

Knowledge Management and Capability Theory in Structured Products: Perspectives From Industry Professionals

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The structured products industry has lagged development of other areas of financialization. But that is changing quickly. This paper investigates the forces driving this industry's recent and rapid growth using interviews with industry professionals which we analyze through the lens of intelligent complex adaptive systems theory and capability theory. We unpack the relationship between retail investors and issuers of structured products as well as the fintech-enabled knowledge management structure these firms have developed to exploit retail opportunities. We find that the lag in development has been due to the necessity of lower costs and the ability to create individualized structured products. The firms that are succeeding in this industry have identifiable sources of competitive advantage that make them more likely to achieve and sustain viability above mere survival than their rivals, what we call capability. From this, we extract generalizable principles for all knowledge management professionals.

Keywords: structured products, behavioral innovation economics, strategic entrepreneurship, competitive advantage, expected capability theory

INTRODUCTION

Financialization is the term used to describe the increase in size and influence of finance, financial markets, and financial institutions in society over time (see Phillips, 1993; Diaz-Rainey et al., 2015; Davis and Kim, 2015). It is a driving force in the economy, and knowledge management has enabled it. Since roughly the early 1970's the knowledge bases of financial firms have evolved rapidly with innovations in technology, data sets, quantitative tools, and automation, usually referred to in total as "fintech." Because of this, financial firms have been forced to become intelligent complex adaptive systems (ICASs) in order to achieve what Schwaniger (1993, 2000) calls *viability beyond survival*, or what we call *capability*.

Following the ICAS definition, financial firms are now “organization[s] designed to continuously adapt to and co-evolve with [their] environment (Bennet & Bennet, 2004).”

One area of financialization not often studied is the structured products industry, which already totaled \$7 trillion in assets in 2019, far larger than the ETF market (\$5.3 trillion), and more than double the hedge fund market (\$2.9 trillion) (Bloomberg, 2019). Since then, annual sales of structured products in the US have accelerated, from usually around \$50 billion per year prior to 2020 to around \$115 billion in 2023 (Bannerji & Wallerstein, 2022; Fernandes, 2024; Structured Retail Products, 2023). But this growth has lagged that of other areas of finance. Whereas the academic literature on structured products aims to understand if they are fairly priced (see Grünbichler & Wohlwend, 2005; Stoimenov & Wilkens, 2005), in this paper we investigate the reasons for this lag and how firms that issue structured products are now exploiting new opportunities. Unpacking both the issuers’ supply/demand relationship with investors and their new internal structure develops a clear and concrete example of how knowledge management leads to *capability*.

Issuers of structured products are large financial institutions with unique knowledge bases—market data, customer data, trading acumen and trading strategies, risk management, marketing and sales. Through interviews with industry professionals, we identify these knowledge bases and how issuers manage them to exploit retail (rather than traditional institutional) investment opportunities. The interview data sheds light on how issuers’ sources of competitive advantage drive *capability*. We find that silos (or functional groups) within the issuers have their own goals and compete for revenues and resources. This leads to internal conflicts, heuristic compromise, and therefore sub-optimal, though satisficing, performance (see Cyert & March, 1992). We also find that co-evolution with the investment environment and knowledge management across silos are key drivers of success.

The interviews began with three framing questions:

1. Why has growth in the retail structured products industry lagged that of many other financial services?
2. What are the internal structures and sources of competitive advantage that issuers have developed to exploit opportunities and survive in this competitive marketplace?
3. How does the flow of knowledge affect the behavior of the organizational silos as the market has evolved?

We also gathered evidence from the industry literature to independently verify the results extracted from these interviews. We categorize the data collected according to the methodology of Gioia, et al. (2013) and then integrate it with a behavioral model called capability theory (see Kumiega, et al., 2014; Cooper, et al., 2022). We derive this approach from the academic literatures on innovation and strategic entrepreneurship, which focus on survival through sustainable profits, which arise from “identifying opportunities ... and then developing competitive advantages to exploit them (Ireland et al., 2003, p. 966).” For our purposes, competitive advantage is a position or state of a firm that allows it to generate better performance than its rivals (see Porter, 1980). Firms with competitive advantage survive; those without it eventually fail. *Sources* of competitive advantage, then, are those organizational abilities that put a firm in such a position or state. This is all part of strategic management’s resource-based view (see Barney, 1991), which studies how firms employ their resources and competencies—their tangible and intangible assets, such as brands, knowledge, skills, networks, machinery, internal processes, culture, and capital (Wernerfelt, 1984)—to develop those organizational abilities. We tie these disparate concepts together with capability theory to model decision-making in ICASs.

