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Household Investments in Structured Financial Products: Pulled or Pushed? *

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Abstract

Structured financial products including credit-linked notes and collateralized debt obligations were popular before the credit crisis but then delivered substantial loss to investors. Driver for investment decision in those products is key to understanding the fundamental causes of the crisis. Classical portfolio theory suggests that investors would shun away from unfamiliar financial products. This familiarity bias holds especially for unsophisticated household investors. The rapid growth of structured products market, the newest financial innovations, presents an opportune setting to test such conventional wisdoms. Using unique household investment data from Hong Kong, we show that product distributors' selling intensity is an important determinant for investors' allocation in structured products. On the other hand, more financially literate investors, who are more capable of optimizing asset allocation, include less structured products into their portfolios. Important determinants according to mean-variance analysis, such as product premium, have little explanatory power to investor's allocation decisions. Our finding suggests that investments in structured products prior to the credit crisis were more likely to be pulled by distributors. This paper demonstrates the importance of financial literacy for investment decisions.

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Abstract

Structured financial products including credit-linked notes and collateralized debt obligations were popular before the credit crisis but then delivered substantial loss to investors. Driver for investment decision in those products is key to understanding the fundamental causes of the crisis. Classical portfolio theory suggests that investors would shun away from unfamiliar financial products. This familiarity bias holds especially for unsophisticated household investors. The rapid growth of structured products market, the newest financial innovations, presents an opportune setting to test such conventional wisdoms. Using unique household investment data from Hong Kong, we show that product distributors' selling intensity is an important determinant for investors' allocation in structured products. On the other hand, more financially literate investors, who are more capable of optimizing asset allocation, include less structured products into their portfolios. Important determinants according to mean-variance analysis, such as product premium, have little explanatory power to investor's allocation decisions. Our finding suggests that investments in structured products prior to the credit crisis were more likely to be pulled by distributors. This paper demonstrates the importance of financial literacy for investment decisions.

JEL Classification: D81; G01; G11

Keywords: Structured Products; Financial Literacy; Ambiguity Aversion.

1 Introduction

Securitization is the main channel transforming the U.S. subprime housing market decline into a global credit crisis. Those subprime mortgage loans are first packaged into mortgage-backed securities (MBS), which are then repackaged into collateralized debt obligations (CDOs). Those CDOs, mostly bearing AAA credit ratings, are either kept on the investment banks' balance sheet, or insured by credit default swaps (CDS), or sold to investors all over the world. Securitization was the biggest U.S. export to the world in the 21st century till the crisis broke out in August 2007.¹ After the crisis, international investors, especially those from high savings countries such as China, are blamed to be the root cause of the crisis. The critics claim that U.S. asset demand directed capital inflows drove global imbalance, fueled the real estate bubble, and facilitated excessive consumption.² Such claims are crucially hinged on the asset demand assumption. However, whether transactions are driven by the demand or supply is an empirical issue. Were capital flows into securitization market pulled or pushed? In this paper we investigate household investment decisions in structured products using unique data from Hong Kong.

Household financial behavior could provide microfoundation for macroeconomic fluctuations (see Mian and Sufi (2009) for leverage choice). Investment patterns at individual investor level prior to the crisis is important to understand the root causes of the crisis. The crisis reveals that CDOs were, to a large extent, poor investment choice. Practitioners, academics, and regulators have quickly reached a rare consensus on the detrimental role of CDOs in the economy. However, CDOs are merely a financial innovation subject to market selection. One adverse realization of investment return does not totally disprove their usefulness as an investment tool. After all, investors seemingly had non-satiable appetite for CDOs and other structured products prior to the crisis as evidenced by the flourish of such markets. Did investors understand the risk-return profiles of those investments when investing in them?

Individual investors' appetite for structured products is puzzling from several aspects. First, a security will be included in an investor's portfolio only if it is on the

¹"Evil Wall Street Exports Boomed With 'Fools' Born to Buy Debt", Bloomberg.com, August 27, 2008.

²"Paulson says crisis sown by imbalance," *Financial Times*, January 1, 2009. "...it is impossible to understand this crisis without reference to the global imbalances ...". Ben S. Bernanke, Speech at the Council on Foreign Relations, Washington, D.C., March 10, 2009. Curbing global imbalance is the main agenda of the G-20 meetings in November, 2009. Caballero and Krishnamurthy (2009) develop a model to show how global imbalance has driven the US securitization boom and bust. Other references include Obstfeld and Rogoff (2009) and Jagannathan, Kapoor, and Schaumburg (2009).

efficient frontier (see Boyle, Garlappi, Uppal, and Wang (2009) for a review of portfolio theories). However, evidence from U.S., U.K., Germany, Swiss, among others, shows that structured products are massively overpriced.³ Second, structured products are financial innovations with little historical performance data and much ambiguity. Ambiguity averse investors would avoid such investments. Third, CDOs and other structured products have capped returns but substantial downside due to default risk. Such feature does not match investors' preference for positive skewness (Barberis and Huang (2008), Kumar (2009)).

One potential explanation for individual investors' seemingly suboptimal investments in structured products is that investors misunderstood them and simply followed the fads. Taken for granted the disadvantage of investing in structured products, the remaining question is whether the investment mistakes were made by investors themselves (investment was "pushed" by investors) or induced by the product issuers (investment was "pulled" by issuers). It is no surprise that bounded rational investors make suboptimal investment decisions (Calvet, Campbell, and Sodini (2007)). Individual investment practice is constrained by transaction costs, information processing capacity, and liquidity shocks. Even perfectly informed investors may rebel conventional wisdoms. DeMiguel, Garlappi, and Uppal (2009) show that a naive $1/N$ rule outperforms sophisticated mean-variance optimization strategies in historical data. On the other hand, CDOs could be mis-sold to investors by investment banks and other financial intermediaries (Inderst and Ottaviani (2009)). It is important to distinguish these two alternatives (investor mistake or mis-selling) for security design and market regulation.

Empirical study of investments in retail structured products is difficult as investors are hard to identify. Obtaining such information from brokers or banks is unrealistic for confidentiality reasons. It is commonly believed that CDOs are only sold to institutional investors. However, it was revealed through the collapse of Lehman Brothers in September 2008 that individual investors in Asia (Hong Kong, Taiwan, and Singapore in particular) have invested in CDOs disguised under other names from local bank distributors in retail structured products market. Thousands of individuals bought "minibonds", a type of credit-linked notes (CLNs), issued by Lehman Brothers from 2003 to 2008. Many bought "constellation", CLN referencing Lehman Brothers, issued by Development Bank of Singapore (DBS) in 2006-2007. Although ownership data on CDOs is extremely prohibited as such securities are privately placed, the minibond incident provides a unique opportunity to examine such investment decision.

The Lehman Brothers bankruptcy unveils that many structured products investors

³See Wilkens and Stoimenov (2007), Henderson and Pearson (2008), and Bergstresser (2008).

in Hong Kong are likely to lose their investment significantly⁴. Hence, they gather together and often hold demonstrations to ask for government intervention. Through those occasions we interviewed 783 investors and collected comprehensive data about their demographic background and transaction details over the period of January to June 2009. Our subjects include not only minibond and constellation investors, but also equity-linked notes (ELNs) investors who bought ELNs issued by or linked to Lehman Brothers via over-the-counter transactions. Investors are willing to share information with us as they want to draw more attention and investigation. We augment investor information with detailed description of structured products compiled by Securities and Futures Commission (SFC), which is the securities market authority of Hong Kong and government body investigating the incident.

Our first finding is that most product characteristics are not associated with investment decisions. Investors did not invest more fraction of their wealth in higher premium products. Counter-intuitively, given the same level of premium and other product characteristics, investment amount *increases* with the true riskiness of the product. Those products are so complex that the true riskiness can be overshadowed by the perceived (false) safeness. The only other significant product characteristic is coupon payment frequency. All else equal, investors preferred products with more frequent coupon payments, although payment frequency plays limited role in asset allocation theories. Those findings may appear puzzling but could be consistent with issuer's successful extraction of consumer surplus.⁵ The explanatory power of product characteristics for allocation decision is limited, with an adjusted R^2 of 2.5% in the regression using all prominent product features.

Investor background did not matter much either. Investor expenditure on lottery tickets, our measure of risk aversion, is statistically insignificant in explaining investment proportion in structured products. Life cycle variables such as age, employment, marriage, and gender are also insignificant. Financial background has some effect. High income earners and homeowners made significantly less investments in structured products. Such findings are also puzzling because, regardless whether we treat structured products as risky assets or safe assets, investor profile variations should differentiate

⁴According to Ernst & Young's report to Hong Kong Association of Banks, minibond on average worths 53% of principal amount on November 21, 2008. For constellation, according to issue prospectus, distributing banks should redeem constellation at "credit event amount", which is referred to the market value of subordinate bond of Lehman Brothers (less than 10% of principal after Lehman Brothers bankrupted).

⁵It is interesting to note that at the beginning US dollar denominated minibonds and HK dollar denominated minibonds have the same coupon rate but different coupon rates for later issues, although HK dollar is pegged to US dollar.

investment allocations, through the argument of “revealed preference”. Again, adjusted R^2 from investor background variables is merely 4.3%. We further consider transaction environment and market conditions. To our surprise, investors who are more trusting the distributors and more familiar with salespeople bought significantly less. Neither equity market condition nor credit market condition affects allocation.

Combining the effects of product characteristics, investor background, transaction environment, and market condition only produces an adjusted R^2 of 6.9%. Most of the economically important variables turn out to be insignificant. It is difficult to tell a demand story from our findings. To further directly examine the supply effect, we consider the distributing banks’ selling intensity by the initiator of the transaction and the procedure of the transaction. If bank salespeople initiate the transaction, they are more likely to be the pursuer of the transaction and actively maneuver deal closing. Investors are more likely to be passive buyers. The government requires a risk profile evaluation for qualification of structured product investment. If bank salespeople neglected, most likely purposefully, the risk evaluation, then the selling side is aggressively completing the transaction. We find that both measures of selling intensity are positively significant. When bank salespeople approach the buyer for investments in structured product, investors allocate 16% more into such products. If risk evaluation is not done before closing the deal, investment will be 7% bigger.

Above evidence suggests that investments in structured products are more likely to be “pulled” by the issuers. In such case, will individual investor financial literacy be effective in attenuating the influence from the supply side (e.g., sales pitch)? We hypothesize that more financially literate investors are better positioned to fend off investment sophistry. Our measure of financial literacy is related to reasonable expectation of stock returns in Hong Kong market. We expect more financially literate investors will behave more consistently with rational expectation based theories. In the case of retail structured products, ambiguity averse investors would participate less. Empirical results are consistent with such prediction: Financially literate investors buy about 10% less structured products. This finding is robust to alternative measures of financial literacy.

Next we investigate the channels through which financial literacy works. The blossom of financial engineering and the field of mathematical finance in recent years suggests that calculating ability can be important for investment. However, we find that, while individually both calculation and comprehension capabilities are important, jointly comprehension has more important effects. Hence, improving investor’s understanding of the market seems to be a good lesson learned from this structured product experience (mathematical skills are arguably more related to IQ). However, the premise is that

investors can learn. If better investment decisions are due to intelligence which can hardly be improved upon training, then investor education programs will not be useful. Therefore, it is important to know which components of financial literacy, education or intelligence (IQ⁶), will help investors make better investment decisions. We find that both education and IQ have significant effect on allocation decisions with control for other factors. Moreover, education seems to be relatively more important with a higher stand-alone adjusted R^2 (9.9%) than IQ (adjusted R^2 2.6%). Our findings on financial literacy, cognitive ability, education, and IQ are robust across investor groups and product types. Moreover, these results prevail after controlling for Heckman’s sample selection bias.

In his American Finance Association (AFA) Presidential Address, Campbell (2006) summarizes empirical evidence on household finance and argues that the poorer and less well educated make more investment mistakes. Furthermore, he believes that some financial products exist to exploit naive investors. Our empirical evidence supports his conjecture. At household level for Hong Kong structured product investments, risk-return tradeoff is not the main decision metric, financial literacy plays a bigger role. However, we also point out that some very well educated investors also invest in such products and that the highest adjusted R^2 explaining structured product investments is less than 20%. Therefore, the majority of cross-sectional variations in investor decision is not identified. Either investors made random decisions or distributors were overly successful in marketing/selling. Currently our data cannot distinguish those two scenarios. While bounded investor rationality may have played some role in the structured products market, investor demand of such products (the “push” effect) was not the driving force for market growth.

Our paper could shed light on the importance of financial market regulation. On one hand, regulators can restrain disadvantaged investors from participating in certain sectors of the market to minimize the effect of investor bounded rationality. On the other hand, regulators can penalize misbehaving financial intermediaries. Our empirical results suggest that both approaches are needed as investors made unjustified investment choices facilitated by bank mis-selling. Carlin and Manso (2009) show that issuer of financial products may have the incentive to strategically add product complexity to extract consumer surplus. If individual investors can be easily misled by distributors, they may hardly defend against issuer’s exploitation strategy. A natural solution is for unsophisticated investors to delegate investment decisions to professional man-

⁶Our intelligence variable measures investor’s cognitive ability after extracting her education. We acknowledge that this is not a direct measure of IQ. In order to examine the effect of IQ, we construct several indirect measures (intelligence). For details, please refer to Table VIII.

ager. However, in his AFA Presidential Address, Stein (2009) argues that institutional investors face their own constraints and increasing their influence does not necessarily improve market efficiency.

The rest of the paper is organized as follows: We first discuss our motivation relative to the existing literature in Section II. In Section III we describe typical structured products with a focus on Hong Kong market. Data and sample characteristics are presented in Section IV. Our main empirical analyses on investment allocation are provided in Section V. Robustness checks are supplied in Section VI. Section VII summarizes our findings and concludes.

2 Related Literature

The investment literature often assumes good behavior from all market players: security issuers design a new product to improve social welfare, financial intermediaries truthfully transmit information about the products, investors understand the product and execute the best strategy. It is an empirical issue whether these conditions are met in reality. The best evidence is from laboratory experiments and field experiments. For example, Charness and Levin's (2005) lab experiments show that investors over-extrapolate from their former experience and tend to follow a suboptimal reinforcement strategy. Choi, Laibson, Madrian and Metrick (2009) substantiate such result using individual 401(k) investment data. Kaustia and Knupfer (2008) have similar findings for individual IPO investors. Asparouhova, Bossaerts, Eguia and Zame (2009) show that investor's cognitive biases hinder information updating, lead to perceived ambiguity, and cause deviation from rational decision making.

Above studies are on stocks or familiar investment vehicles. The findings may not generalize to financial innovations such as structured products. We examine how individual investors *actually* make allocation decisions over new illiquid financial products, which is part of household finance that needs more empirical research as advocated by Campbell (2006). Although Das and Statman (2009) argue that structured products can help improve portfolio allocation, several recent studies suggest that retail structured financial products are persistently overpriced by about eight percent (see Henderson and Pearson (2008), and Bergstresser (2008)). A natural question is how the issuers get investors to buy large amount of such overpriced products. Investors have little prior knowledge about those investments. Theories on choice under ambiguity would imply zero participation in such case. Hence, market frictions might have existed to defy

compliance with theoretical predictions. Subrahmanyam (2009a) shows that financial intermediaries such as distributing banks may delay educating inexperienced individual investors in order to earn more commissions. Moreover, Carlin and Manso (2009) argue that firms may strategically use product complexity to extract consumer surplus. Our empirical results will shed light on the existence of such frictions.

How can individual investors make best investment decisions in a market flourished with financial innovations issued by strategic financial intermediaries? One answer is market selection. Only those good at financial securities (financially literate) should be participating. However, Hilgert, Hogorth and Beverly (2003), Agrew and Szykman (2005), National Council on Economic Education's report (NCEE 2005), show that most Americans fail to understand basic financial concepts and conditions of financial instruments, such as consumer loans and mortgages. More recently, Lusardi and Mitchell (2006, 2008) report a wide-spread lack of ability on interest compounding among older (50+) individuals in the U.S.. Lusardi and Tufano (2009) show a lack of knowledge on debt among all U.S. citizens. Similar problems of low financial literacy are also found in other countries.⁷

More importantly, lack of financial literacy influences individual suboptimal saving and portfolio choices. For example, Lusardi and Mitchell (2006, 2008) find that, those who have a better understanding of compound interest, inflation and diversification are more likely to set up plans for retirement. On portfolio choice, less literate investors are less likely to invest in stocks (van Rooij, Lusardi and Alessie (2007), Yoong (2007), Christelis, Jappelli, and, Padula, (2008)), and less likely to choose mutual funds with lower fees (Hastings and Tejeda-Ashton (2008)). Similarly, Campbell (2006) reports that individuals with lower income and education level – characteristics that are closely related to financial literacy – are less likely to refinance their mortgages during a period of falling interest rates.

Further studies have shown the channels through which financial literacy works. Dohmen, Falk, Huffman, and Sunde (2009) use more than 1000 adults in Germany and find that investor's IQ, which is a usual proxy for cognitive ability, is negatively related to risk aversion and impatience. Grinblatt, Keloharju, and Linnainmaa (2009 a,b) also find that high IQ investors are more likely to participate in stock market, and pick stocks with higher returns using data from Finland. Another conceivable way to improve financial literacy is education. Haliassos and Bertaut (1995) argue that "education and the free acquisition of information are important in overcoming the barrier to stockholding

⁷See OECD (2005), Smith and Stewart (2008), Christelis, Jappelli, and Padula (2008), Moore (2003), Miles (2004).

erected by ignorance and misperceptions.” Similar results is found by Luigi and Jappelli (2005) who show that education is positively correlated with individual awareness of stocks. In addition, Campbell (2006) suggests that education helps reduce households’ entry cost to stock market. He shows that educated households in Sweden diversify their portfolio more efficiently, and can expect higher returns if they participate in stock market. Woodward (2003) reports that college education is associated with a remarkable \$1,500 reduction in average broker fees for mortgage loans. Lusardi and Mitchell (2006, 2008), Lusardi and Tofano (2009), Stango and Zinman(2009) also suggest that more financial education is needed to improve investors’ financial literacy.

However, while it is easy to reach consensus on financial literacy, discontent exists on the effectiveness of education. One discontent is argued by Heckman (2006) that the relationship between cognitive and non-cognitive skills is complex, such that non-cognitive skills and personality traits could cause people to endogenously create environments during childhood that foster faster cognitive development. Education has less effect on cognitive ability when it is given later, and may provide little help on their decision making. Another discontent is about the debate on effectiveness of financial literacy education. Bernheim, Garret, and Maki (2001) show that high school financial literacy training programs will significantly increase individuals’ saving rates 5 years after graduation. Bayer, Bernheim and Scholz (2009) provide evidence that frequent retirement seminars increase both of individuals’ participation rates and contribution rates to savings plans. However, Mandell and Klein (2009) find high school students who have taken financial education do not demonstrate higher levels of financial literacy than those who have not taken such courses. Moreover, Cole and Shastry (2009) suggest that one more year of education will lead to 7.6% more chance to receive positive investment income. But this effect does not come from mandatory financial literacy curriculum in schools, yet, is due to individual’s cognitive ability to accomplish the education. The data on Hong Kong household investments in structured financial products provide a good setting for us to investigate above issues. We shed light on investor behavior in a new market of illiquid securities (with plenty of ambiguity). Our results on financial literacy, cognitive abilities, IQ, and education will help resolve some of the theoretical debates.

