period during which the consumer may cancel the contract without penalty (Principle 11)
	i. Code of Conduct	Ex ante: A principles-based code of conduct that is devised by (by all banks, by all non-bank credit institutions, or by their associations) (Sector-specific Principle)
	j. Affordability of product	Ex ante: Product recommended being in line with the need of the consumer; Consumer's credit worthiness being properly assessed (Sector-specific Principle)
D. Dispute resolution	k. Collection practice; & Debt Recovery	Ex post: Prohibition of abusive collection or debt recovery practices (Principle 19); & as a Sector-specific Principle

	l. Consumer complaint; & Ombudsman and other conflict resolution mechanisms (the key factor in assessing FIs on FCP practices)	Ex post: Designated contact point with clear procedures for handling customer complaints; Up-to-date records of all complaints received (Principle 25); Access to an affordable, efficient, respected, professionally qualified and adequately resourced mechanism for dispute resolution (Principle 26)
	m. Foreclosure of mortgaged or charged property	Ex post: Informing in writing in advance of the procedures involved, and of the legal remedies and options available (Sector-specific Principle)

Source: World Bank (2012); Re-quoted from Cho et al. (2018)