Because competitive advantage positively affects performance (see Ferreira, et al., 2020), we are then able to discuss the links between the theory and the data. Our results provide insights for both researchers and industry professionals about how effective knowledge management leads to organizational survival. We find that the retail structured products market developed more slowly than other financial services because it requires both sophisticated fintech to lower costs and to enable significant investor education and a more complex organizational structure to manage retail relationships. In general, firms that follow this pattern use knowledge management to enhance the capability of each silo but need special competencies to

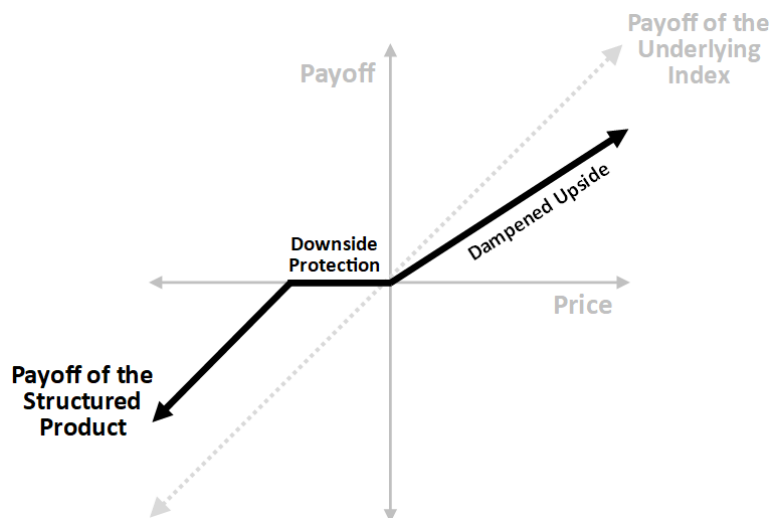
enhance the capability of the firm as a whole, since lack of knowledge is not the only thing preventing performance maximization.

The remainder of the paper proceeds as follows. The second section explains the economic motivations of retail investors. The third section explains the motivations, structure, and theory of structured product issuers. The fourth section presents the data regarding the sources of competitive advantage. The fifth section discusses the connections between the theory and the data, and the practical implications of our research for knowledge management professionals. Some concluding remarks follow.

RETAIL INVESTORS

This section has the bare minimum of economic theory necessary to explain why retail investors are attracted to structured products. For our purposes, a structured product is an investment consisting of a bond and a portfolio of derivatives that delivers a combined payoff with downside protection and dampened upside relative to that of (typically) an equity market index (see Das & Statman, 2013; Breuer & Perst, 2007; Blundell-Wignal, 2007; and Bavoso, 2020). If the index goes down, the structured product investor loses nothing or at least less than the index. In exchange for this protection if the index goes up, the investor makes less. Figure 1 presents an example payoff diagram for a structured product. The bottom line is that the payoff structure in Figure 1 is more attractive to retail investors because they are more risk-averse than traditional institutional investors and will, therefore, pay more on average to reduce risk.

FIGURE 1
PAYOFF OF A STRUCTURED PRODUCT AND THAT OF THE UNDERLYING INDEX



For simplicity, we assume that both retail and institutional investors are “rational.” As such, they maximize an expected utility (i.e. happiness) function, which trades-off expected return and their individual level of risk aversion. Figure 2 shows that a *risk-neutral* investor (i.e. one with no aversion to risk) ignores the variability of returns altogether, and simply aims to maximize returns. Such an investor is indifferent to investing in the underlying asset (e.g. some equity market index) or a structured product on that index (assuming the expected return is the same). The investor derives the same expected utility $E(u)$ from both.