Our study follows a similar vein as by Choi, Laibson, and Madrian (2009). They focus on index fund choice by individual investors. Different from their hypothetical investment setting, our subjects made real investments and they might not have had choices. Nevertheless, we both emphasize the importance of financial literacy.

3 Market for Retail Structured Financial Products

Structured financial products, characterized by customized payoff streams and illiquid secondary market, have become increasingly popular investment vehicles. The most well known structured product is probably collateralized debt obligations (CDOs) which are the key driver of the recent credit market boom (2005-2007) and bust (2007-2009). (See Brunnermeier (2009) and Coval, Jurek, and Stafford (2009) for overviews.) However, given the extremely high requirement of minimal investment in CDOs, individual investors can hardly afford to purchase such products. Structured financial products, characterized by customized payoff streams and illiquid secondary market, have become increasingly popular investment vehicles. The most well known structured product is probably collateralized debt obligations (CDOs) which are the key driver of the recent credit market boom (2005-2007) and bust (2007-2009). (See Brunnermeier (2009) and Coval, Jurek, and Stafford (2009) for overviews.) However, given the extremely high requirement of minimal investment in CDOs, individual investors can hardly afford to purchase such products. As such, structured products targeting retail investors were created to meet investors' needs. A typical way is to add CDOs (or other derivatives) into the collateral pool of retail structured products, and then sell the retail structured products with a much lower minimal investment threshold.

Retail structured products has been sold to individual investors ever since mid 1990s in Europe, but become noticeable in Hong Kong only after 2003. In the February of 2003, Hong Kong Securities and Futures Commissions (SFC) relaxed prospectus rules for unlisted securities, and ignited the retail structured product market. Before the change, issuers of structured products need to register for both programme prospectus and issue prospectus for each issue, even if a series of issues belong to the same programme (eg. minibond 3, minibond 5, ...). Under the new rule of "dual prospectus", issuers only need to register for programme prospectus for the first issue. For the later issues, issuers simply register for issue prospectus but do not need to register for programme prospectus. This largely reduced the cost for issuers to issue products. Another reason for the spring up of retail structured products in Hong Kong is because of the low interest rate around 2003. Due to the low interest rate, bank depositors are eager to find substitutes for saving. The high coupon rate along with the seemingly "safe" feature of some structured products made them attractive to retail investors. These structured products target retail users typically by using well-known companies or popular share issues as reference entities. Some are transparently speculative but others, can be designed to seem conservative in their headline terms, like "minibond" issued by Lehman Brothers.

Figure 1 illustrates the global sales of retail structured products from 2002 to 2009. During the emerging period from 2002 to 2007, the sales of retail structured products in Hong Kong has risen from USD0.6 billion to USD44.3 billion. During the credit crisis period of 2007 to 2009, structured product market drop all over the world. But what surprises us is that the market in Hong Kong dropped much more than that in any other places. In 2009, Hong Kong structured product market faced a 78.7% drop, which is much larger than that in Europe (11.4%), Asia Pacific (37.1%), and North America (44.7%). One potential explanation could be ascribed the fall of Lehman Brothers. Before its bankruptcy, Lehman was one of the most successful in this market with a 35 percent market share and over 33,000 Hong Kong buyers (see Lejot (2008)). Besides its negative impact to the market, Lehman's bankruptcy has also ignited a conflict between structured product investors and the product distributors. In fact, investors in Hong Kong, Singapore and Taiwan were shocked when they were informed of their holdings in retail structured financial product were issued or related to the failed Lehman Brothers.

At the time of Lehman Bankruptcy on September 15, 2008, HKD20.173 billion structured products associated with Lehman were still outstanding in the market from 43,707 investment accounts.⁸ Two types of structured products are affected by Lehman bankruptcy: credit-linked note (CLN) and equity-linked note (ELN). The most publicized is "*minibond*" CLN issued by Lehman Brothers. Another noteworthy CLN is "*constellation*" issued by Development Bank of Singapore (DBS). Appendix III provides detailed issuance information on minibond and constellation. The investment in these three groups of products take 97% of the total investment in Lehman Brothers related products.

Figure 2 shows the structure of CLNs and ELNs. CLNs are medium-term notes with first-to-default feature. Their payouts are based on a group of companies' ("reference entities") credit performance. Those notes normally have 3 to 5 years investment horizon with coupon rates slightly higher than quarterly bank deposit rates. However, the risks of CLNs come from multiple sources. Take minibond series 35 as an example. The first risk is from underlying collateral. When investors purchase the minibond, issuer will use the proceeds collected from investors to buy high quality assets (often to be AAA rated CDOs) as underlying collateral for the minibond. When there is an event of default for collaterals, minibond will be redeemed early at the price based on the proceeds of selling the collateral assets (so called "early redemption amount"), which may be significantly below the principal amount of the minibond outstanding. The second risk

⁸"List of information/ documents requested by Members", Hong Kong legislative Council, www.legco.gov.hk/yr08-09/english/hc/papers/hc1013cb2-100-3-e.pdf

is swap counterparty risk. The issuer signs swap contracts to hedge currency risk and interest rate risk. Swap counterparty takes the yields from the underlying collaterals and provides fixed coupon payment to the investors. But when default of swap counterparty occurs, minibond will also be redeemed at the early redemption amount. Finally, the investors' position as insurer in the swap leads to another risk. The swap is based on the credit performance of the reference entities (normally 5 to 8 names).⁹ For the case of minibond, the credit rating for these reference entities may range from AA+ to BBB. If *any* of these reference entity goes bankrupt, fails to pay its liability, or is restructured, minibond will be redeemed at an amount based on selling of the subordinate debt of that troubled reference entity. In this case, investors may lose most of their investments. We summarize the payoff function (gross return) of CLNs, take minibond series 35 for example, as follow:

$$f(x) = \begin{cases} 1 + i_t & : \text{if issuer exercise call option before maturity date;} \\ x & : \text{if early redemption event occurs;} \\ r_j & : \text{if credit event occurs to reference entity } j; \\ 1 + 5.6\% & : \text{if nothing happens.} \end{cases}$$

Here i_t is the cumulative coupon rate before the day issuer exercise call option; x is the value of collateral regarding to one share of CLNs when early redemption event occurs; r_j is the recovery rate of the subordinated notes of the reference entity to which credit event occurs.

For equity-linked notes, as illustrate in Figure 2, investors also suffer from the underlying collateral risk and swap counterparty risk. The key difference in the structure of ELNs with that of CLNs is that the swap is linked to the stock price of a basket of (normally 3 to 6) companies. Figure 3 shows how the payoff of ELNs is linked to the stock price of the reference companies. Take Pyxis Series 21, an ELN issued by Lehman Brothers in May 2007, for example. The investment horizon of the note is 2.5 years. Coupon will be paid every half a year after issuance at the observation dates. During each of the second to fifth observation dates, there are four auto-calls by the issuer. If the closing price of each reference stock on observation date is at or above 96% of its fixing price (equal to the stock price when the note is issued), the note will be redeemed. This auto-call structure bundled with the fixed coupon rate put a “cap” on the payoff.

⁹Reference names for Minibond Series 35 are: HSBC Bank PLC (Aa2/AA-), Hutchison Whampoa Limited (A3/A-), MTR Corporation Limited (Aa2/AA), the People's Republic of China (PRC) (A1/A), Standard Chartered Bank (A3/A), Sun Hung Kai Properties Limited (A1/A) and Swire Pacific Limited (A3/A-). The credit ratings shown next to each reference entity are those applicable to the reference obligation as on 11 January 2008—shortly before the minibond is issued, as published by Moody's Investors Service and/or Standard & Poor's.

In the best scenario, investor will get a 20% return when the note matures. However, when the stock price of *any* linked companies falls below 75% of the fixing price on *any* day within the 2.5 years, investor will have to wait until the maturity date to get back the principal investment. Moreover, when default of the underlying collateral or swap counterparty occurs, the note will also have to be redeemed early at an amount based on the proceeds of selling the collateral, which may be significantly below the principal.

Unlike those structured products examined by Henderson and Pearson (2008), retail structured financial products are not listed on any exchange in Hong Kong. All transactions are executed over the counter at distributing banks. Once issued, most of the structured products are not priced until maturity or when knock-out events, such as credit event for CLNs, occur. There is no way to track the performance and market value of such products. Hence, it is difficult for retail investors to form expectation about the risks and returns of such products. There is no secondary market for those products. Initial investors likely have to hold the products till maturity. The relatively long maturity, 3 to 5.5 years for CLNs and 2 years for ELNs, makes investment in such products even riskier. Overall, it seems difficult for investors to get a good handle of such investments. We use survey data to explore the key motives for investors to purchase these products.

4 Data and Sample Description

4.1 Data Collection

We collect data from investors of Lehman related structured products through individual interviews. The interviewers are University of Hong Kong students, mostly Cantonese speakers. The interview will go over a list of items on a questionnaire designed by ourselves. The interviews were conducted during the 11 times of the large protests and gatherings by investors between January 15 and June 18, 2009. Our sample consists of data from 783 structured product investors. The interviewers randomly selected the interviewees and asked questions face-to-face. Our questionnaire has three sections: investment decision environment, investor financial background, and investor demographic characteristics. On March 14, 2009, we revised our questionnaire by adding questions on family monthly income, homeownership, whether they are familiar with salesman, and a question on simple calculation, without changing the original questions. The sample is roughly evenly distributed: 430 investors surveyed before March 14 and 353 investors surveyed after March 14, 2009.

In order to examine sample selection issue, we further interviewed a group of investors who did not invest in Lehman related structured products as control sample. Those interviews were conducted between July 24 and August 10, 2009. We used similar questionnaire, with minor change on the questions in investment decisions. We chose to conduct the surveys in 11 districts of Hong Kong where most of the Lehman structured product investors live to control for geographic factors. We randomly selected 75 investors in those areas, such as from streets, parks, or from railway stations, and obtained similar information on demographic, financial, and investment characteristics.

Figure 4 illustrates a pattern of co-movement between total investments in minibonds from the subjects in our sample and Hang Seng Index (HSI), the stock market index in Hong Kong, from July 2, 2003 to June 30, 2008. Presumably investors have more to invest in structured products when equity market condition is good. Notably, as shown in Appendix III, the largest group comes from investors of minibond series 35B issued on February 22, 2008, at a time financial crisis was going strong. However, as by Souleles (2009) that when market condition goes down, investors are more likely to shun away from purchasing securities for the purpose of hedging.

4.2 Sample Description

Table I presents descriptive statistics of our key variables (definitions are given in Appendix I). Respondents report the name of the structured products they purchased and the proportion of their total financial wealth that they invested in the structured products. Their average monthly income is HKD17,700. On average, each investor made HKD1.04 million (59% of wealth) investment in such products. Only 31% of the subjects ever bought lottery tickets., 40% of them buy stocks with average holding of 15%, 82% own properties. About 62% of the investors were familiar with the salespeople, 86% investors closed the deal on the spot while 14% took the documents back home and purchased after some consideration. About 42%, 38%, 9% investors purchased through Bank of China (Hong Kong). Interestingly, when we compare our sample with two major survey sample in Hong Kong¹⁰, we find that investors in our sample are in general older and contains more women than men. But in terms of education and financial characteristics, investors in our sample are quite similar to the other two samples. Appendix II reports the details of this comparison.

¹⁰“2006 Population By-census” report conducted by Hong Kong Census and Statistics Department from July to August 2006, and “Retail Investor Survey 2009” conducted by Hong Kong Exchange and Clearing Limited from November to December 2009.

Our sample contains all of the three main structured products that are related to Lehman Brothers, namely Minibond, Constellation and equity-linked notes (ELN hereafter). The differences between ELN investors and CLN investors are substantial. ELN investors are better educated, with 2 more years of education on average, and more affluent than CLN investors in both total financial wealth and family monthly income. The average self-reported investment proportions by investors of each group are all above 50%. Financial and demographic characteristics show that these investors are basically senior and poorly educated people. The average age is above 55; more than 70% of them are retired, and only 15% attended college. More than a quarter of the investors cannot read, and about two thirds of them cannot do simple calculation.

A key variable to our analysis is investor's self-reported expectation of Hong Kong stock market annual return which we use as a proxy for financial literacy. Among the 353 interviewees we asked for their expectation, 159 cannot answer. The histogram of answers from the other 194 investors is plotted in Figure 5. Unsurprisingly, investors tend to choose sentimental numbers such as 0% (25 responses), 5% (30 responses), 10% (48 responses), 20% (20 responses), but there is also wide dispersion among the answers. Panel A of Figure 6 shows that the wealth invested in structured financial products is high in groups sorted on their stock return expectation. The investment proportions are all higher than 50%. However, those who can give more reasonable expectation to Hong Kong stock market annual return (the third group) on average put less proportion of wealth in purchasing structured financial products.

Panel B of Figure 6 shows that the proportion of financially literate investors decreases as the investors' investment proportion increases. Among those who have invested less than half of their wealth in structured products, there are significantly more literate investors than non-literate investors. However, this difference decreased and reversed in the group of people who invested more than half of their wealth in structured products. Panel C of Figure 6 shows that investment proportion in structured products first increase and then decrease as we move from low income investors to high income investors. Investors of middle income level invest more proportion of wealth in structured products. Within each group, the financially illiterate investors invest more proportion of their wealth than literate investors.

5 Empirical Results on Allocation

5.1 Fundamental Determinants

Conventional mean-variance portfolio allocation theories suggest that investment decision in risky assets θ is determined by

$$\theta = \frac{E(\mu) - r_f}{\gamma\sigma}, \quad (1)$$

where $E(\mu) - r_f$ is risk premium or expected return over risk-free rate, σ is risk, and γ is investor risk aversion. Investment proportion increases with risk premium but decreases with risk. More risk averse investors will allocate less to risky assets. When we adapt above predictions to structured notes, we need to have a precise mapping to conventional investments according to description of product characteristics. In particular, structured notes mostly are linked to multiple names with different credit ratings. The number of reference names and their ratings can be informative of the risk and return of the CLNs and ELNs.

Specifically, we consider the premium of the product over Libor rate. The highest rating of the reference entities as well as the lowest rating of the reference entities, resulting a rating range (Max-Min rating). The maturity of the product is used to capture the term structure in premium and liquidity clientele effects. Furthermore, number of reference entities and coupon payment frequency are often emphasized in the product prospectus. The products are either denominated in Hong Kong dollar or U.S. dollar. We separate CLNs from ELNs.

Additional to security's risk and return and investor's risk appetite, factors related to investment environment may also affect asset allocation decisions. In particular, we consider the relationship between distributing bank and investor to capture the trust effect. Guiso, Sapienza, and Zingales (2008) show that less trusting investors buy less stocks using Italian and Dutch data. Trust is measured in three ways: a dummy variable which equals one if the investor has ten years or longer relationship with the distributing bank, investor's self report trust (from 1 to 5) level at the time of purchase, a discrete variable which equals 3 if the salesperson is a personal friend of the investor, 2 if the investor is acquainted with the salesperson, and 1 if investor did not have previous interaction with the salesperson.

We also consider other factors such as market conditions and investment opportunities which intertemporal asset pricing models such as Merton (1973) suggest are

important. Specifically, we consider Hong Kong Interbank Borrowing Rate (Hibor) for credit market condition and Hang Seng index trailing quarterly return for general equity market condition. These macroeconomic variables may also account for some of the effect of investor sentiment and information uncertainty.

Table II reports our baseline results on fundamental determinants of structured product allocation. In model 1, we include only product characteristics capturing the risk, return, and type of the security. We find that investors allocate more to structured products with more frequent coupon payments and wider range of reference entities. The latter finding is puzzling as products with wider range are riskier. It may seem surprising that investors' allocation does not depend on the premium. However, this is expected result in equilibrium of successful marketing strategy. The issuers will offer minimum return in order to fully capture consumer surplus. Overall, the low 0.025 adjusted R^2 indicate that overall investors pay little attention to product characteristics analyzed.

In model 2, we consider investor background. We proxy investor risk aversion by lottery purchase frequency. Other variables such as age, retirement status, income, wealth, home ownership, gender, marital status could also be related to risk aversion or background risk (susceptibility to liquidity shocks). We find that higher income earners and home owners are less likely to buy structured products. The economic significance is high for the home ownership status. Moreover, a group of investors cannot recall the details (purchase date and security type) of their investment. This group may be less careful but this variable is insignificant. In aggregate, investor background has more explanatory power than product characteristics with adjusted R^2 of 0.043.

In model 3, we analyze transaction environment. We find that investors trusting the distributor more and more familiar with the salespeople bought significantly less. Whether investors bought on the spot or reconsidered has no effect. Bank relationship is not important. Although a large group of investors bought from Bank of China, those investors did not allocate more in structured products. In model 4, we examine the effects of market condition or investment opportunity. We find credit market condition characterized by Hibor rate and equity market condition characterized by Hang Seng index 3-month trailing return are insignificant in explaining investment proportion.

In model 5, we combine the effects of product risk-return profile and investor preference. In the presence of investor background variables, rating range of the reference names become insignificant. In model 6, we consider all above variables. Furthermore, coupon paying frequency becomes insignificant. The adjusted R^2 in the regression of full set of explanatory variables is merely 0.069. In summary, our theorized variables

explain little of the investment decisions.

5.2 Effects of Distributors' Selling Intensity

Results from previous analysis suggest that it is difficult to tell a demand story for investments in structured products. To further directly examine the supply effect, we consider the distributing banks' selling intensity by the initiator of the transaction and the procedure of the transaction. If bank salespeople initiate the transaction, they are more likely to be the pursuer of the transaction and actively maneuver deal closing. Investors are more likely to be passive buyers. In addition, the government requires a risk profile evaluation for qualification of structured product investment. If bank salespeople neglect, most likely purposefully, the risk evaluation, then the selling side is aggressively completing the transaction. We find supporting evidence as shown in Table III. In model 1 and model 2, we find that investors buy more structured products if the transactions are initiated by banks instead of by investors. In model 1, we control for investors' demographic background and find that investors buy 11.8 percent more of structured products if distributing banks initiate transaction. When further controlling for transaction environment, product characteristics and market condition, the effect of bank initiate transactions increases to 14.3 percent, and the adjusted R^2 increases to 0.087.

In model 3, we control for investor background and examine the effect that banks do not evaluate investors' risk profile. In our sample, about half of investors claim that the distributing banks did not evaluate their risk profile, and half of them claim did. Investors who do not get evaluations of their risk profile invest 8.3 percent more in structured products than those who get evaluated and noticed of their risk profile. When further controlling for transaction environment, product characteristics, and market condition, our result of no risk profile evaluation persists, as shown in model 4. By adding no risk profile evaluation, the adjusted R^2 jumped to 0.086, which is similar with that of adding bank initiate transaction.

In model 5, we combine the effects of the two selling intensity measures and control for the variables from investors' demand side. We find that both measures of selling intensity are positively significant. When bank salespeople approach the buyers for investments in structured product, investors allocate 15.5 percent more into such products. If risk evaluation is not done before closing the deal, investment will be 6.6 percent bigger. Moreover, these two measures of selling intensity increase the adjusted R^2 further to 0.108. In summary, the distributing banks' selling intensity has significantly affected

investors' decision making to buy more structured products.

5.3 Financial Literacy and Investment Decision

Above evidence suggests that investments in structured products may not represent investors' best desire, but are more likely to be "pulled" by the issuers. Then the follow-up question is, will financial literacy be effective in attenuating the influence from the supply side? In Table IV, we use investor's stock market expectation to measure financial literacy. The premise is that financially literate investors should be able to form reasonable expectation about stock returns. Our first hypothesis is that if financial literacy matters, then more financially literate investors' behavior should more conform to theoretical predictions. We find supporting evidence as shown in Panel A of Table IV. In models 1-4, we observe that for literate investors whose stock market return expectation is within (5%, 50%) range, allocation decreases with maturity and increase with payment frequency. Married investors invested 31% – 37% less in structured products. the results are very different for financially illiterate investors presented in models 5-8. Illiterate investors put more in products with wider rating range. the income and homeownership effects exist for illiterate investors. Marital status has positive effect. Transaction environment is important for financially illiterate investors. Lastly, the R^2 's are in big contrast, 18.1% for literate investors in model 3 versus 4.4% for illiterate investors in model 7.

Next we directly measure the effect of financial literacy using it as an independent variable. The results are presented in Panel B of Table IV. In models 1 to 5, we define an investor as financially literate if her expected stock market return is within the (5%, 50%) range as in Panel A. We find that indeed, more financially literate investors purchased about 12% less structured products, without controlling for other determinants, as shown in model 1. It also has impressive R^2 of 3.8%. In model 2, we control for product characteristics and investor background. In model 3, we also control for transaction environment and market condition. The effect of literacy remains significant although the magnitude of its effect is slightly reduced.

Some may question our measure of financial literacy as it is associated with stock market. It is plausible that investors' awareness of stock market investment opportunities may invest less in structured products. In order to control this investment opportunity possibility, we use the subsample of investors who do not participate in stock market in model 4, possibly for risk considerations. We find that the effect of financial literacy is even stronger. All else equal, more financially literate non-stock market participants

invest 13% less in structured products. Furthermore, we use a more stringent definition of financial literacy. Average stock market return in the past few years in Hong Kong is within the range of (7%, 17%). Hence, an investor with expectation within such range is likely considerably knowledgeable of financial markets. We repeat the analysis in models 5 to 8 and find similar results.

Financially literate investors will put some of their investments in risky assets including stocks. Hence, we use risky asset market participation to define financial literacy in models 1 to 3 of Table V and stock market participation in models 4 to 6. We find similar supporting evidence that financially literate investors purchase less structured products. It is worth pointing out that the effect from financial literacy drives out other effects except trust in distributing bank.

Literacy has multiple facets. According to *The American Heritage Dictionary of the English Language*, literacy refers to “the condition or quality of being knowledgeable in a particular subject or field.” The defining characteristic of literacy is the ability to read and write. In Table VI we examine investors’ calculating ability and comprehension. We find that both components are important individually, even after controlling for financial literacy and other variables as shown in models 1 to 7. Moreover, they have substantially more explanatory power relative to other variables. Stand-alone adjusted R^2 s are 4.5% for calculation and 9.7% for comprehension. However, counter-intuitively, comprehension rather than calculation seems to be relatively more important as demonstrated in model 8. Financial literacy is still significant after controlling calculation and comprehension. Hence, financial literacy may reach beyond conventional literacy measured by cognitive abilities. The importance of literacy, calculation, and comprehension is further demonstrated by the increased adjusted R^2 from 0.069 to 0.185. Additionally, investor income and home ownership become insignificant in the presence of literacy variables.

5.4 Effects of Education and IQ

If financial literacy has significant effect on investment performance, improving investor financial literacy through education programs seems to be a promising route to pursue. However, the result may not be encouraging if literacy is mostly determined by individual intelligence which cannot be materially affected by training. Ehrlich, Hamlen, and Yin (2008) use micro-level data to show that more educated households invest more in risky assets and obtain higher returns. Grinblatt, Keloharju, and Linnainmaa (2009b) show that IQ affects stock market performance. In this subsection, we separately explore these two potential drivers of literacy effects.

Table VII model 1 shows that investors with high school or above education bought 14% less structured products on average. The magnitude of this education dummy is slightly reduced to 11% after controlling for product and investor background as in models 2 and 3. Furthermore, the effect of education is accumulative, as shown in models 4 to 8 when we measure education by the number of schooling years. This negative relationship between education and structured product investment prevails after controlling for other effects. Education effect is robust to controlling for literacy and its two components calculation and comprehension as in model 8. However, marginal explanatory power of education is limited as adjusted R^2 is little changed with the inclusion of education. Although education has a stand-alone adjusted R^2 of 0.06, its effects probably correlate with other variables. Choi, Laibson, and Madrian (2009) show that even highly educated people can be susceptible to suboptimal investment choices. Education may not be able to eliminate all frictions preventing investors from optimizing. Probably financial education with specific objectives will be more helpful.

Notwithstanding the strong education effect in Table VII, the causality is unclear as smarter people tend to perform better in school and get more education opportunity. However, we do not have direct measure of IQ to put in as control variables. In order to examine the effect of IQ, we construct several indirect measures. First, if a person attended high school or college but still has limited reading skills, we presume such person has low IQ. However, we are aware of self-reporting accuracy issue. Hence, we also define people without much schooling but can read as high IQ. Additional measures with intermediate groups are also used. The specific classification is included in Table VIII. From correlation matrix in Panel B of Table I, we see that our IQ proxy is highly correlated with comprehension (correlation coefficient 0.86).

The effect of IQ is report in Table IX. We find very strong relationship between IQ and investment. High IQ investors purchase 16% to 24% less structured products as shown by models 1 to 4 in Panel A where we separate low IQ from others. We focus on high IQ group in models 5 to 8. Results are similar when we use finer measures of IQ in Panel B of Table IX. Our finding that high IQ investors participate less in structured products (hence suffer less) is consistent with Grinblatt, Keloharju, and Linnainmaa (2009a, 2009b). Furthermore, both education and IQ are significant jointly, after controlling for product characteristics, investor background, etc. However, the incremental R^2 is minimal. It is interesting to note that high IQ, well educated, and (relatively) financially literate investors still purchase structured products.

6 Robustness Checks and Alternative Interpretations

Our above results on financial literacy, education, and IQ could be driven by a specific group of investors or product. In this section, we explore whether those effects vary across different sample selection criterion. By doing so we can verify the robustness of our prior findings as well as explore new implications within subgroups.

6.1 CLN vs ELN

Credit-linked notes and equity-linked notes could be very different securities. Some may argue that CLNs investors are more conservative as CLNs resemble several features of bonds. ELNs investors are more likely experienced investors with prior stock investments. As we see from summary Table I, ELNs bear much higher premium than CLNs. ELN investors are better educated with higher income. Hence, we separate CLNs investors from ELNs investors.

Table X shows that there are indeed salient difference across CLNs and ELNs. Literacy effect is only significant for ELN investors. Male ELN investors bought 10% to 14% less CLNs. Older ELN investors bought less. These age, gender, and literacy effects only exist for ELNs investors. Notably, older ELN investors made less investments. Therefore, CLN investments are more likely to be “pulled” by the issuer rather than “pushed” by individual household investors. Note that education, IQ, and comprehension are still significant for both groups.

For the subsample of CLNs, the rating range (max-min rating) is no longer significant. Investors bought less high premium CLNs and shun away from CLNs with more reference entities, after controlling for other effects. Household hold more U.S. dollar denominated CLNs. If the investor bought under ‘consideration’, allocation proportion is about 7% higher. Hence, investors could use some simple measures to make investment decisions. However, the adjusted R^2 is still below 0.20. Note that the negative premium effect is highly consistent with issuer “pulling” effect.

6.2 Age and Wealth

We separate into different wealth groups and age groups. Vissing-Jorgensen (2003) discuss whether irrational behavior would disappear with wealth. Korniotis and Kumar (2009) examine the role of age in investment performance. Literacy, education, and

IQ may play different role under different conditions. Indeed, as shown in Panel A of Table XI, we find that literacy, education, and IQ effects are stronger for the group of investors aged 50 and above. Those effects are insignificant for investors below 50. For the younger investors, currency and income are stronger. Notably, the R^2 s are much higher for younger investor group than the older group (highest R^2 29.4% versus 15.9%). This result can be consistent with Korniotis and Kumar (2009) who find that aging has adverse effect on investment performance, although older people may gain from experience.

According to Panel B of Table XI, literacy is significant for the most wealth group but not for the highest earners. Education and IQ effects are significant for both wealthy and low income households. Among the high income group (income in 20,000 to 99,999), structured product investment proportion increase with lottery buying frequency. For income below 20,000 group, the income effect is positive and significant. The most wealthy quartile, male investors bought 23% less. Wealthy investors put less in structured products when they bought through Bank of China Hong Kong. The R^2 s are substantially higher for wealthy group and high income earners. This result can be consistent with the conjecture that high income earners and wealthy investors can more easily overcome participation costs in overall markets.

For the total sample, income still has a strong negative effect on investment proportion in structured products while age has no effect. This result can be consistent with Wachter and Yogo's (2009) Life-cycle model, which predicts that richer households will invest more share of wealth in stocks, but the share is relatively stable in their age.

6.3 Determinants of Financial Literacy

In Table XII, we attempt to understand the driving factors of financial literacy. We find that investors' demographic background has little explanatory power with pseudo R^2 equal to 0.027. Adding education and calculation increases the pseudo R^2 to 0.043 and 0.105. Calculation also have a very high z-score. Other significant determinants are retirement status, which is likely correlated with age, and home ownership. Although at a low significance level, male investors seem to be more financially literate than female investors. Surprisingly, IQ and comprehension are not related to literacy. When add together, proposed explanatory variables for literary are generates pseudo R^2 as high as 0.11.

6.4 Heckman Selection Model with Control Sample

We realize that our sample may not be random. In order to control for selection bias, we use Heckman two-stage analysis. We include subjects who did not buy structured products in the first stage analysis to calculate the selection probability (Mills lambda), which is then included in the second stage analysis of investment in structured products. From Table XIII, we find that effects of literacy, comprehension, education, and IQ are robust to the selection bias.

It is interesting that in the selection model, less educated household with low lottery purchase frequency are more likely to be structured product investors. Female, low calculation capability, married investors are more likely to be structured products investors. Investors more familiar with salespeople are more likely to buy structured products. Homeowners are more likely to be investors. The selection model is reasonably well specified with pseudo R^2 of 0.469. However, some of the variables in the selection model have opposite effects in the analysis of investment proportion. For example, more trusting investors are more likely to be investors, but conditioning on investing, they put less in structured products. Similarly, households more familiar with salespeople are more likely to be approached but invest less. Homeowners are more likely to invest but invest less in proportion. The inverse Mills ratio from the selection model is highly significant with a negative sign. Therefore, selection effect is indeed at work. But our main findings are robust to sample selection.

7 Summary and Conclusion

Individual investors in Hong Kong, Taiwan, and Singapore bought substantial amount of structured products which turned out to be CDOs in disguise, as revealed by the Lehman Brothers bankruptcy in September 2008. It is difficult to justify initial investment decisions in retail structured products from standard rational theories as those investors had little prior knowledge. We show that product distributors' selling intensity is an important determinant for investors' allocation in structured products. On the other hand, more financially literate investors, who are more capable of optimizing asset allocation, include less structured products into their portfolios. Important determinants according to mean-variance analysis, such as product premium, have little explanatory power to investor's allocation decisions. Our finding suggests that investments in structured products prior to the credit crisis were more likely to be pulled by distributors.

This paper also demonstrates the importance of financial literacy for investment decisions. Consistent with prior studies, our evidence suggests that improving investor financial literacy through education could be important for the future of financial innovations. However, more vigilant market monitoring by regulators may be equally important.

Our findings have important implications for the ongoing debate on root causes of the credit crisis in 2007-2009. If investors did not knowingly pursue investments in structured products, the investment banks manufacturing such products are more likely to be the culprit of the market development and the amplification of the crisis.

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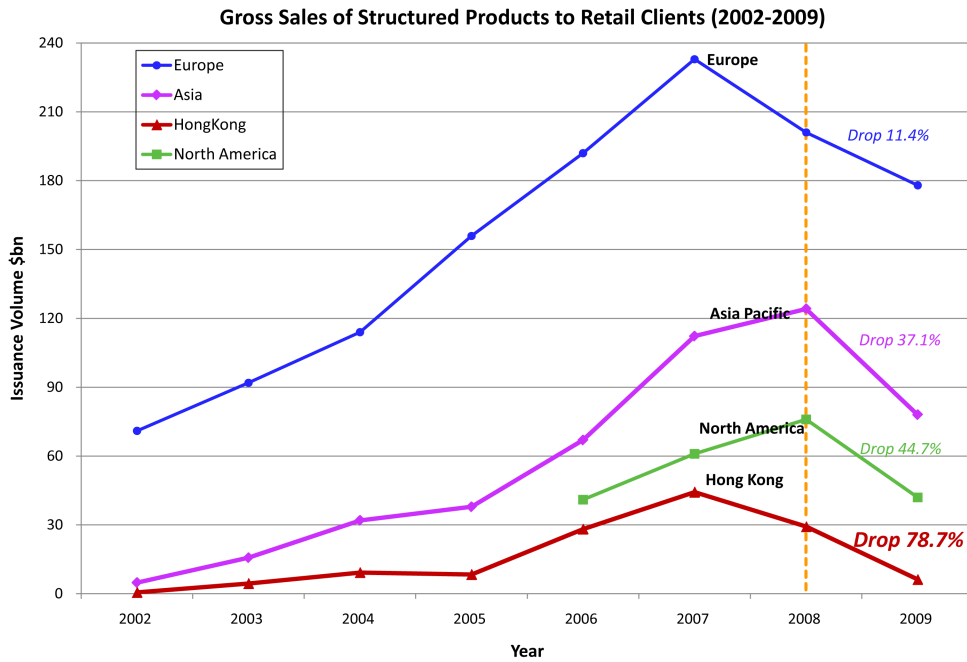
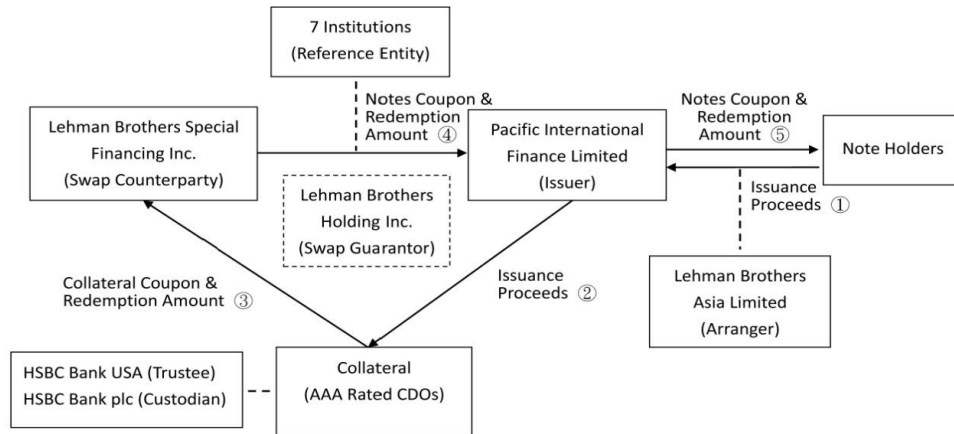


Figure 1: **Overview of structured product market from 2002 to 2009.** This figure shows the gross sales of structured products to retail clients from 2002 to 2009 in Europe, Asia Pacific, North America, and Hong Kong. Data is provided by www.structuredretailproduct.com. We only have sales data from 2006 to 2009 for North America due to limited access to their data base.

Minibond Series 35 (Issued January 2008)



Reference Entity: HSBC Bank PLC (Aa2/AA-), Hutchison Whampoa Limited (A3/A-), MTR Corporation Limited (Aa2/AA), the People's Republic of China (PRC) (A1/A), Standard Chartered Bank (A3/A), Sun Hung Kai Properties Limited (A1/A) and Swire Pacific Limited (A3/A-).

Distributors: Public Bank (Hong Kong); ABN AMRO Bank N.V.; Bank of China (Hong Kong); Chiyu Banking Corporation; Wing Lung Bank Limited; Chong Hing Bank Limited; Dah Sing Bank; KGI Asia Limited; MEVAS Bank Limited; Nanyang Commercial Bank; Sun Hung Kai Investment Services.