FIGURE 2
THE UTILITY OF A STRUCTURED PRODUCT FOR A RISK-NEUTRAL INVESTOR

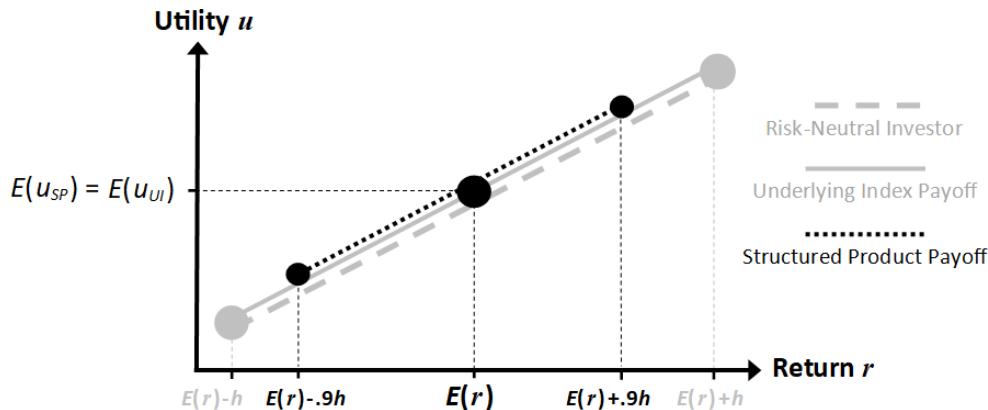
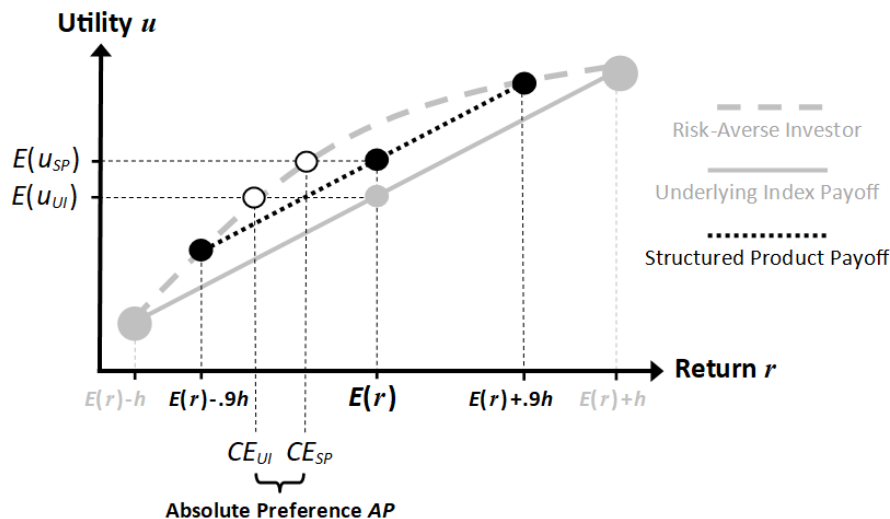


Figure 3 shows a *risk-averse* investor. Worry over increasing risk keeps their utility function from being linear and makes it convex, or frowning. Such an investor derives more expected utility from the structured product $E(u_{SP})$ versus the underlying index $E(u_{UI})$. That retail investors are more risk-averse than institutional ones is the key factor driving the recent growth in the retail structured products industry. Improved knowledge management, enabled primarily by fintech, is now able to exploit this. Let us explain in more detail.

FIGURE 3
THE UTILITY OF A STRUCTURED PRODUCT FOR A RISK-AVERSE INVESTOR



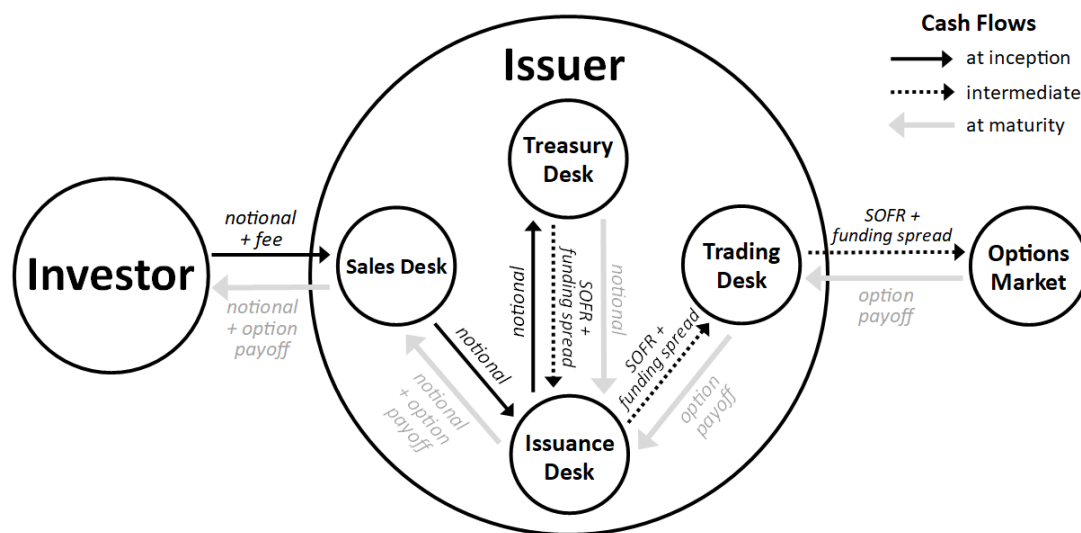
Consider a simplified, one time-step scenario for some index with an expected return $E(r)$ and two states, up and down some return h . As in Figures 2 and 3, the payoffs for the index are $E(r) + h$ and $E(r) - h$, represented by the gray line. Now, assume a structured product based on that that index and represented by the dotted black line, which delivers (say) a 10% dampened return. This return is $E(r) + 0.9h$ in the up state, and $E(r) - 0.9h$ in the down state represented by the black dotted line. (Notice that in both Figures 2 and 3 the expected return $E(r)$ is the same for both graphs). For the risk-neutral investor in Figure 2, $E(u_{SP}) = E(u_{UI})$, but for the risk-averse investor in Figure 3 $E(u_{SP}) > E(u_{UI})$. This would also be true for a more complex payoff structure as in Figure 1.

Figure 3 shows the certainty equivalents CE_{UI} and CE_{SP} , which are the riskless returns an investor would accept now, instead of a higher, but uncertain, return in the future. The greater the level of the investor's risk aversion, the greater their absolute preference $AP = CE_{SP} - CE_{UI}$ for the structured product. The greater the investor's level of risk aversion, the more they are willing to pay for the structured product payoff versus that of the index. Retail investors prefer structured products more strongly than institutional ones. For the issuer then, the maximum fee they can charge for a structured product is $E(r) - CE_{SP}$. In the past, this maximum fee has not been large enough for issuers to profit from retail investors. But fintech has now lowered the costs of retail investor education and marketing, account onboarding and monitoring, regulatory compliance, and transactions in bonds and options, thus making this market potentially profitable. But fintech has also demanded new know-how and new understanding of the retail marketplace. Product and process innovations have brought a new organizational structure and new culture.

THE STATE OF STRUCTURED PRODUCT ISSUANCE

In this section we describe the organizational structure of a typical issuer as revealed in the interviews. Figure 4 shows this structure and the cash flows that arise from issuance. Following the black arrows, the retail investor invests some notional amount plus the fee. The sales desk forwards that notional amount to the issuance desk, which in turn forwards it to the treasury desk. The treasury desk invests the notional amount in relatively safe investments (e.g. bonds) that generate a risk-free return plus some additional return that is a function of that firm's investing expertise, called the funding spread, which the treasury desk keeps as revenue. Following the dotted black line, these interest payments are sent to the trading desk, which uses them to enter into options positions that hedge the issuer's market risk. The trading desk enters into options positions that at expiration payoff with the appropriate structure, like (say) the one in Figure 1. The trading desk also earns some additional revenue on these transactions from its market-making activity.

FIGURE 4
THE ORGANIZATIONAL STRUCTURE OF AN ISSUER



At maturity, following the gray arrows, the trading desk returns the payoff of the options positions to the issuance desk, and the treasury desk returns the notional value of the fixed income investments. The issuance desk then returns the sum of these payoffs back to the investor. The customer gets their notional investment back plus the net option payoff. The firm keeps as revenues the fee, the funding spread, and the market-making income. But having multiple desks with multiple revenue streams creates complications.

While the issuing firm has an overall profit goal (i.e. a required return on investment), each desk also has its own goal and their own claims to the revenues. Jobs and bonuses depend on each desk's profitability and ongoing survival. The desks compete for those revenues and the resources that enable them. Conflicts arise, and conflicts lead to heuristic compromise, sub-optimal decisions, and performance satisficing (Cyert & March, 1992). Thus, unlike the rational investor, who optimally considers only expected return and market risk, the issuer is "boundedly rational" (see Simon, 1955, 1957, 1976). It cannot make optimal decisions due to incomplete and imperfect information, time and resource constraints, and ad hoc internal conflict resolution. Improved knowledge management can reduce these effects, but not eliminate them.