Pyxis Equity-Linked Notes Series 21 (Issued May 2008)

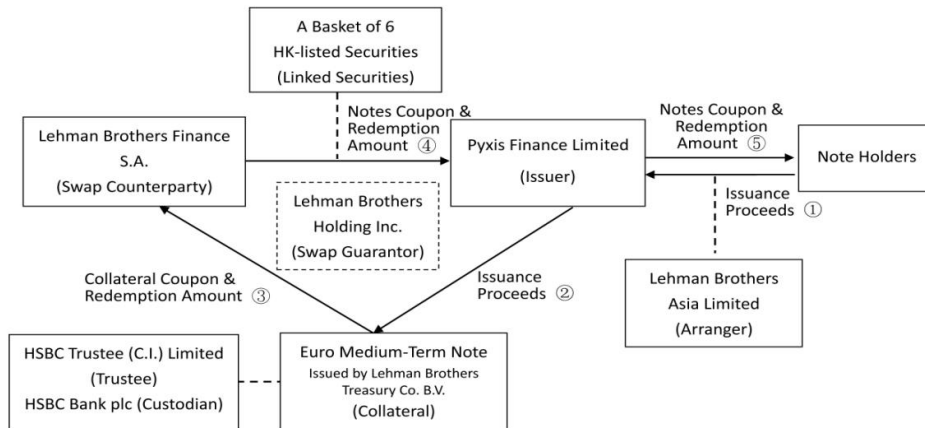
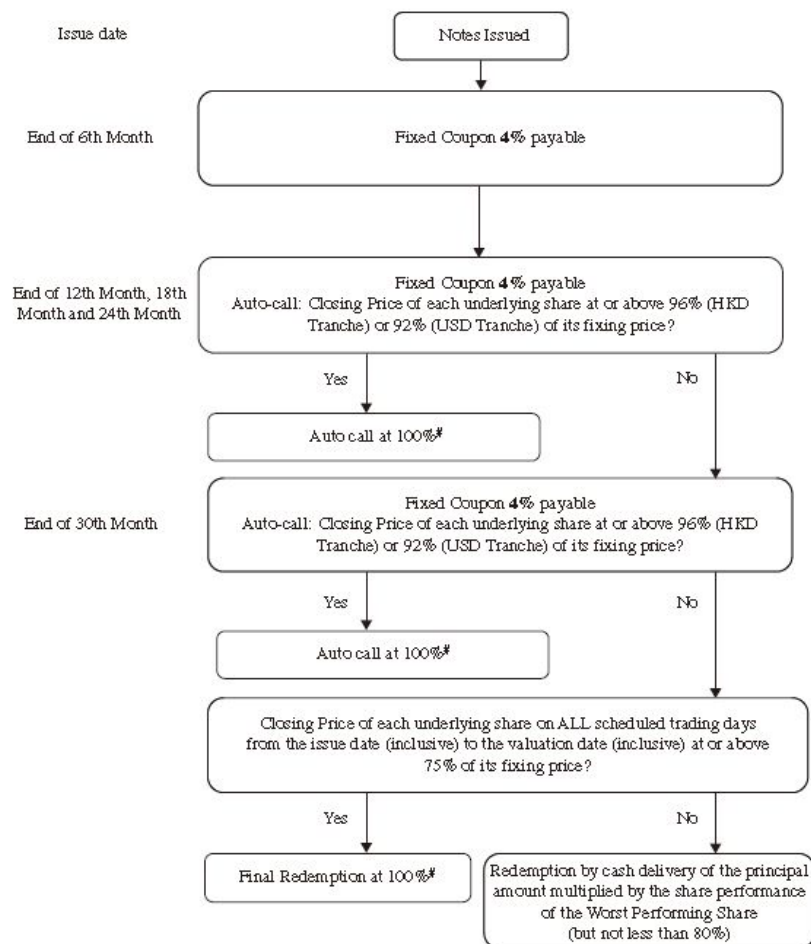


Figure 2: **Structure of credit-linked notes and equity-linked notes.** The first figure shows the structure of Credit-Linked Notes taking Minibond Series 35 as an example. The 7 institutions taken as reference entity of minibond series 35 reported below the figure. The credit ratings shown next to each reference entity are those applicable to the reference obligation as on 11 January 2008—shortly before the minibond is issued, as published by Moody's Investors Service and/or Standard & Poor's. The second figure shows the structure of Equity-Linked Notes (ELN) taking Pyxis ELN Series 21 as an example. The 6 HK-listed securities are: Air China Limited, China Communications Construction Company Limited, China Mobile Limited, Esprit Holdings Limited, Li & Fung Limited, and Ping An Insurance (Group) Company of China, Ltd.



Of the principal amount

Figure 3: Payoff Structure of Equity-Linked Notes if No Early Termination Occurs. This figure shows the payoff structure of Equity-Linked Notes by taking Pyxis Series 21 issued on 28 May 2007 as an example. This figure is taken directly from the prospectus of Pyxis Series 21. The investment horizon for the note is 2.5 years. Coupon will be paid every half a year after issuance at the observation dates. There are four auto-calls by the issuer on each of the second to the fifth observation dates. Valuation date is equal to the fifth observation date-about 2.5 years after issue date. When the swap between issuer and swap counterparty is terminated prior to maturity date, the note will be redeemed at a price based on the proceeds of selling the underlying collateral, which may be significantly below the principal of the note. For Pyxis Series 21, the underlying collateral is European Medium-Term Notes issued by Lehman Brothers Treasury Co. B.V.

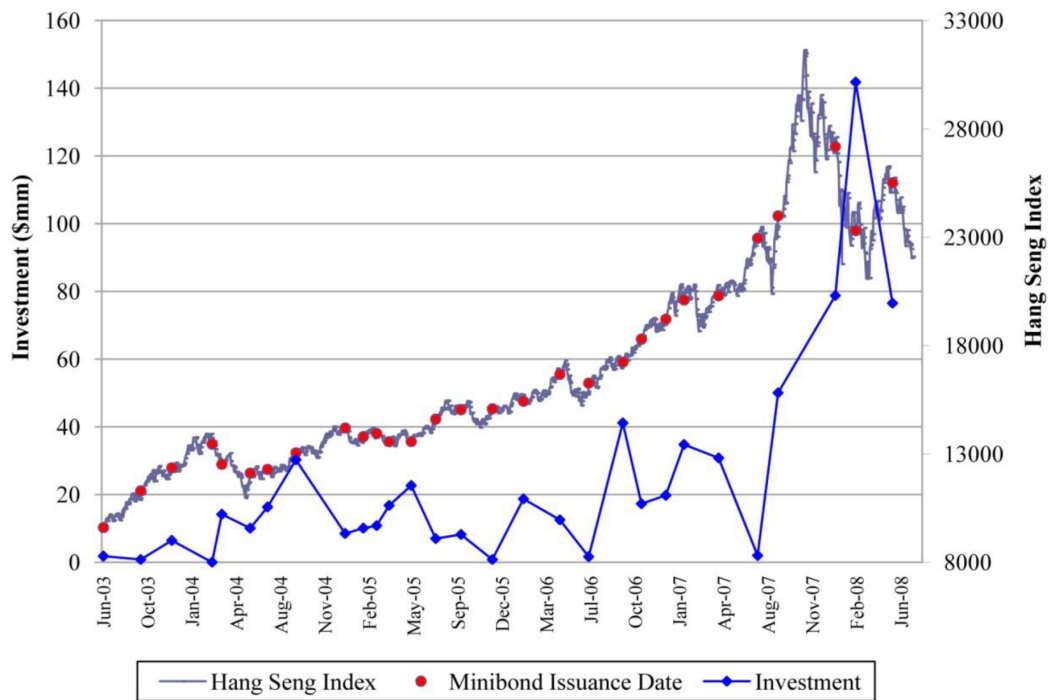


Figure 4: **Market Performance and Minibond Investment.** This figure shows the relation of total investment in each series of Minibond in our sample and Hang Seng Index. The time line starts from July 2, 2003 to June 30, 2008. There are 637 observations of Minibond investors. Those who purchased multiple series have been counted multiple times. The red circle spots on the HSI line illustrate the date when each series of Minibond were issued.

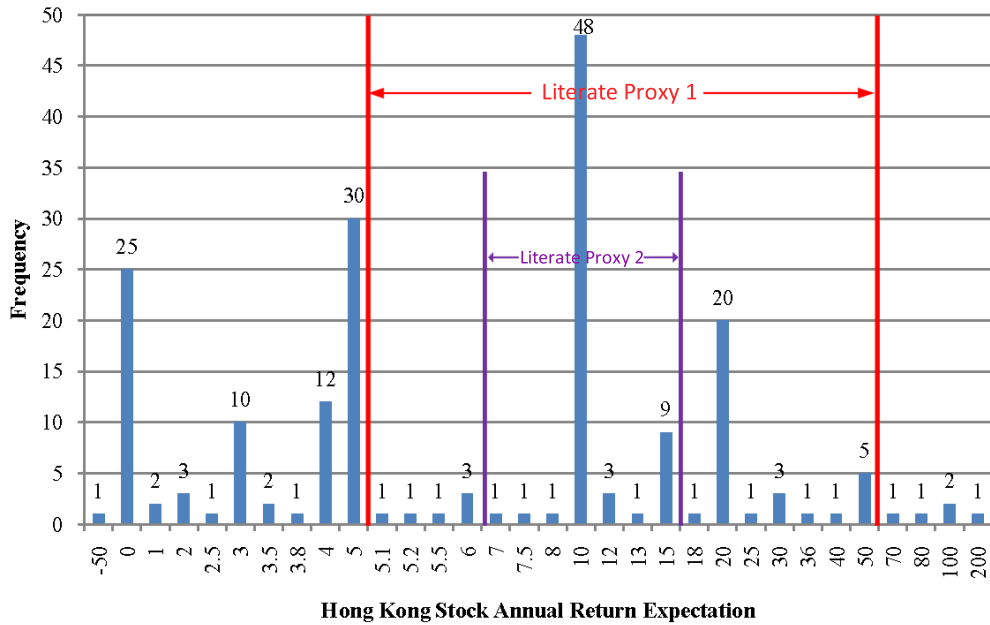


Figure 5: **Distribution of expectation about stock annual return.** This figure shows the distribution of investors’ expectation to Hong Kong stock market annual return. We surveyed 783 investors who have purchased Credit-linked notes or/and Equity-linked notes from February 2003 to May 2008 in Hong Kong, and randomly picked 353 of them to tell their expectations about Hong Kong stock market annual return. 194 investors responded as a percentage; the other 159 investors claimed that they cannot answer this question. We further constructed two dummy variables, “Literate Proxy1” and “Literate Proxy2”, as proxies for been financially “Literate”. “Literate Proxy1” equals to 1 if the investor’s expectation to Hong Kong stock market annual return lies between 5.1% and 50%; ”Literate Proxy2” equals to 1 if the investor’s expectation to Hong Kong stock market annual return lies between 7% and 17%.

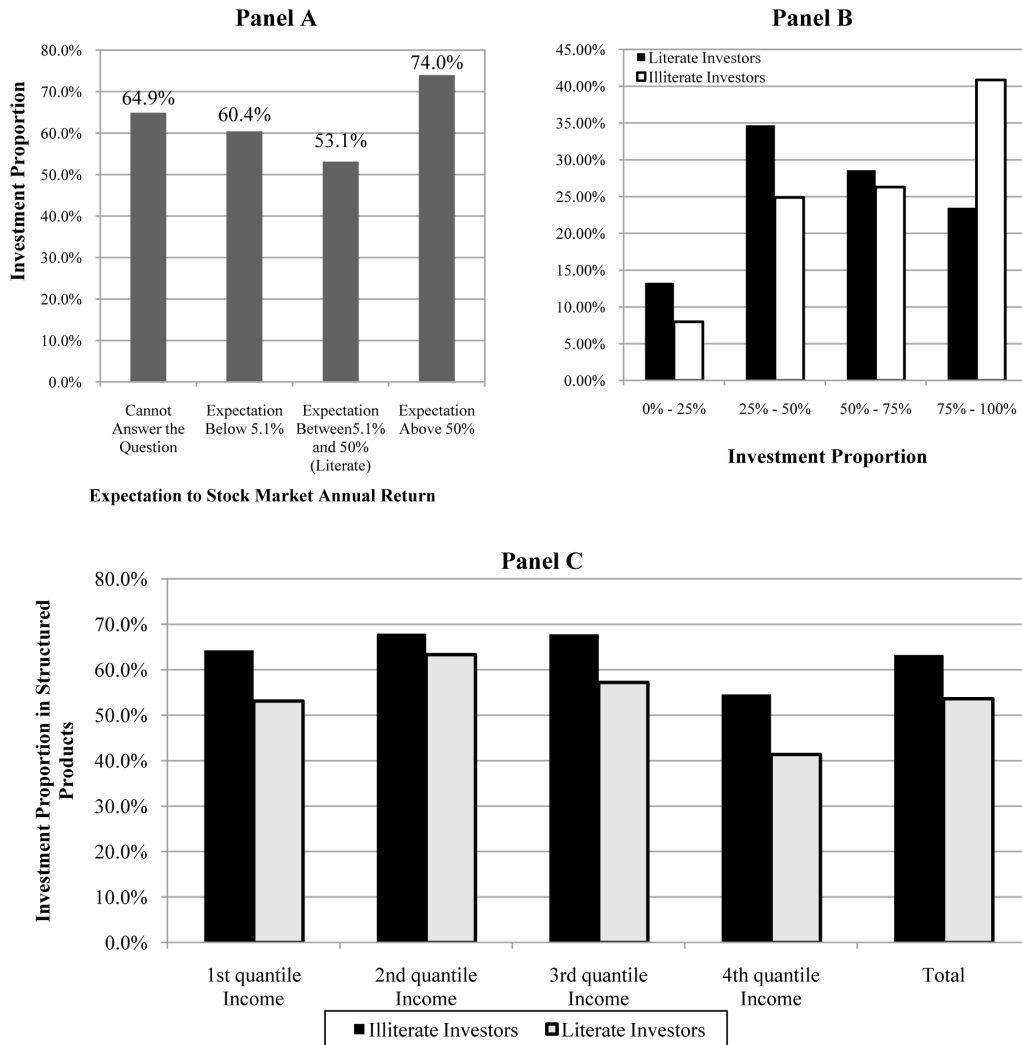


Figure 6: **Financial Literacy and Investment Proportion.** Panel A shows the average investment proportion of investors in 4 groups separated by their expectation to Hong Kong stock market annual return. The four groups are: 1. cannot answer the question; 2. expectation to stock annual return below 5.1%; 3. expectation to stock annual return between 5.1% and 50%; 4. expectation to stock annual return above 50%. Panel B compares the composition of literate investors in four investment proportion groups and composition of illiterate investors in four investment proportion groups. Investor is regarded as financially "Literate" if his/her expectation to Hong Kong stock market annual return lies between 5.1% and 50%. The sample size of both Panel A and Panel B is 311. Panel C categorizes literate investors and illiterate investors by their household income level, and compares their investment proportion in structured products in each group. There are in all 312 observations in this sample. The factor of income ranges from 0 HKD to 125,000HKD.

Table I
Sample Summary Descriptives

This table reports the summary statistics of our survey sample. The data for our sample were collected by questionnaire survey on Hong Kong investors who had purchased credit-linked note or/and equity-linked note from February 2003 to May 2008. We conducted the survey from January 15 to June 18, 2009, and obtained 783 responses. Panel A reports the summary statistics. The data for “*Financially Literate*”, “*Monthly Income*”, “*Own House*”, “*Familiar with Sales*”, were obtained only after March 14, 2009. “*Financially Literate*” is a dummy variable which equals to 1 if investor’s expectation about annual return of Hong Kong stock market is between 5.1% to 51%. “*Financially Literate (Proxy 2)*” is a dummy variable which equals to 1 if investor’s expectation about annual return of Hong Kong stock market is between 7% to 17%. “*Loyal Client of Distributing Banks*” is a dummy variable which equals to 1 if the investor has a relation with the distributing banks for more than 10 years. “*Trust in Distributing Banks*” scales from 1 to 5 with 1 meaning investor completely suspected the distributing banks when he/she bought the structured product, and 5 meaning he/she completed trust the distributing banks. “*Buy Multiple Times*” is a dummy variable with 1 given to investors who purchased more than one structured products. Panel B reports the correlation matrix of all the key variable used in our analysis. A detailed instruction of the definition of each variable is provided in Appendix I, and a comparison of our sample and two major survey sample was reported in Appendix II.

Panel A: Sample Summary Statistics by Type of Invested Products									
Variables	Minibond		Constellation		ELN		Total		
	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	
<i>Investment Outcome:</i>									
Investment Proportion	0.60	420	0.56	73	0.60	126	0.59	693	
Investment(HK\$mnn)	0.91	456	0.67	80	1.74	144	1.04	767	
<i>Investment Characteristics:</i>									
Financially Literate	0.16	231	0.24	33	0.17	30	0.18	353	
Financially Literate (Proxy 2)	0.28	231	0.39	33	0.27	30	0.29	353	
Buy Lottery	0.29	435	0.39	75	0.29	137	0.31	727	
Risk Premium of Product	3.81	464	3	80	9.83	146	4.98	783	
Reconsider	0.16	442	0.05	77	0.11	129	0.14	732	
Loyal Client of Distributing Banks	0.57	456	0.46	76	0.41	140	0.53	757	
Trust in Distributing Banks	4.81	228	4.87	31	4.93	28	4.81	339	
Familiar with Sales	0.67	225	0.56	32	0.38	26	0.62	335	
Buy from Bank of China	0.42	464	0.38	80	0.09	146	0.34	783	
<i>Financial Characteristics:</i>									
Wealth(HK\$mnn)	1.80	417	1.95	73	4.76	125	2.36	688	
Monthly Income(median HK\$10,000)	1.61	203	1.39	33	2.52	25	1.77	312	
Own House	0.81	196	0.81	32	0.92	24	0.82	303	
Saving Proportion	0.67	344	0.59	57	0.72	94	0.68	566	
Stock Proportion	0.14	344	0.28	57	0.13	94	0.15	566	
Buy Stock	0.39	344	0.60	57	0.46	94	0.4	566	
Buy Risky Assets	0.39	464	0.49	80	0.35	146	0.38	783	
Buy Multiple Times	0.30	451	0.25	73	-	0	0.29	526	
<i>Demographic Characteristics:</i>									
Age	56.04	459	53.51	78	54.42	145	55.53	773	
Male	0.38	432	0.33	69	0.33	114	0.37	700	
Retired	0.77	457	0.85	75	0.71	140	0.76	762	
Married	0.83	432	0.77	65	0.85	143	0.83	725	
Years of Education	9.66	451	9.97	79	11.52	142	10.14	761	
Some/finished College	0.11	451	0.10	79	0.26	142	0.15	761	
Some/finished High School	0.54	451	0.59	79	0.75	142	0.59	761	
Comprehension	0.61	454	0.72	78	0.73	142	0.65	764	
Calculation	0.31	227	0.33	33	0.38	29	0.34	348	
Number of Observations	-	464	-	80	-	146	-	783	

Table I -Continue

No	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1	Investment Proportion	1.00																					
2	Financially Literate	-0.15	1.00																				
3	Financially Literate (Proxy 2)	-0.18	0.74	1.00																			
4	Buy Stock	-0.26	0.13	0.22	1.00																		
5	Buy Risky Assets	-0.30	0.14	0.20	0.77	1.00																	
6	Calculation	-0.18	0.22	0.27	0.08	0.20	1.00																
7	Comprehension	-0.26	0.04	0.01	0.19	0.20	0.19	1.00															
8	IQ Measure (4 Element)	-0.13	0.05	-0.01	0.12	0.20	0.11	0.86	1.00														
9	Years of Education	-0.35	0.04	0.11	0.20	0.23	0.26	0.60	0.15	1.00													
10	Age	-0.02	-0.04	0.01	-0.04	0.00	0.00	-0.17	-0.08	0.01	1.00												
11	Male	-0.09	0.06	0.08	0.08	0.12	0.08	0.03	0.01	0.06	0.21	1.00											
12	Retired	0.01	0.06	0.11	-0.08	-0.06	-0.06	-0.22	-0.15	-0.20	0.39	-0.04	1.00										
13	Married	-0.03	-0.02	0.05	0.05	0.02	0.03	0.03	-0.03	-0.03	0.00	0.07	-0.01	1.00									
14	Income	-0.20	0.03	0.02	0.05	0.10	0.17	0.19	0.07	0.29	-0.05	0.08	-0.24	0.10	1.00								
15	Wealth	-0.09	0.00	0.00	0.07	0.09	0.09	0.05	0.01	0.10	-0.06	0.06	-0.07	0.03	0.51	1.00							
16	Own House	-0.15	0.03	0.09	0.14	0.19	0.14	0.15	0.04	0.22	0.10	0.06	0.10	0.05	0.16	0.13	1.00						
17	Buy Lottery	-0.02	-0.02	-0.02	0.00	0.04	0.07	0.04	0.02	0.02	-0.02	0.15	0.01	-0.02	0.12	-0.01	0.08	1.00					
18	Risk Premium	-0.01	-0.03	-0.07	0.04	-0.03	0.01	0.06	-0.01	0.16	-0.07	-0.02	-0.07	0.02	0.16	0.09	0.07	-0.01	1.00				
19	Reconsider	0.01	-0.02	-0.05	0.00	0.06	0.00	0.05	0.01	0.08	-0.11	0.02	-0.12	0.04	-0.02	-0.01	0.04	-0.04	-0.01	1.00			
20	Loyal Client of Distributors	0.01	-0.08	-0.01	-0.02	0.03	-0.11	-0.06	-0.04	-0.05	0.09	0.01	0.02	0.00	-0.11	-0.04	0.02	0.00	-0.11	-0.04	1.00		
21	Trust in Distributors	-0.11	-0.04	0.00	0.08	0.05	-0.04	0.01	-0.06	0.11	-0.01	0.02	0.05	-0.07	-0.06	0.04	0.00	-0.11	0.06	-0.03	0.16	1.00	
22	Familiar with Sales	-0.10	-0.11	-0.05	0.08	0.04	-0.01	-0.07	-0.05	-0.09	0.08	-0.09	0.12	-0.02	0.06	0.14	0.10	-0.07	-0.09	0.00	0.26	0.07	1.00

Table II
Economic Determinants of Investment Decision

This table shows the effects of the traditional and behavioral economic factors on investor's decision on how much proportion of wealth to be invested in structured products. "Premium" is the risk premium of the purchased security. "Max Rating" is the maximal credit rating of reference obligation, with 9 given to AAA and 1 given to BBB. "#Reference Entity" is the number of reference entity. "Coupon Freq." is the frequency of coupon payment, with 1/12, 1/4, 1/2 represents monthly, quarterly and semi-annually, respectively. "Currency" is a dummy variable with 1 given to U.S. dollar and 0 given to Hong Kong dollar. "Cannot Recall" is a dummy variable with 1 given to the investors who cannot recall either the name of the security or the date when she/he purchased the security. "Loyal Client of Distributor" is a dummy variable with 1 given to investors who have relation with the distributing banks for 10 years or more. "Bank of China" is a dummy variable with 1 given to investors who purchase structured products from Bank of China. "HIBOR" the Hong Kong Inter-Bank Offer Rate at the issue date. "HSI Quarterly Return" is the quarterly return of Hang Seng Index on the issue date. T statistics are in parentheses, *, ** and *** represent that $p < 0.1$, $p < 0.05$ and $p < 0.01$, respectively.

Table II-*Continue*

Independent Variables	Dependent Variable = Investment Proportion in Structured Products					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Product Characteristics</i>						
Premium	-0.019 (-1.06)				-0.014 (-0.78)	-0.013 (-0.67)
Max Rating	-0.006 (-0.22)				0.002 (0.08)	-0.008 (-0.25)
Max-Min Rating	0.039* -1.71				0.033 (1.45)	0.029 (1.24)
Maturity(years)	-0.031 (-1.22)				-0.025 (-0.95)	-0.016 (-0.61)
#Reference Entity	-0.028 (-1.19)				-0.022 (-0.96)	-0.014 (-0.53)
Coupon Freq.	0.436* (1.69)				0.488* (1.89)	0.438 (1.58)
Currency	0.047 (1.50)				0.036 (1.16)	0.049 (1.56)
ELN Dummy	-0.083 (-0.63)				-0.038 (-0.29)	-0.054 (-0.38)
<i>Investor Background</i>						
Buy Lottery		0.022 (0.56)			0.037 (0.9)	0.019 (0.44)
Age		0.000 (-0.18)			0.000 (-0.10)	0.000 (-0.05)
Retired		-0.024 (-0.54)			-0.023 (-0.51)	-0.009 (-0.21)
Income		-0.023** (-2.30)			-0.027*** (-2.70)	-0.026** (-2.52)
Own House		-0.096** (-2.12)			-0.093** (-2.03)	-0.087* (-1.79)
Male		-0.054 (-1.42)			-0.057 (-1.46)	-0.065 (-1.59)
Married		-0.029 (-0.53)			0.011 (0.19)	-0.028 (-0.46)
Cannot Recall		-0.113 (-0.98)			-0.036 (-0.29)	-0.016 (-0.10)
<i>Transaction Environment</i>						
Reconsider			0.008 (0.16)			0.012 (0.25)
Loyal Client of Distributor			0.046 (1.2)			0.034 (0.85)
Trust in Distributor			-0.074** (-1.99)			-0.092** (-2.44)
Familiar with Sales			-0.075** (-1.99)			-0.068* (-1.73)
Bank of China			-0.019 (-0.55)			-0.044 (-1.19)
<i>Market Condition</i>						
HIBOR				-0.015 (-1.11)		-0.003 (-0.17)
HSI Quarterly Return				-0.001 (-0.72)		-0.002 (-1.03)
Constant	0.774***	0.798***	0.986***	0.647***	0.792***	1.289***
#Obs.	250	247	244	252	245	237
Adj. R^2	0.025	0.043	0.014	0.002	0.066	0.069

Table III

Selling Intensity and Investment Decision

This table reports the effect of distributing banks' selling intensity on investors' decision making. "Bank Initiate Transaction" is a dummy variable which equals to 1 if investors' purchase is initiated by banks, and equals to 0 if investors knowingly go to banks to purchase structured products. "No Risk Profile Evaluation" is a dummy variable which equals to 1 if banks did not evaluate investors' risk profile or created the profile without noticing investors when selling structured products to the investors, and equals to 0 if banks evaluated and noticed investors about their risk profile.

Independent Variables	Dependent Variable = Investment Proportion in Structured Products				
	(1)	(2)	(3)	(4)	(5)
Bank Initiated Transaction	0.118*	0.143**			0.155**
	(1.96)	(2.31)			(2.48)
No Risk Profile Evaluation			0.083**	0.070*	0.066*
			(2.37)	(1.95)	(1.85)
<i>Transaction Environment</i>					
Trust in Distributor		-0.095**		-0.090**	-0.093**
		(-2.54)		(-2.39)	(-2.51)
Familiar with Sales		-0.073*		-0.069*	-0.075*
		(-1.87)		(-1.77)	(-1.94)
Reconsider		0.015		0.010	0.016
		(0.31)		(0.20)	(0.31)
Loyal Client of Distributor		0.024		0.029	0.017
		(0.61)		(0.71)	(0.43)
Bank of China		-0.042		-0.044	-0.042
		(-1.17)		(-1.21)	(-1.15)
<i>Investor Background</i>					
Buy Lottery	0.016	0.014	0.027	0.020	0.017
	(0.41)	(0.34)	(0.68)	(0.48)	(0.40)
Age	-0.001	-0.000	-0.001	-0.000	-0.000
	(-0.32)	(-0.10)	(-0.31)	(-0.13)	(-0.14)
Retired	-0.024	-0.008	-0.018	-0.002	-0.003
	(-0.54)	(-0.19)	(-0.41)	(-0.05)	(-0.06)
Income	-0.023**	-0.026**	-0.023**	-0.025**	-0.025**
	(-2.39)	(-2.56)	(-2.39)	(-2.48)	(-2.51)
Own House	-0.093**	-0.083*	-0.103**	-0.089*	-0.086*
	(-2.06)	(-1.73)	(-2.24)	(-1.85)	(-1.81)
Male	-0.058	-0.071*	-0.052	-0.058	-0.065
	(-1.50)	(-1.77)	(-1.36)	(-1.43)	(-1.62)
Married	-0.026	-0.021	-0.029	-0.032	-0.024
	(-0.46)	(-0.34)	(-0.52)	(-0.52)	(-0.39)
Cannot Recall	-0.063	-0.024	-0.108	-0.018	-0.027
	(-0.51)	(-0.15)	(-0.94)	(-0.11)	(-0.17)
<i>Control for Product Character</i>	No	Yes	No	Yes	Yes
<i>Control for Market Condition</i>	No	Yes	No	Yes	Yes
Constant	0.704***	1.202***	0.767***	1.228***	1.133***
#Obs.	246	237	239	231	231
Adj. R^2	0.047	0.087	0.068	0.086	0.108

Table IV
Financial Literacy and Investment Decision

Panel A reports the effects of economic factors on financially literate and illiterate investors' investment decision making. We categorize investors as "Financially Literate Investors" if their expectation about stock annual return (ESAR) lies between 5.1% and 50%. Panel B reports the effects of financial literacy on investment decision making. We have constructed two dummy variables as proxies for the investors being "Financially Literate". In the regressions at the left side "Financially Literate" equals to 1 if investor's ESAR lies between 5.1% and 50% (Proxy 1). In the regressions at the right side, "Financially Literate" equals to 1 if investor's ESAR lies between 7% and 17% (Proxy 2). In column 4 and 8, we restrict the sample for only stock market non-participants.

Table IV-*Continue*

Panel A: Specification by Financial Literacy

Independent Variables	Dependent Variable = Investment Proportion							
	Financially Literate Investors				Financially Illiterate Investors			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Product Characteristics</i>								
Premium	-0.043 (-1.37)		-0.016 (-0.50)	-0.029 (-0.81)	0.007 (0.32)		0.016 (0.71)	0.018 (0.78)
Max Rating	0.035 (0.74)		0.034 (0.73)	0.036 (0.68)	-0.045 (-1.26)		-0.041 (-1.16)	-0.045 (-1.19)
Max-Min Rating	0.017 (0.49)		0.006 (0.18)	-0.004 (-0.09)	0.056* (1.85)		0.057* (1.90)	0.047 (1.55)
Maturity(years)	-0.079* (-1.98)		-0.045 (-1.07)	-0.053 (-1.16)	0.009 (0.25)		0.006 (0.16)	0.021 (0.61)
#Reference Entity	-0.012 (-0.28)		-0.004 (-0.10)	-0.012 (-0.22)	-0.01 (-0.35)		-0.006 (-0.23)	0.007 (0.23)
Coupon Freq.	1.061** (2.6)		0.851** (2.02)	0.858* (1.81)	0.029 (0.09)		0.144 (0.44)	-0.08 (-0.23)
Currency	0.047 (1.31)		0.041 (1.15)	0.045 (1.14)	0.012 (0.21)		-0.007 (-0.13)	0.017 (0.28)
ELN Dummy	-0.122 (-0.53)		-0.144 (-0.60)	-0.203 (-0.72)	-0.035 (-0.22)		-0.034 (-0.21)	-0.011 (-0.07)
<i>Investor Background</i>								
Buy Lottery		-0.041 (-0.62)	-0.001 (-0.02)	-0.023 (-0.28)		0.053 (1.09)	0.063 (1.25)	0.025 (0.49)
Age		-0.005 (-1.40)	-0.005 (-1.40)	-0.003 (-0.62)		0.001 (0.49)	0.001 (0.57)	0.001 (0.24)
Retired		0.1 (1.13)	0.088 (0.99)	0.046 (0.47)		-0.067 (-1.31)	-0.077 (-1.49)	-0.04 (-0.77)
Income		-0.021 (-1.21)	-0.023 (-1.24)	-0.019 (-0.95)		-0.027** (-2.30)	-0.031** (-2.58)	-0.033*** (-2.69)
Own House		0.087 (0.97)	0.076 (0.82)	0.09 (0.77)		-0.103* (-1.95)	-0.090* (-1.66)	-0.092 (-1.64)
Male		-0.016 (-0.26)	-0.021 (-0.33)	-0.064 (-0.82)		-0.057 (-1.20)	-0.063 (-1.29)	-0.033 (-0.67)
Married		-0.373*** (-3.08)	-0.309** (-2.50)	-0.311** (-2.12)		0.072 (1.13)	0.122* (1.80)	0.038 (0.52)
Cannot Recall		-0.302 (-1.59)	-0.32 (-1.22)	- -		-0.046 (-0.32)	-0.043 (-0.30)	-0.095 (-0.57)
<i>Transaction Environment</i>								
Reconsider				0.054 (0.52)				-0.036 (-0.63)
Loyal Client of Distributor				0.005 (0.07)				0.049 (0.99)
Trust in Distributor				0.001 (0.02)				-0.135*** (-2.63)
Familiar with Sales				-0.111 (-1.41)				-0.078 (-1.61)
Bank of China				0.002 (0.03)				-0.100** (-2.27)
<i>Market Condition</i>								
HIBOR				-0.005 (-0.15)				-0.022 (-0.93)
HSI Quarterly Return				-0.002 (-0.62)				0.000 (-0.03)
Constant	0.534	1.060***	0.826	0.946	0.720**	0.692***	0.608*	1.454***
#Obs.	87	86	85	82	163	161	160	155
Adj. R^2	0.116	0.131	0.181	0.105	-0.016	0.043	0.044	0.088

Table IV-*Continue*

Panel B: Effects of Financial Literacy

Independent Variables	Dependent Variable = Investment Proportion							
	Financially Literate=1 if ESAR \in [5.1% , 50%])				Financially Literate=1 if ESAR \in [7% , 17%]			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Financially Literate	-0.118*** (-3.29)	-0.084** (-2.30)	-0.097** (-2.56)	-0.126** (-2.29)	-0.102** (-2.47)	-0.062 (-1.48)	-0.090** (-2.04)	-0.153** (-2.47)
Premium		-0.013 (-0.73)	-0.011 (-0.57)	-0.012 (-0.44)		-0.012 (-0.69)	-0.01 (-0.56)	-0.01 (-0.37)
Max Rating		0.002 (0.06)	-0.004 (-0.12)	-0.069 (-1.51)		0.001 (0.03)	-0.008 (-0.26)	-0.075 (-1.64)
Max-Min Rating		0.029 (1.31)	0.025 (1.08)	0.037 (1.03)		0.031 (1.37)	0.025 (1.09)	0.034 (0.95)
Maturity(years)		-0.023 (-0.88)	-0.013 (-0.49)	-0.052 (-1.25)		-0.023 (-0.91)	-0.013 (-0.50)	-0.048 (-1.16)
#Reference Entity		-0.017 (-0.73)	-0.011 (-0.42)	-0.004 (-0.09)		-0.019 (-0.82)	-0.01 (-0.39)	0.006 (0.15)
Coupon Freq.		0.502* (1.97)	0.415 (1.51)	0.536 (1.31)		0.493* (1.92)	0.426 (1.54)	0.548 (1.35)
Currency		0.036 (1.16)	0.051 (1.63)	0.063* (1.75)		0.031 (1.01)	0.044 (1.40)	0.045 (1.25)
ELN Dummy		-0.027 (-0.21)	-0.043 (-0.30)	-0.148 (-0.70)		-0.038 (-0.29)	-0.054 (-0.38)	-0.122 (-0.58)
Buy Lottery		0.036 (0.88)	0.013 (0.3)	0.026 (0.44)		0.035 (0.86)	0.014 (0.34)	0.025 (0.42)
Age		0.000 (-0.19)	0.000 (-0.20)	-0.004 (-1.35)		0.000 (-0.23)	0.000 (-0.23)	-0.004 (-1.30)
Retired		-0.011 (-0.25)	0.007 (0.16)	0.025 (0.43)		-0.015 (-0.34)	0.004 (0.09)	0.029 (0.48)
Income		-0.026*** (-2.62)	-0.024** (-2.40)	-0.023 (-1.63)		-0.025** (-2.51)	-0.023** (-2.22)	-0.02 (-1.39)
Own House		-0.089* (-1.96)	-0.077 (-1.62)	-0.042 (-0.65)		-0.094** (-2.05)	-0.087* (-1.81)	-0.049 (-0.76)
Male		-0.051 (-1.31)	-0.056 (-1.38)	-0.02 (-0.33)		-0.051 (-1.31)	-0.058 (-1.42)	-0.017 (-0.29)
Married		0.017 (0.3)	-0.026 (-0.43)	0.021 (0.26)		0.007 (0.12)	-0.038 (-0.63)	0.008 (0.10)
Cannot Recall		-0.058 (-0.45)	-0.062 (-0.38)	-0.117 (-0.53)		-0.048 (-0.38)	-0.056 (-0.34)	-0.137 (-0.62)
Reconsider			0.004 (0.09)	0.041 (0.62)			0.012 (0.25)	0.044 (0.68)
Loyal Client of Distributor			0.036 (0.91)	0.039 (0.72)			0.032 (0.79)	0.038 (0.71)
Trust in Distributor			-0.098*** (-2.61)	-0.132** (-2.49)			-0.099*** (-2.62)	-0.135** (-2.54)
Familiar with Sales			-0.079** (-2.04)	-0.072 (-1.33)			-0.081** (-2.06)	-0.082 (-1.52)
Bank of China			-0.051 (-1.40)	-0.076 (-1.49)			-0.049 (-1.33)	-0.061 (-1.21)
HIBOR			-0.004 (-0.20)	-0.011 (-0.47)			-0.004 (-0.21)	-0.012 (-0.52)
HSI Quarterly Return			-0.001 (-0.60)	0.000 (-0.17)			-0.001 (-0.86)	-0.001 (-0.36)
Constant	0.644***	0.769***	1.308***	1.994***	0.626***	0.794***	1.338***	1.947***
#Obs.	252	245	237	135	252	245	237	135
Adj. R^2	0.038	0.083	0.092	0.071	0.02	0.071	0.082	0.078

Table V
Alternative Measures of Financial Literacy

This table reports the effects of the alternative proxies for financial literacy on investment decision making. In the regressions at the left side, “Financially Literate” equals to 1 if the investor buys risky assets (stock, bond, and fund). In the regressions at the right side, “Financially Literate” equals to 1 if the investor buys stock.