This organizational behavior is driven by retail demand. When investors were primarily institutional, internal conflict was less acute. A single \$100 million investment with 1% fee would simply generate a list of required internal work items. Serving (say) 1000 retail investors each with (say) \$30,000 requires processes and procedures, systematized product development, marketing, and hedging, and back-office processes that demand operational efficiencies to justify their function. Financialization has changed the required knowledge bases, and issuers have had to adapt to the new organizational structure. While the retail market opportunity has grown, the need for internal harmonization and process optimization to exploit it has also increased. Where an institutional investor-focus does not require the four distinct circles in Figure 4, a retail-focus does.

Risks and Opportunities of the Issuer

The opportunity for the issuer, lies in the possibility of earning positive expected profits by satisfying the demands of more risk-averse retail investors, who are willing to pay a higher fee. But the new organizational structure has necessarily led to new costs and new business risks. Fintech has lowered the cost of issuing customized (or differentiated) structured products for retail investors, but only for issuers that have developed the necessary competitive advantages to exploit fintech capabilities.

With institutional investors, the issuer faces primarily market and interest rate risks, which it assumes in return for a comparatively small fee. With retail investors, the issuer faces new demand risk and legal risks related to suitability regulations. Like any retail business, though, the issuer has to sell enough units to cover its costs and build a reputation with satisfied customers. These complexities have heightened each desk's awareness of their own opportunities, risks, and costs.

Risks and Opportunities of the Silos

- **Sales Desk.** The sales desk is customer facing and the ultimate source of top line revenue. All revenues begin with the sales desk, giving them the natural claim to the lion's share of it. But the sales desk also assumes the lion's share of the demand risk. Controlling the effectiveness and costs of marketing is the key success factor.
- **Issuance Desk.** The issuance desk is essentially the back office, and does not generate its own revenue. Rather it depends on the other desks for revenue contributions. Although essential and responsible for accounting and account maintenance and compliance, this desk is usually viewed solely as a cost center. This makes efficient use of fintech in creating and managing structured products and customer accounts their primary focus.
- **Treasury Desk.** The treasury desk is the investment arm of the issuer. It earns the funding spread over the cost of capital by pooling retail investors' money, buying bonds and swaps, and managing interest rate risk. This function is complicated by (sometimes extreme) variations in retail demand which are outside of its control. Issuers attempt to control this risk with "lock up periods," where investors cannot withdraw their money.
- **Trading Desk.** Due to fintech, the trading desk has become one of the least risky parts of the business. The exact trades necessary to generate the required payoff structure are automatically calculated and executed. But its market-making revenues are increasingly slim and depend on continuous order flow, which is outside of its control. In a differentiated product market, lowering the costs of execution, record keeping, and risk management requires fintech leadership.

Capability Theory of the Issuer

In this section, we review capability theory as a model of decision-making, where the firm's goal is to earn sufficient profits with sufficient reliability (see Kumiega, et al., 2014; Cooper, et al., 2022). Capability is essentially analogous to what Schwaniger (1993, 2000) calls viability beyond mere survival. Because dynamically complex environments mean performance is emergent (i.e. cannot be predicted *ex ante*), heuristic adaptation and satisficing behavior becomes necessary. And, since internal silos (i.e. the four desks) also seek to be individually capable, the role of top management is therefore to define their roles and responsibilities and quell conflict.

Given some expected revenue per transaction and some distribution of transactions per day and per month N , the issuer attempts to predict whether the various revenues π —the investor's fee, the funding spread, and options market-making revenue—will reliably cover the fixed and variable costs c including its profit goal, or required return on investment. This means the issuer needs the overall ratio in equation (1) to be large enough that the probability z of it being less than zero (i.e. the firm can't pay its bills and fails) is very small.

$$\text{Prob} \left[\frac{E(\pi) - c}{\sigma_\pi} < 0 \right] \leq z \quad (1)$$

(See Cooper, et al., 2022 for more mathematical detail.)

We use capability theory to understand how and why issuers, as ICASs, have adapted their internal structures and their sources of competitive advantage to improve performance and achieve the relationship in (1). That is, what have issuers and their desks done to move revenues and costs and their variabilities in directions that increase their probability of earning some threshold level of profitability (i.e. make z very small)?