Independent Variables	Dependent Variable = Investment Proportion					
	Financially Literate =1 if Investor Buys Risky Assets			Financially Literate =1 if Investor Buys Stock		
	(1)	(2)	(3)	(4)	(5)	(6)
Financially Literate	-0.107*** (-3.09)	-0.073** (-2.03)	-0.06 (-1.61)	-0.105*** (-2.84)	-0.079** (-2.07)	-0.075* (-1.90)
Premium		-0.015 (-0.83)	-0.015 (-0.80)		-0.014 (-0.80)	-0.015 (-0.81)
Max Rating		0.003 (0.11)	-0.008 (-0.25)		0.002 (0.09)	-0.009 (-0.29)
Max-Min Rating		0.033 (1.48)	0.03 (1.30)		0.032 (1.41)	0.029 (1.27)
Maturity(years)		-0.022 (-0.85)	-0.014 (-0.53)		-0.024 (-0.95)	-0.017 (-0.63)
#Reference Entity		-0.025 (-1.08)	-0.019 (-0.71)		-0.026 (-1.10)	-0.02 (-0.78)
Coupon Freq.		0.447* (1.74)	0.41 (1.48)		0.461* (1.80)	0.421 (1.52)
Currency		0.039 (1.25)	0.051 (1.62)		0.037 (1.21)	0.051 (1.61)
ELN Dummy		-0.038 (-0.29)	-0.06 (-0.42)		-0.05 (-0.38)	-0.08 (-0.56)
Buy Lottery		0.032 (0.79)	0.016 (0.37)		0.03 (0.73)	0.013 (0.30)
Age		0.000 (-0.13)	0.000 (-0.06)		0.000 (-0.04)	0.000 (-0.02)
Retired		-0.014 (-0.32)	-0.003 (-0.07)		-0.02 (-0.45)	-0.007 (-0.16)
Income		-0.025** (-2.56)	-0.024** (-2.34)		-0.027*** (-2.72)	-0.025** (-2.47)
Own House		-0.076 (-1.65)	-0.071 (-1.46)		-0.080* (-1.73)	-0.072 (-1.47)
Male		-0.041 (-1.04)	-0.05 (-1.21)		-0.045 (-1.14)	-0.051 (-1.24)
Married		0.017 (0.30)	-0.02 (-0.32)		0.013 (0.22)	-0.025 (-0.41)
Cannot Recall		-0.035 (-0.28)	-0.018 (-0.11)		-0.033 (-0.26)	-0.023 (-0.14)
Reconsider			0.011 (0.22)			0.006 (0.13)
Loyal Client of Distributor			0.033 (0.82)			0.036 (0.89)
Trust in Distributor			-0.087** (-2.29)			-0.089** (-2.36)
Familiar with Sales			-0.066* (-1.70)			-0.065* (-1.67)
Bank of China			-0.042 (-1.15)			-0.045 (-1.24)
HIBOR			-0.001 (-0.03)			0.000 (0.02)
HSI Quarterly Return			-0.002 (-1.12)			-0.002 (-1.19)
Constant	0.649***	0.811***	1.289***	0.635***	0.824***	1.329***
#Obs.	252	245	237	252	245	237
Adj.R ²	0.033	0.079	0.075	0.027	0.079	0.08

Table VI
General Cognition and Investment Decision

This table shows the effects of investor's comprehension ability and calculation ability on his/her investment decision making. Comprehension ability measures how well the investor reads; calculation ability measures whether the investor can do simple calculation.

Independent Variables	Dependent Variable = Investment Proportion							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Calculation	-0.125*** (-3.55)	-0.084** (-2.28)	-0.113*** (-2.97)	-0.093** (-2.36)				-0.057 (-1.43)
Comprehension					-0.181*** (-5.21)	-0.157*** (-4.19)	-0.167*** (-4.36)	-0.157*** (-4.01)
Financially Literate				-0.068* (-1.71)				-0.086** (-2.22)
Premium		-0.015 (-0.86)	-0.014 (-0.74)	-0.012 (-0.66)		-0.005 (-0.30)	-0.003 (-0.18)	-0.003 (-0.19)
Max Rating		-0.007 (-0.25)	-0.021 (-0.69)	-0.016 (-0.53)		0.004 (0.15)	-0.005 (-0.17)	-0.01 (-0.33)
Max-Min Rating		0.036 (1.58)	0.036 (1.55)	0.032 (1.38)		0.033 (1.46)	0.028 (1.24)	0.029 (1.25)
Maturity(years)		-0.024 (-0.93)	-0.014 (-0.53)	-0.012 (-0.46)		-0.017 (-0.65)	-0.006 (-0.21)	-0.001 (-0.05)
#Reference Entity		-0.021 (-0.88)	-0.015 (-0.59)	-0.013 (-0.50)		-0.02 (-0.90)	-0.01 (-0.38)	-0.008 (-0.34)
Coupon Freq.		0.439* (1.71)	0.388 (1.41)	0.38 (1.39)		0.362 (1.42)	0.224 (0.81)	0.189 (0.69)
Currency		0.036 (1.17)	0.048 (1.56)	0.05 (1.6)		0.026 (0.88)	0.043 (1.41)	0.045 (1.51)
ELN Dummy		-0.042 (-0.32)	-0.082 (-0.58)	-0.07 (-0.49)		0.01 (0.08)	0.01 (0.07)	-0.002 (-0.01)
Buy Lottery		0.036 (0.89)	0.014 (0.32)	0.011 (0.25)		0.026 (0.66)	0.004 (0.10)	-0.003 (-0.08)
Age		0.000 (0.02)	0.000 (-0.02)	0.000 (-0.13)		0.000 (-0.20)	0.000 (-0.19)	-0.001 (-0.33)
Retired		-0.029 (-0.65)	-0.015 (-0.34)	-0.003 (-0.06)		-0.037 (-0.84)	-0.027 (-0.63)	-0.013 (-0.29)
Income		-0.023** (-2.32)	-0.021** (-2.08)	-0.021** (-2.06)		-0.019* (-1.92)	-0.018* (-1.76)	-0.014 (-1.40)
Own House		-0.082* (-1.76)	-0.065 (-1.34)	-0.063 (-1.29)		-0.076* (-1.70)	-0.06 (-1.28)	-0.046 (-0.97)
Male		-0.05 (-1.28)	-0.051 (-1.27)	-0.047 (-1.16)		-0.045 (-1.18)	-0.049 (-1.25)	-0.034 (-0.87)
Married		0.005 (0.09)	-0.032 (-0.50)	-0.031 (-0.48)		0.005 (0.09)	-0.038 (-0.64)	-0.033 (-0.55)
Cannot Recall		-0.016 (-0.13)	-0.027 (-0.17)	-0.057 (-0.35)		-0.069 (-0.56)	-0.055 (-0.35)	-0.103 (-0.66)
Reconsider			0.007 (0.14)	0.003 (0.05)			-0.005 (-0.10)	-0.011 (-0.23)
Loyal Client of Distributor			0.018 (0.45)	0.022 (0.55)			0.031 (0.79)	0.021 (0.53)
Trust in Distributor			-0.101*** (-2.70)	-0.103*** (-2.77)			-0.101*** (-2.78)	-0.111*** (-3.09)
Familiar with Sales			-0.06 (-1.53)	-0.069* (-1.77)			-0.084** (-2.21)	-0.085** (-2.23)
Bank of China			-0.058 (-1.60)	-0.061* (-1.66)			-0.034 (-0.96)	-0.049 (-1.39)
HIBOR			0.002 (0.14)	0.001 (0.06)			-0.013 (-0.74)	-0.009 (-0.53)
HSI Quarterly Return			-0.002 (-0.93)	-0.001 (-0.64)			-0.001 (-0.81)	-0.001 (-0.49)
Constant	0.648***	0.849***	1.422***	1.412***	0.711***	0.829***	1.413***	1.499***
#Obs.	249	242	234	234	245	238	230	227
Adj. R^2	0.045	0.079	0.097	0.106	0.097	0.142	0.158	0.185

Table VII
Education and Investment Decision

This table reports the effects of investor's education on their investment decision making. In the regressions at the left side, we use dummy variable of whether the investor has entered high school as proxy for investor's education level. In the regressions at the right side, we use the investor's years of education as proxy for his/her education level.

Independent Variables	Dependent Variable = Investment Proportion							
	Education=High School Dummy			Education=Years of Education				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education	-0.141*** (-4.10)	-0.111*** (-2.95)	-0.113*** (-2.96)	-0.024*** (-5.33)	-0.019*** (-3.81)	-0.020*** (-3.85)	-0.019*** (-3.73)	-0.009* (-1.69)
Financially Literate							-0.093** (-2.51)	-0.084** (-2.15)
Calculation								-0.061 (-1.52)
Comprehension								-0.113** (-2.39)
Buy Lottery		0.026 (0.64)	0.011 (0.25)		0.018 (0.44)	0.002 (0.04)	-0.001 (-0.03)	-0.008 (-0.19)
Age		-0.001 (-0.69)	-0.001 (-0.59)		-0.002 (-0.83)	-0.002 (-0.75)	-0.002 (-0.90)	-0.001 (-0.65)
Retired		-0.035 (-0.80)	-0.022 (-0.50)		-0.033 (-0.75)	-0.018 (-0.42)	-0.003 (-0.06)	-0.012 (-0.27)
Income		-0.022** (-2.18)	-0.021** (-2.01)		-0.019* (-1.90)	-0.018* (-1.71)	-0.017 (-1.64)	-0.012 (-1.21)
Own House		-0.058 (-1.24)	-0.049 (-1.00)		-0.053 (-1.15)	-0.043 (-0.89)	-0.034 (-0.72)	-0.031 (-0.65)
Male		-0.05 (-1.29)	-0.057 (-1.41)		-0.043 (-1.12)	-0.049 (-1.21)	-0.042 (-1.06)	-0.033 (-0.84)
Married		0.019 (0.32)	-0.018 (-0.28)		0.019 (0.32)	-0.018 (-0.30)	-0.013 (-0.21)	-0.014 (-0.23)
Cannot Recall		-0.021 (-0.17)	0.007 (0.04)		-0.014 (-0.11)	0.001 (0.01)	-0.043 (-0.27)	-0.085 (-0.54)
Reconsider			0.012 (0.25)			0.012 (0.24)	0.007 (0.13)	-0.003 (-0.07)
Loyal Client of Distributor			0.03 (0.74)			0.023 (0.59)	0.024 (0.62)	0.011 (0.29)
Trust in Distributor			-0.080** (-2.12)			-0.078** (-2.09)	-0.084** (-2.28)	-0.104*** (-2.86)
Familiar with Sales			-0.074* (-1.90)			-0.076* (-1.96)	-0.085** (-2.21)	-0.080** (-2.07)
Bank of China			-0.044 (-1.22)			-0.05 (-1.40)	-0.057 (-1.62)	-0.056 (-1.57)
<i>Control for Product Character</i>	No	Yes	Yes	No	Yes	Yes	Yes	Yes
<i>Control for Market Condition</i>	No	No	Yes	No	No	Yes	Yes	Yes
Constant	0.681***	0.865***	1.312***	0.840***	0.971***	1.425***	1.437***	1.532***
#Obs.	249	242	234	249	242	234	234	225
Adj. R^2	0.06	0.096	0.098	0.099	0.118	0.122	0.144	0.186

Table VIII
Definition of IQ Measures

We construct measures for IQ (or intelligence) based on investor's education level and comprehension (reading ability). Low IQ is defined as investors who have finished high school education, but cannot read or can only read some. There are 53 (6.98%) investors in this group. High IQ means investors who have not received education beyond primary school, but can read or read some. IQ Four Element Measured and IQ Benchmark Measured are defined in Panel B. The correlation matrix of the four IQ measures is reported in Panel C.

Panel A: Classification of IQ Measures			
	Primary- Medium IQ	High School Low IQ	College Low IQ
Cannot Read	(57)	(5)	(0)
Can Read Some	(162)	(39)	(3)
Can Read	(93)	(280)	(114)

Panel B: Definition of IQ Measures		
Proxy Name	Type	Description
Above Low IQ	Dummy	=1 if investor do not belong to the Low IQ category;
High IQ	Dummy	=1 if investor have primary or below education but can read or read some;
IQ Four Element Measured	1-4	4=High IQ, 3=Ambiguous, 2=Medium IQ, and 1=Low IQ;
IQ Benchmark Measured	1-3	3=High IQ, 2=Ambiguous=Medium, and 1=Low IQ.

Panel C: Correlation of IQ Measures and Education					
	Education (years)	Above High School Dummy	Above Low IQ	High IQ	IQ Four Element Measured
Above High School Dummy	0.93				
Above Low IQ	-0.15	-0.23			
High IQ	-0.79	-0.85	0.18		
IQ Four Element Measured	0.15	0.12	0.58	0.02	
IQ Benchmark Measured	-0.4	-0.47	0.64	0.51	0.82

Table IX
IQ and Investment Decision

This table reports the effects of investors' IQ on their investment decision making. In Panel A, in the first column, "Above Low IQ Dummy" contains 227 of 1 and 20 of 0. In the fifth column, "High IQ Dummy" contains 32 of 1 and 211 of 0. In Panel B, in the first column, "IQ Four Element Measured" contains 16, 72, 123, and 32 of 1 to 4, respectively. In the fifth column, "IQ Benchmark Measured" contains 16, 195 and 32 of 1 to 3, respectively.

Panel A: Above Low IQ, High IQ and Investment Proportion								
Independent Variables	Dependent Variable = Investment Proportion							
	IQ Measure = Above Low IQ Dummy				IQ Measure = High IQ Dummy			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IQ Measure	-0.160** (2.51)	-0.238*** (3.78)	-0.243*** (3.64)	-0.236*** (3.58)	0.099*** (2.72)	-0.148** (-2.53)	-0.143** (-2.33)	-0.135** (-2.22)
Above High School		-0.170*** (-4.89)	-0.140*** (-3.62)	-0.131*** (-3.38)				
Education(years)						-0.039*** (-5.23)	-0.035*** (-4.16)	-0.032*** (-3.82)
Calculation				-0.074* (-1.94)				-0.074* (-1.91)
Financially Literate				-0.076* (-1.95)				-0.073* (-1.83)
Buy Lottery			0.013 (0.31)	0.008 (0.19)			-0.012 (-0.28)	-0.015 (-0.36)
Age			-0.001 (-0.55)	-0.001 (-0.69)			-0.001 (-0.58)	-0.001 (-0.66)
Retired			-0.024 (-0.55)	-0.013 (-0.29)			-0.017 (-0.39)	-0.007 (-0.16)
Income			-0.019* (-1.86)	-0.015 (-1.50)			-0.015 (-1.50)	-0.012 (-1.20)
Own House			-0.052 (-1.10)	-0.033 (-0.69)			-0.044 (-0.92)	-0.028 (-0.58)
Male			-0.061 (-1.54)	-0.048 (-1.22)			-0.038 (-0.95)	-0.027 (-0.66)
Married			-0.035 (-0.57)	-0.019 (-0.31)			-0.017 (-0.27)	-0.005 (-0.09)
Cannot Recall			-0.064 (-0.40)	-0.108 (-0.69)			-0.015 (-0.10)	-0.061 (-0.39)
Reconsider			-0.002 (-0.04)	-0.007 (-0.14)			0.02 (0.41)	0.015 (0.31)
Loyal Client of Distributor			0.033 (0.84)	0.018 (0.47)			0.012 (0.31)	-0.002 (-0.05)
Trust in Distributor			-0.090** (-2.46)	-0.101*** (-2.80)			-0.089** (-2.42)	-0.101*** (-2.78)
Familiar with Sales			-0.069* (-1.81)	-0.066* (-1.73)			-0.078** (-2.03)	-0.074* (-1.92)
Bank of China			-0.033 (-0.93)	-0.051 (-1.44)			-0.057 (-1.60)	-0.072** (-2.03)
<i>Control for Product Character</i>	No	No	Yes	Yes	No	No	Yes	Yes
<i>Control for Market Condition</i>	No	No	Yes	Yes	No	No	Yes	Yes
Constant	0.585***	0.677***	1.317***	1.414***	0.558***	1.043***	1.643***	1.727***
#Obs.	247	247	232	229	243	243	228	225
Adj. R^2	0.021	0.105	0.15	0.182	0.026	0.122	0.153	0.183

Table IX-*Continue*

Panel B: IQ Measures and Investment Proportion

Independent Variables	Dependent Variable = Investment Proportion							
	IQ Measure = IQ Four Element Measured				IQ Measure = IQ Benchmark Measured			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IQ Measure	-0.077*** (-3.43)	-0.063*** (-2.93)	-0.069*** (-2.92)	-0.063*** (-2.64)	-0.028 (-0.69)	-0.135*** (-3.28)	-0.140*** (-3.11)	-0.125*** (-2.75)
Education(years)		-0.022*** (-5.00)	-0.018*** (-3.42)	-0.016*** (-3.13)		-0.031*** (-6.32)	-0.026*** (-4.75)	-0.024*** (-4.24)
Calculation				-0.058 (-1.44)				-0.057 (-1.42)
Financially Literate				-0.083** (-2.13)				-0.080** (-2.06)
Buy Lottery			-0.005 (-0.13)	-0.009 (-0.22)			-0.008 (-0.18)	-0.011 (-0.27)
Age			-0.001 (-0.49)	-0.001 (-0.63)			-0.001 (-0.49)	-0.001 (-0.62)
Retired			-0.025 (-0.57)	-0.01 (-0.24)			-0.022 (-0.50)	-0.008 (-0.18)
Income			-0.015 (-1.46)	-0.012 (-1.18)			-0.014 (-1.41)	-0.012 (-1.15)
Own House			-0.048 (-1.01)	-0.033 (-0.69)			-0.05 (-1.06)	-0.036 (-0.75)
Male			-0.043 (-1.09)	-0.032 (-0.80)			-0.041 (-1.04)	-0.03 (-0.76)
Married			-0.028 (-0.47)	-0.015 (-0.24)			-0.028 (-0.46)	-0.015 (-0.23)
Cannot Recall			-0.047 (-0.30)	-0.093 (-0.59)			-0.053 (-0.34)	-0.096 (-0.61)
Reconsider			-0.002 (-0.05)	-0.005 (-0.11)			-0.003 (-0.06)	-0.005 (-0.11)
Loyal Client of Distributor			0.022 (0.56)	0.009 (0.24)			0.019 (0.49)	0.007 (0.18)
Trust in Distributor			-0.094** (-2.57)	-0.104*** (-2.89)			-0.095** (-2.60)	-0.105*** (-2.90)
Familiar with Sales			-0.083** (-2.17)	-0.080** (-2.08)			-0.082** (-2.15)	-0.079** (-2.06)
Bank of China			-0.041 (-1.17)	-0.057 (-1.61)			-0.044 (-1.25)	-0.059* (-1.67)
<i>Control for Product Character</i>	No	No	Yes	Yes	No	No	Yes	Yes
<i>Control for Market Condition</i>	No	No	Yes	Yes	No	No	Yes	Yes
Constant	0.801***	0.989***	1.623***	1.689***	0.651***	1.180***	1.806***	1.846***
#Obs.	243	243	228	225	243	243	228	225
Adj. <i>R</i> ²	0.043	0.13	0.166	0.191	-0.002	0.137	0.17	0.193

Table X
Investment Decision by Product Type

This table reports the effects of all the variables we have previously tested on credit-linked note investors' and equity-linked note investors' investment decision making. "Financially Literate" equals to 1 if investor's expectation to Hong Kong stock annual return lies between 5.1% and 50%. All the missing variables are filled with zero and controlled by dummy variables. The dummy variables are not reported here.

Independent Variables	Dependent Variable = Investment Proportion							
	Credit-linked Note Investors				Equity-linked Note Investors			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Financially Literate		-0.049 (-1.23)		-0.05 (-1.34)		-0.237* (-1.86)		-0.215* (-1.83)
Calculation			-0.041 (-1.03)				-0.02 (-0.10)	
Comprehension			-0.123*** (-4.69)				-0.249*** (-4.27)	
Education(years)				-0.026*** (-7.36)				-0.025*** (-3.69)
IQ 4 Element Measured				-0.034** (-2.33)				-0.080** (-2.24)
Premium	-0.034* (-1.75)	-0.033* (-1.71)	-0.032* (-1.67)	-0.030* (-1.66)				
Max Rating	0.008 (0.37)	0.009 (0.42)	0.007 (0.38)	0.015 (0.79)				
Max-Min Rating	0.009 (0.64)	0.009 (0.61)	0.01 (0.69)	0.011 (0.77)				
Maturity(years)	-0.022 (-1.26)	-0.021 (-1.20)	-0.02 (-1.15)	0.000 (-0.02)				
#Reference Entity	-0.032* (-1.73)	-0.032* (-1.69)	-0.03 (-1.63)	-0.038** (-2.17)				
Coupon Freq.	0.244 (1.11)	0.244 (1.11)	0.213 (0.99)	0.053 (0.26)				
Currency	0.047* (1.83)	0.047* (1.85)	0.054** (2.16)	0.061** (2.51)				
Buy Lottery	0.000 (0.01)	-0.002 (-0.06)	-0.014 (-0.49)	-0.009 (-0.34)	0.007 (0.12)	0.013 (0.22)	0.014 (0.27)	0.025 (0.49)
Age	0.000 (0.24)	0.000 (0.22)	0.000 (0.00)	-0.001 (-0.66)	-0.002 (-0.55)	-0.002 (-0.68)	-0.005* (-1.72)	-0.004* (-1.69)
Retired	0.017 (0.48)	0.021 (0.60)	-0.005 (-0.15)	-0.012 (-0.37)	0.005 (0.08)	0.021 (0.35)	-0.012 (-0.21)	-0.013 (-0.23)
Income	-0.023** (-1.98)	-0.024** (-2.06)	-0.011 (-0.95)	-0.008 (-0.71)	0.000 (-0.00)	0.008 (0.35)	0.004 (0.15)	0.013 (0.66)
Own House	-0.082 (-1.64)	-0.077 (-1.54)	-0.057 (-1.15)	-0.032 (-0.67)	-0.08 (-0.36)	-0.021 (-0.09)	-0.125 (-0.46)	-0.028 (-0.14)
Male	-0.046 (-1.59)	-0.043 (-1.49)	-0.033 (-1.17)	-0.026 (-0.96)	-0.121* (-1.94)	-0.112* (-1.82)	-0.142** (-2.35)	-0.099* (-1.75)
Married	0.006 (0.17)	0.007 (0.19)	0.000 (-0.01)	-0.003 (-0.09)	-0.014 (-0.21)	-0.012 (-0.17)	-0.043 (-0.63)	-0.037 (-0.60)
Reconsider	0.066* (1.76)	0.064* (1.68)	0.067* (1.81)	0.065* (1.85)	-0.146* (-1.87)	-0.129* (-1.67)	-0.095 (-1.27)	-0.102 (-1.42)
Loyal Client of Distributor	0.003 (0.13)	0.003 (0.12)	0.003 (0.12)	-0.004 (-0.17)	0.004 (0.08)	0.001 (0.03)	-0.004 (-0.08)	-0.006 (-0.14)
Trust in Distributor	-0.036 (-1.02)	-0.04 (-1.11)	-0.046 (-1.33)	-0.025 (-0.75)	-0.231 (-1.13)	-0.114 (-0.54)	-0.212 (-0.98)	-0.096 (-0.50)
Familiar with Sales	-0.057 (-1.42)	-0.06 (-1.49)	-0.069* (-1.77)	-0.074** (-1.97)	0.059 (0.46)	0.023 (0.18)	0.082 (0.54)	0.064 (0.56)
Bank of China	-0.015 (-0.56)	-0.017 (-0.65)	-0.009 (-0.35)	-0.019 (-0.76)	-0.037 (-0.40)	-0.038 (-0.41)	-0.062 (-0.68)	-0.053 (-0.62)
Constant	1.151***	1.165***	1.242***	1.430***	2.018*	1.467	2.450**	2.082**
#Obs.	493	493	493	493	126	126	126	126
Adj.R ²	0.032	0.033	0.085	0.151	-0.047	-0.022	0.084	0.174

Table XI
Investment Decision in Subgroups by Age and Affluence

This table reports the effects of all the variables we have tested on the investment decision making of investors in subgroups specified by age and affluence. All investors with age below 50 or have income less than HK\$20,000 can report the name of product they purchased or/and the month they purchased the product, so we do not keep the “Cannot Recall” variable in the right regression since it is constant. All regressions control for product characteristics and market condition.

Panel A. Investment Decision in Subgroups by Age								
Independent Variables	Dependent Variable = Investment Proportion							
	Age equal to 50 or above				Age below 50			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Literate		-0.112** (-2.39)	-0.106** (-2.28)	-0.123*** (-2.71)		-0.003 (-0.04)	-0.037 (-0.49)	-0.051 (-0.71)
Education(years)			-0.017*** (-2.68)	-0.015** (-2.45)			-0.022** (-2.10)	-0.017 (-1.61)
IQ 4 Element Measured				-0.086*** (-3.14)				-0.092* (-1.73)
Buy Lottery	0.003 (0.06)	-0.005 (-0.10)	-0.022 (-0.41)	-0.031 (-0.59)	0.082 (1.07)	0.082 (1.06)	0.078 (1.04)	0.046 (0.62)
Income	-0.018 (-1.58)	-0.017 (-1.55)	-0.012 (-1.04)	-0.007 (-0.67)	-0.067** (-2.52)	-0.067** (-2.49)	-0.049* (-1.80)	-0.038 (-1.44)
Own House	-0.061 (-0.98)	-0.051 (-0.83)	0.02 (0.31)	0.017 (0.27)	-0.037 (-0.46)	-0.037 (-0.45)	-0.056 (-0.70)	-0.094 (-1.20)
Male	-0.06 (-1.24)	-0.043 (-0.89)	-0.036 (-0.73)	-0.007 (-0.15)	-0.078 (-0.96)	-0.078 (-0.95)	-0.04 (-0.49)	-0.059 (-0.73)
Married	-0.021 (-0.27)	-0.014 (-0.17)	0.021 (0.26)	-0.008 (-0.10)	-0.122 (-1.07)	-0.122 (-1.06)	-0.106 (-0.95)	-0.047 (-0.43)
Cannot Recall	-0.065 (-0.37)	-0.103 (-0.59)	-0.077 (-0.45)	-0.147 (-0.89)				
Reconsider	-0.011 (-0.17)	-0.031 (-0.47)	-0.043 (-0.63)	-0.083 (-1.24)	0.049 (0.64)	0.049 (0.63)	0.078 (1.02)	0.054 (0.73)
Loyal Client of Distributor	-0.01 (-0.18)	0.007 (0.13)	-0.005 (-0.10)	-0.006 (-0.11)	0.148** (2.06)	0.147* (1.94)	0.112 (1.51)	0.089 (1.24)
Trust in Distributor	-0.090* (-1.96)	-0.094** (-2.06)	-0.082* (-1.81)	-0.098** (-2.25)	-0.099 (-1.33)	-0.099 (-1.31)	-0.072 (-0.98)	-0.11 (-1.54)
Familiar with Sales	-0.076 (-1.53)	-0.087* (-1.77)	-0.091* (-1.86)	-0.109** (-2.29)	-0.108 (-1.56)	-0.108 (-1.53)	-0.147** (-2.09)	-0.143** (-2.04)
Bank of China	-0.048 (-1.08)	-0.055 (-1.24)	-0.067 (-1.52)	-0.064 (-1.49)	-0.087 (-1.14)	-0.087 (-1.12)	-0.095 (-1.27)	-0.063 (-0.87)
<i>Control for Product Character</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Control for Market Condition</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.515***	1.517***	1.528***	1.860***	1.01	1.01	0.997	1.496*
#Obs.	176	176	172	168	63	63	63	61
Adj.R ²	0.02	0.049	0.091	0.159	0.178	0.158	0.223	0.294

Table XI–*Continue*

Panel B. Investment Decision in Subgroups by Financial Affluence

Independent Variables	Dependent Variable = Investment Proportion								
	Top Wealth Quartile		Wealth Above Median		Income below 20,000		Income 20,000-99,999		Everyone
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Literate	-0.175** (-2.34)	-0.165** (-2.22)	-0.119* (-1.89)	-0.135** (-2.25)	-0.103** (-2.24)	-0.108** (-2.44)	-0.096 (-1.22)	-0.082 (-0.99)	-0.103*** (-2.82)
Education (years)		-0.018 (-1.59)		-0.016** (-2.10)		-0.018*** (-3.09)		-0.01 (-0.72)	-0.017*** (-3.33)
IQ 4 Element Measured		-0.017 (-0.27)		-0.070** (-2.00)		-0.086*** (-3.25)		-0.077 (-0.89)	-0.071*** (-3.07)
Buy Lottery	0.111 (1.16)	0.134 (1.38)	0.019 (0.29)	0.021 (0.34)	-0.047 (-0.90)	-0.068 (-1.32)	0.197** (2.16)	0.187* (1.93)	-0.009 (-0.21)
Age	0.000 (0.07)	-0.002 (-0.39)	0.002 (0.52)	0.000 (-0.03)	-0.002 (-0.70)	-0.002 (-0.89)	0.007 (1.48)	0.005 (0.88)	-0.001 (-0.68)
Retired	0.026 (0.27)	0.051 (0.48)	0.034 (0.47)	0.042 (0.61)	0.04 (0.72)	-0.001 (-0.01)	-0.126 (-1.31)	-0.074 (-0.67)	-0.007 (-0.16)
Income	-0.026* (-1.75)	-0.022 (-1.46)	-0.021* (-1.67)	-0.013 (-1.09)	0.127* (1.95)	0.175*** (2.81)	-0.048* (-1.80)	-0.037 (-1.22)	-0.013 (-1.34)
Own House	-0.135 (-1.08)	-0.099 (-0.80)	-0.106 (-1.11)	-0.103 (-1.15)	-0.073 (-1.37)	-0.028 (-0.55)	-0.053 (-0.34)	-0.067 (-0.38)	-0.038 (-0.81)
Male	-0.231** (-2.67)	-0.219** (-2.53)	-0.069 (-1.15)	-0.047 (-0.81)	-0.042 (-0.85)	-0.007 (-0.15)	-0.022 (-0.24)	-0.026 (-0.27)	-0.033 (-0.84)
Married	0.123 (0.78)	0.153 (0.94)	0.006 (0.06)	-0.007 (-0.06)	0.003 (0.04)	-0.015 (-0.24)	-0.038 (-0.15)	0.058 (0.20)	-0.024 (-0.41)
Cannot Recall	-0.315 (-1.50)	-0.28 (-1.32)	-0.296 (-1.40)	-0.361* (-1.82)	-	-	0.115 (0.68)	0.102 (0.58)	-0.1 (-0.64)
Reconsider	0.193* (1.97)	0.199* (1.96)	0.027 (0.37)	0.033 (0.47)	0.014 (0.25)	0.003 (0.05)	0.099 (0.72)	0.117 (0.80)	-0.01 (-0.20)
Loyal Client of Distributor	-0.134 (-1.42)	-0.149 (-1.60)	-0.002 (-0.03)	-0.044 (-0.71)	0.02 (0.41)	0.021 (0.46)	0.093 (1.23)	0.069 (0.87)	0.022 (0.57)
Trust in Distributor	-0.087 (-1.04)	-0.1 (-1.17)	-0.121** (-2.10)	-0.124** (-2.28)	-0.067 (-1.36)	-0.059 (-1.24)	-0.069 (-0.97)	-0.075 (-1.00)	-0.101*** (-2.81)
Familiar with Sales	0.01 (0.09)	0.019 (0.19)	-0.02 (-0.30)	-0.029 (-0.46)	-0.071 (-1.57)	-0.107** (-2.47)	-0.084 (-0.96)	-0.047 (-0.49)	-0.092** (-2.45)
Bank of China	-0.217*** (-2.94)	-0.212*** (-2.86)	-0.139** (-2.46)	-0.140*** (-2.65)	-0.032 (-0.74)	-0.023 (-0.56)	-0.099 (-1.29)	-0.072 (-0.85)	-0.05 (-1.43)
<i>Control for Product Character</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Control for Market Condition</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.65	1.294	1.260**	1.719***	1.208***	1.553***	0.465	0.294	1.657***
#Obs.	61	60	113	108	183	175	50	49	228
Adj. R^2	0.369	0.394	0.111	0.24	0.019	0.161	0.333	0.276	0.193

Table XII
Determinants of Financial Literacy

This table shows the possible determinants of investors to be financially literate. We run probit regression on the proxy for financial literacy. The dependent variable “Financially Literate Dummy” equals to 1 if investor’s expectation to Hong Kong stock market annual return lies between 5.1% and 50%. Z statistics are in parentheses, *, ** and *** represent that $p < 0.1$, $p < 0.05$ and $p < 0.01$, respectively.

Independent Variables	Dependent Variable = Financially Literate Dummy				
	(1)	(2)	(3)	(4)	(5)
Education		0.048** (2.05)			0.051* (1.66)
IQ 4 Element Measured Calculation			0.005 (0.05)		
Comprehension				0.867*** (4.84)	0.822*** (4.53)
Buy Lottery	-0.077 (-0.41)	-0.012 (-0.06)	-0.041 (-0.21)	-0.049 (-0.25)	0.013 (0.06)
Age	-0.006 (-0.66)	-0.005 (-0.55)	-0.008 (-0.87)	-0.010 (-1.03)	-0.009 (-0.88)
Retired	0.392* (1.84)	0.424** (1.98)	0.428** (1.97)	0.484** (2.11)	0.476** (2.07)
Income	0.028 (0.69)	0.007 (0.16)	0.032 (0.78)	0.004 (0.09)	-0.010 (-0.23)
Own House	0.218 (0.99)	0.184 (0.80)	0.261 (1.15)	0.127 (0.54)	0.107 (0.45)
Male	0.274 (1.55)	0.193 (1.07)	0.281 (1.56)	0.326* (1.74)	0.273 (1.44)
Married	0.287 (1.06)	0.362 (1.30)	0.371 (1.32)	0.193 (0.69)	0.232 (0.81)
Constant	-0.951* (-1.77)	-1.503** (-2.55)	-1.013* (-1.65)	-0.906 (-1.59)	-1.318** (-2.15)
#Obs.	269	265	259	259	256
Pseudo R^2	0.027	0.043	0.035	0.105	0.110

Table XIII
Heckman Selection Model with Comparative Sample

This table reports the results of Heckman Selection Model test. We randomly asked 75 Hong Kong citizens and obtained their information of all the demographic characteristics we asked before, as well as their relationship with the bank where they save money, their self-reported trust towards the banks, and their familiarity with their client managers. None of these investors purchased credit-linked notes or equity-linked notes. We took this sample as comparative sample and ran Heckman two step regressions. Z statistics is in parentheses. *, ** and *** represent that $p < 0.1$, $p < 0.05$ and $p < 0.01$, respectively.

Table XIII-Continue

Independent Variables	Dependent Variable = Investment Proportion						
	Selection Regression	(1)	(2)	(3)	(4)	(5)	(6)
Financially Literate		-0.091* (-1.717)		-0.094*** (-2.596)			-0.097*** (-2.806)
Comprehension	-0.139 (-0.394)		-0.122*** (-2.944)	-0.133*** (-3.272)			
Calculation	-0.426* (-1.761)		-0.054 (-1.324)	-0.025 (-0.603)			
Education(years)	-0.078** (-1.991)				-0.014** (-2.103)	-0.015*** (-2.577)	-0.015*** (-2.690)
IQ 4 Element Measured						-0.058** (-2.462)	-0.061*** (-2.724)
Buy Lottery	-0.949*** (-4.043)	0.105 (1.386)	0.07 (1.341)	0.062 (1.21)	0.076 (1.209)	0.062 (1.183)	0.046 (0.891)
Age	0.004 (0.333)	-0.001 (-0.464)	-0.001 (-0.569)	-0.001 (-0.746)	-0.002 (-0.715)	-0.002 (-0.756)	-0.002 (-0.900)
Retired	0.542** (-2.141)	-0.051 (-0.724)	-0.066 (-1.434)	-0.046 (-1.009)	-0.059 (-1.056)	-0.059 (-1.283)	-0.036 (-0.798)
Income	-0.074 (-1.642)	-0.005 (-0.283)	-0.006 (-0.558)	-0.006 (-0.525)	-0.004 (-0.273)	-0.005 (-0.426)	-0.005 (-0.453)
Own House	0.564** (1.988)	-0.130* (-1.782)	-0.087* (-1.692)	-0.077 (-1.539)	-0.105* (-1.736)	-0.089* (-1.749)	-0.07 (-1.432)
Male	-0.457** (-1.974)	-0.007 (-0.109)	-0.023 (-0.537)	-0.016 (-0.390)	-0.015 (-0.303)	-0.02 (-0.468)	-0.015 (-0.371)
Married	0.703* (-1.942)	-0.068 (-0.685)	-0.053 (-0.804)	-0.046 (-0.706)	-0.058 (-0.741)	-0.05 (-0.757)	-0.038 (-0.595)
Cannot Recall		-0.103 (-0.487)	-0.076 (-0.537)	-0.124 (-0.877)	-0.047 (-0.280)	-0.076 (-0.534)	-0.122 (-0.859)
Reconsider		0.004 (0.062)	-0.01 (-0.225)	-0.014 (-0.304)	0.008 (0.147)	-0.006 (-0.139)	-0.011 (-0.240)
Loyal Client of Distributor	-0.745*** (-2.871)	0.094 (1.408)	0.066 (1.432)	0.067 (1.472)	0.084 (1.568)	0.071 (1.598)	0.063 (1.447)
Trust in Distributor	0.776*** (4.802)	-0.208*** (-3.155)	-0.170*** (-3.743)	-0.168*** (-3.760)	-0.174*** (-3.158)	-0.161*** (-3.483)	-0.154*** (-3.401)
Familiar with Sales	0.486** (2.089)	-0.132** (-2.084)	-0.109** (-2.523)	-0.120*** (-2.817)	-0.115** (-2.298)	-0.113*** (-2.703)	-0.118*** (-2.897)
Bank of China		-0.014 (-0.262)	-0.027 (-0.742)	-0.028 (-0.789)	-0.035 (-0.795)	-0.036 (-0.984)	-0.035 (-0.977)
HIBOR		-0.017 (-0.704)	-0.018 (-1.098)	-0.019 (-1.189)	-0.016 (-0.820)	-0.018 (-1.143)	-0.018 (-1.144)
HSI Quarterly Return		0.000 (-0.161)	-0.001 (-0.598)	0.000 (-0.239)	-0.001 (-0.399)	-0.001 (-0.517)	0.000 (-0.169)
Premium		-0.006 (-0.239)	-0.003 (-0.150)	0.000 (-0.027)	-0.005 (-0.255)	0.000 (0.01)	0.001 (0.072)
Max Rating		0.001 (0.013)	-0.004 (-0.145)	0.003 (0.110)	0.002 (0.058)	0.005 (0.188)	0.008 (0.281)
Max-Min Rating		0.017 (0.501)	0.022 (0.967)	0.017 (0.762)	0.015 (0.590)	0.014 (0.658)	0.013 (0.608)
Maturity(years)		-0.002 (-0.062)	-0.001 (-0.041)	0.003 (0.135)	0.005 (0.165)	0.007 (0.297)	0.01 (0.403)
#Reference Entity		0.000 (-0.013)	-0.002 (-0.102)	-0.001 (-0.030)	-0.005 (-0.175)	-0.003 (-0.116)	-0.002 (-0.066)
Coupon Freq.		0.245 (0.621)	0.153 (0.576)	0.127 (0.485)	0.15 (0.474)	0.088 (0.33)	0.077 (0.298)
Currency		0.067 (1.465)	0.054* (1.767)	0.054* (1.817)	0.061* (1.689)	0.054* (1.760)	0.053* (1.814)
ELN Dummy		0.044 (0.218)	0.038 (0.282)	0.057 (0.426)	0.074 (0.465)	0.081 (0.607)	0.081 (0.624)
Constant	-2.072*	1.955***	1.825***	1.783***	1.910***	1.945***	1.897***
Mills λ		-0.402** (-2.526)	-0.261** (-2.228)	-0.242** (-2.089)	-0.319** (-2.348)	-0.256** (-2.200)	-0.207* (-1.778)
#Obs	301	301	301	301	301	301	301
Pseudo R^2	0.469						
χ^2		30.379	72.697	81.9	47.355	73.497	85.979

Appendix I Definition of Main Variables

This table reports the definition the key variables we used in the analysis. The data comes directly from the survey we conducted from January 15 to June 18, 2009. The questions addressing monthly income, monthly expense, owning house, familiar with sales, calculation are added after March 14, 2009. The setting of “Financially Literate” is inspired by the fact that the average annual return of Hang Seng Index is around 12% in the past three years (2006, 2007, and 2008); the setting of “Financially Literate (Proxy 2)” is inspired by the fact that the average risk premium of structured products in our sample is 5%. The products can be purchased in either Hong Kong dollar (HKD) or U.S. dollar (USD). We convert USD to HKD at the exchange rate of 8.0, and measure all capital in HKD.

Variable Name	Unit	Definition
<u>Investment Characteristics</u>		
InvestProportion	0-1	Proportion of the investor’s asset invested in the structured product.
Investment	HK\$mn	Amount of investment in millions of Hong Kong dollars.
Financially Literate	Dummy	=1 if the investor’s expectation to stock market return lies between 5.1% and 50%.
Financially Literate (Proxy 2)	Dummy	=1 if the investor’s expectation to stock market annual return lies between 7% and 17%.
Buy Lottery	Dummy	=1 if investor claims buying lottery more often than once half a year.
Reconsider	Dummy	=1 if the investor consider did not buy the product the day he was approached by the salesman.
Loyal Client of Distributor	Dummy	=1 if the investor’s relationship with distributing bank is longer than 10 years.
Trust in Distributor	1-5	Measure of the investor’s trust in the distributing bank. 1 means completely doubt, and 5 means completely trust.
Familiar with Sales	Dummy	=1 if the investor is familiar the salesman of the structured product.
Bank of China	Dummy	=1 if the investor buys structured products from Bank of China.
<u>Product Characteristics</u>		
Premium	Number	The difference between the product’s coupon rate and fixed deposit rate at the product’s issuing date; premium for ELN is given as 10.
Max Rating	Number	The maximal rating of the reference obligations of each structured product.
Max-Min Rating	Number	The difference of the maximum and minimum of the reference obligation.
Maturity	Year	The maturity of the structured product that the investor purchased.
#Ref Entity	Number	The amount of reference entity or amount of linked companies.
Coupon Freq.	Number	The frequency of coupon payment. 1/2=semi-annually, 1/4=quarterly, 1/12=monthly.
Currency	Dummy	=1 if the product is U.S. dollar type.
#Ref Entity	Number	The amount of reference entity or amount of linked companies.
ELN Dummy	Dummy	=1 if the investor buy ELN.
<u>Financial Characteristics</u>		
Wealth	HK\$mn	The investor’s total financial assets.
Income	HK\$10,000	The investor family’s current monthly income.
Own House	Dummy	=1 if the investor owns house.
SavingProportion	0-1	Proportion of the investor’s asset allocated in saving.
StockProportion	0-2	Proportion of the investor’s allocated in buying stock.
BuyStock	Dummy	=1 if the investor buys stock.
BuyRisky	Dummy	=1 if the investor buys risky assets.
HIBOR	Number	Hong Kong Inter-Bank Offer Rate at the issue date of the product.
HSI Quarterly Return	Number	Hang Seng Index quarterly return at the issue date of the product.
<u>Demographic Characteristics</u>		
Education	Years	=6, 12, or 16 if the investor has finished all or some primary school education, all or some high school education, or all or some college education.
Age	Years	Age of the investor.
Male	Dummy	=1 if the investor is male.
Retired	Dummy	=1 if the investor is retired or unemployed.
Married	Dummy	=1 if the investor is married.
HighSchool	Dummy	=1 if the investor finished or finished some high school education.
College	Dummy	=1 if the investor finished or finished some college education or more advanced education.
Comprehension	Dummy	=1 if the investor can read traditional or simplified Chinese characters well.
Calculation	Dummy	=1 if the investor can do simple or compound interest rate calculation.
Cannot Recall	Dummy	=1 if the investor cannot recall the name of security and the month when he/she purchased the security.
<u>Bank Sales Characteristics</u>		
Bank Initiate Transaction	Dummy	=1 if the distributing banks initiated the transaction of structured products instead of the investors.
No Risk Profile Evaluation	Dummy	=1 if distributing banks did not evaluate investors’ profile or did not notice investors their risk profile.

Appendix II Sample Comparison

The table reports the summary statistics of our survey sample compared with two major survey samples in Hong Kong. The data for our sample were collected by questionnaire survey on Hong Kong investors who had purchased credit-linked note or/and equity-linked note from February 2003 to May 2008. We conducted the survey from January 15 to June 18, 2009, and obtained 783 responses. Panel A shows the characteristics of structured product investors compared with “2006 Population By-census” report conducted by Hong Kong Census and Statistics Department from July to August 2006, and “Retail Investor Survey 2009” conducted by Hong Kong Exchange and Clearing Limited from November to December 2009. The data for “*Monthly Income*”, “*Own House*”, were obtained only after March 14, 2009.

Panel A. Sample Characteristics			
Variables	Sample	HK By-census 2006	HKEx 2009
Demographics			
Age (median)	58	45	45
Male	0.37	0.47	0.46
Retired/Unemployed	0.76	0.38	0.22
Married	0.83	0.62	-
Financial Occupation	0.04	0.04	0.09
Years of Education	10.14	10.06	-
Some/Finished High School	0.59	0.30	0.66
Some/Finished College	0.15	0.24	0.36
Comprehension	0.65	-	-
Calculation	0.34	-	-
Financial Related			
Monthly Income(median, HK\$10,000)	1.77	1.73	1.63
Own House	0.82	0.53	-
Buy Stock	0.40	-	0.36
Number of Observations	783	5,102,513	2,303

Appendix III
Detailed Information of Credit-Linked Notes

This table shows the detailed information of two main credit-linked notes in our sample: Minibond and Constellation. “Hang Seng Index” is reported as of the issue date. “Fixed Deposit Rate” and “Current Deposit Rate” are reported as of the month before the issue date. In panel A, The second period interest rate for Minibond Series 11A is 8% minus six month LIBOR (LB), and 7.6% minus six month HIBOR (HB) for Minibond Series 11B. During the time we conduct the survey from January 2009 to June 2009, there are 28 series of Minibond and 40 series of Constellation outstanding in the market. In our sample, there are 464 Minibond investors and 80 Constellation investors.

Panel A: Minibond										
Series No.	Issue Date	#Investor (sample)	Interest Rate Period1	Interest Rate Period2	Currency	Maturity Date	#Ref. Entity	Max Rating	Min Rating	Coupon Freq.
5	2003/7/2	3	3.8	-	USD	2005/07/02	1	A-	A-	Semi-Ann
6	2003/9/24	2	5	8	USD	2005/09/25	150	AA-	A-	Annually
7A	2003/12/3	3	4.2	-	USD	2008/12/03	6	AA-	BBB	Semi-Ann
7B	2003/12/3	10	4.2	-	HKD	2008/12/03	6	AA-	BBB	Semi-Ann
8	2004/3/3	0	7	-	HKD	2009/03/03	5	A-	BBB	Semi-Ann
9A	2004/3/25	2	3.7	4.3	USD	2009/09/25	6	A+	A-	Semi-Ann
9B	2004/3/25	20	3.5	4.1	HKD	2009/09/25	6	A+	A-	Semi-Ann
10A	2004/5/28	4	4.25	4.75	USD	2009/11/28	7	A+	A-	Semi-Ann
10B	2004/5/28	17	4	4.5	HKD	2009/11/28	7	A+	A-	Semi-Ann
11A	2004/7/6	5	8	8 - LB	USD	2010/01/06	1	A-	A-	Semi-Ann
11B	2004/7/6	15	7.6	7.6 -HB	HKD	2010/01/06	1	A-	A-	Semi-Ann
12A	2004/9/8	6	4.65	5.4	USD	2010/03/08	6	A+	BBB	Semi-Ann
12B	2004/9/8	23	4.1	5.1	HKD	2010/03/08	6	A+	BBB	Semi-Ann
15A	2004/12/28	7	4.3	5	USD	2010/06/28	6	A+	BBB+	Semi-Ann
15B	2004/12/28	8	3.3	4	HKD	2010/06/28	6	A+	BBB+	Semi-Ann
16A	2005/2/7	10	4.2	4.75	USD	2010/08/07	6	A+	A-	Semi-Ann
16B	2005/2/7	10	3.2	3.75	HKD	2010/08/07	6	A+	A-	Semi-Ann
17A	2005/3/9	9	4.35	5	USD	2010/09/09	7	A+	A-	Semi-Ann
17B	2005/3/9	10	3.6	4.2	HKD	2010/09/09	7	A+	A-	Semi-Ann
18A	2005/4/6	6	4.5	5.5	USD	2010/10/06	7	AAA	A-	Semi-Ann
18B	2005/4/6	9	3.7	4.7	HKD	2010/10/06	7	AAA	A-	Semi-Ann
19A	2005/5/26	18	4.75	4.15	USD	2010/11/26	7	AA-	A-	Semi-Ann
19B	2005/5/26	0	5.75	5.15	HKD	2010/11/26	7	AA-	A-	Semi-Ann
20A	2005/7/20	3	4.8	6	USD	2011/01/20	7	A+	A-	Quarterly
20B	2005/7/20	3	4.2	5.4	HKD	2011/01/20	7	A+	A-	Quarterly
21A	2005/9/15	3	5.2	6.1	USD	2011/03/15	7	A+	A-	Quarterly
21B	2005/9/15	15	4.8	5.6	HKD	2011/03/15	7	A+	A-	Quarterly
22A	2005/11/25	1	4.65	5.65	USD	2011/05/25	7	AA-	A-	Quarterly
22B	2005/11/25	2	4.4	5.4	HKD	2011/05/25	7	AA-	A-	Quarterly
23A	2006/2/3	2	5.35	6	USD	2011/08/03	7	A+	A-	Quarterly
23B	2006/2/3	18	5.1	5.75	HKD	2011/08/03	7	A+	A-	Quarterly
25A	2006/4/26	1	5.5	6.5	USD	2011/10/26	7	AA-	A-	Quarterly
25B	2006/4/26	11	5.3	6	HKD	2011/10/26	7	AA-	A-	Quarterly
26A	2006/6/30	0	5.5	6.5	USD	2011/12/30	8	AA-	A-	Quarterly
26B	2006/6/30	2	5.3	6	HKD	2011/12/30	8	AA-	A-	Quarterly
27A	2006/9/15	10	7	8.3	USD	2009/09/15	7	A+	A+	Quarterly
27B	2006/9/15	30	6.3	7.5	HKD	2009/09/15	7	A+	A+	Quarterly

(To be continued)

Appendix III-*Continue*

Panel A: Minibond

Series No.	Issue Date	#Investor (sample)	Interest Rate Period1	Interest Rate Period2	Currency	Maturity Date	#Ref. Entity	Max Rating	Min Rating	Coupon Freq.
28A	2006/10/27	9	6.5	8	USD	2009/10/27	7	A+	A	Quarterly
28B	2006/10/27	11	5.5	7	HKD	2009/10/27	7	A+	A	Quarterly
29A	2006/12/21	9	6	7.5	USD	2009/12/21	7	A+	A	Quarterly
29B	2006/12/21	10	5	6.5	HKD	2009/12/21	7	A+	A	Quarterly
30A	2007/01/31	2	6	7.5	USD	2010/02/01	7	AA-	A	Quarterly
30B	2007/01/31	7	5	6.5	HKD	2010/02/01	7	AA-	A	Quarterly
31A	2007/04/19	3	6	7.6	USD	2010/04/19	8	AA-	A	Quarterly
31B	2007/04/19	8	5.5	7.1	HKD	2010/04/19	8	AA-	A	Quarterly
32A	2007/07/16	1	6.1	7.8	USD	2010/07/16	8	AA-	A	Quarterly
32B	2007/07/16	1	5.5	7.1	HKD	2010/07/16	8	AA-	A	Quarterly
33A	2007/08/31	2	7	9.1	USD	2010/08/31	8	AA-	A	Quarterly
33B	2007/08/31	12	6.3	8.1	HKD	2010/08/31	8	AA-	A	Quarterly
34A	2008/01/07	16	6	-	USD	2011/01/07	7	AA-	BBB+	Quarterly
34B	2008/01/07	50	5.6	-	HKD	2011/01/07	7	AA-	BBB+	Quarterly
35A	2008/02/22	19	6	-	USD	2011/02/22	7	AA	A-	Quarterly
35B	2008/02/22	116	5.6	-	HKD	2011/02/22	7	AA	A-	Quarterly
36A	2008/05/15	14	5.5	-	USD	2011/05/15	7	AA	A-	Quarterly
36B	2008/05/15	49	5	-	HKD	2011/05/15	7	AA	A-	Quarterly

(To be continued)

Appendix III-*Continue*

Panel B: Constellation

Series No.	Issue Date	#Investor (sample)	Interest Rate Period1	Interest Rate Period2	Currency	Maturity Date	#Ref. Entity	Max Rating	Min Rating	Coupon Freq.
34	2006/03/28	2	6	6.2	USD	2009/03/28	8	A+	BBB	Quarterly
35	2006/03/28	5	5.5	6	HKD	2009/03/28	8	A+	BBB	Quarterly
36	2006/03/28	0	5	5.2	USD	2008/03/28	8	A+	BBB	Quarterly
37	2006/03/28	9	4.5	5	HKD	2008/03/28	8	A+	BBB	Quarterly
39	2006/05/26	3	5.75	7	USD	2010/05/26	8	AA-	BBB+	Quarterly
40	2006/05/26	2	5.35	6.5	HKD	2010/05/26	8	AA-	BBB+	Quarterly
41	2006/05/26	0	4.5	5.5	USD	2008/05/26	8	AA-	BBB+	Quarterly
42	2006/05/26	1	4.1	5.1	HKD	2008/05/26	8	AA-	BBB+	Quarterly
43	2006/07/28	9	6.8	8	USD	2010/07/28	8	A+	BBB	Quarterly
44	2006/07/28	13	6.3	7.6	HKD	2010/07/28	8	A+	BBB	Quarterly
45	2006/07/28	3	5.5	6	USD	2009/10/28	8	A+	BBB	Quarterly
46	2006/07/28	2	5	5.5	HKD	2009/10/28	8	A+	BBB	Quarterly
47	2006/09/28	0	6.3	8	USD	2010/09/28	8	AA-	BBB	Quarterly
48	2006/09/28	0	6	7	HKD	2010/09/28	8	AA-	BBB	Quarterly
49	2006/09/28	0	5	6	USD	2009/03/28	8	AA-	BBB	Quarterly
50	2006/09/28	1	4.75	5	HKD	2009/03/28	8	AA-	BBB	Quarterly
55	2006/11/22	7	6.6	8	USD	2011/11/22	8	A	A-	Quarterly
56	2006/11/22	6	6	6.3	HKD	2011/11/22	8	A	A-	Quarterly
57	2006/11/22	13	6	7	USD	2010/05/22	8	A	A-	Quarterly
58	2006/11/22	12	5.2	6	HKD	2010/05/22	8	A	A-	Quarterly
59	2007/01/10	4	5.75	6.75	USD	2012/01/10	8	A+	BBB+	Quarterly
60	2007/01/10	5	5	6	HKD	2012/01/10	8	A+	BBB+	Quarterly
61	2007/01/10	1	5.1	6.1	USD	2010/07/10	8	A+	BBB+	Quarterly
62	2007/01/10	0	4.5	5.25	HKD	2010/07/10	8	A+	BBB+	Quarterly
63	2007/02/08	5	6.2	8	USD	2013/02/08	8	A+	BBB+	Monthly
64	2007/02/08	2	5.2	6.8	HKD	2013/02/08	8	A+	BBB+	Monthly
65	2007/02/08	2	5	5.5	USD	2010/02/08	8	A+	BBB+	Monthly
66	2007/02/08	3	4	5	HKD	2010/02/08	8	A+	BBB+	Monthly
67	2007/03/22	1	6.3	8.3	USD	2013/03/22	8	A+	A-	Quarterly
68	2007/03/22	0	5.6	7	HKD	2013/03/22	8	A+	A-	Quarterly
69	2007/03/22	0	5.6	6.6	USD	2011/03/22	8	A+	A-	Quarterly
70	2007/03/22	2	5	5.6	HKD	2011/03/22	8	A+	A-	Quarterly
71	2007/05/23	1	6.6	8.8	USD	2013/05/23	8	AA-	A-	Quarterly
72	2007/05/23	2	6	8	HKD	2013/05/23	8	AA-	A-	Quarterly
73	2007/05/23	0	5.6	6.8	USD	2011/05/23	8	AA-	A-	Quarterly
74	2007/05/23	0	5.2	6	HKD	2011/05/23	8	AA-	A-	Quarterly
78	2007/07/23	2	7	9	USD	2013/07/23	8	AA-	A-	Quarterly
79	2007/07/23	0	6.5	8.5	HKD	2013/07/23	8	AA-	A-	Quarterly
80	2007/07/23	0	6.2	7.3	USD	2011/07/23	8	AA-	A-	Quarterly
81	2007/07/23	4	5.7	7.2	HKD	2011/07/23	8	AA-	A-	Quarterly