SOURCES OF COMPETITIVE ADVANTAGE

Porter (1984) describes three generic competitive strategies: cost leadership, where the issuer aims to become the low-cost provider of structured products; differentiation, where the issuer aims to be the provider of structured products that are unique along dimensions valued by investors; and focus, where the issuer targets a segment of investors and tailors its products specifically to them. Understanding issuers' specific competitive advantages reveals how financialization through improved fintech and knowledge management have accelerated growth of this industry.

We conducted semi-structured interviews with 10 Chicago-based industry professionals. Representative interview data are provided in Tables A1-A3 in the Appendix, where the interviewees are referenced anonymously as #A through #J. We organized each interview around the three framing questions mentioned and added new questions in response to feedback (see Edwards & Holland, 2013). The secondary data set consists of evidence gathered from scholarly and industry literatures, which provide independent corroboration of the interviewees' comments. From the data, we extract concepts to which we assign descriptors drawn from known sources of competitive advantage. We identify three important sources of competitive advantage in the structured products industry: co-creation, market risk management, or hedging, and marketing management.

Co-Creation

One of the key elements in interviews, and one of the main reasons that the sales desk is its own silo in Figure 4 is co-creation. In the traditional model, documented in Griffin & Hauser (1993) the role of *any* producer is the development and delivery of products and services, while the role of a consumer is purely consumption. This does not work in dynamically complex environments where customers may not know exactly what they want or need, or may be unable to articulate those needs in a meaningful way. For such environments, Jaworski & Kohli (2006) suggests co-creation, where the producer and consumer engage in

iterative dialog to learn the needs of the other. The ability to co-create is an organizational ability that immediately affects the sales desk, but requires cooperation from the others to operationalize it. As part of co-creation, the sales desk must be aware of what payoff structures the trading desk can actually deliver. As one respondent explained, “If the [trading desk] does not know how to [create] those products which are usually highly customized and hard to hedge, [the sales desk] will likely lose the deal to another issuer with a strong ability to [create] (#D).”

Issuers usually sell their structured products through registered investment advisors (RIAs) and insurance companies (#E). RIAs manage retail investors’ money, and they are more sophisticated than their risk-averse retail clients (#E). Structured product investments arise from retail investors working with their RIA to approach issuers with payoff structures in mind, such as the one in Figure 1. The investor cannot implement such a structure on their own, either due to their limited financial knowledge or some compliance requirements that prohibit it (#E). This leads to sales driven by co-creation of customized structured products for investors by dialog between the issuer and the RIA. As Kristensson, et al., (2004) and Brown & Hagel (2005) discuss, co-creation fosters innovation and promotes product differentiation. When an issuer co-creates with its customers, it will be exposed to novel ideas, which naturally leads to product differentiation. Co-created products, then, are more highly valued, warrant higher fees, and enhance the social embeddedness of the issuer’s reputation, indirectly increasing sales opportunities (Tuli, et. al., 2007). Further, Ramaswamy (2009) finds that co-creation can reduce development costs by reducing uncertainty in customer product approval. Product co-creation is what drives co-evolution of the issuers’ products and processes with the changing investment environment.

Hedging

As alluded to in the previous section, a primary impediment to creating a customized structured product is delivering the promised payoff structure without assuming undue financial risks. Hedging consists of various techniques and transactions to reduce these risks. Since these co-created products are combinations of option portfolios and fixed income investments, an issuer is most akin to an insurance company. “The main purpose of hedging is to take the net investment purchase proceeds of the structured product and manage it to be left with the final payoff amount for the investor (Mortimer, 2022).”

Hedging is a firm’s organizational ability to deliver a structured payoff while limit its own exposure to the price movement of the index, changes in volatility, and interest rates movements by using (sometimes partial) replication strategies. As indicated by interviewees #A, #B, #C and #D and the industry literature, (see Taleb, 1997), hedging occurs at both macro and micro levels. At the micro level, “when a [structured] product is sold, the specific risks of the product are immediately registered on the trader’s book (#A).” The trader then may buy or sell certain options to offset the exposure by replicating its payoff. However, as indicated by #B, the exact replication is not always the most cost effective. As a result, traders often try to approximate the payoff (#C). At the macro level, the options desk acts as a portfolio risk manager (#A and #D). The trader manages the risk exposure of the firm’s entire inventory of structured products (#C). Doing this well, allows the sales desk to sell, the issuance desk to issue without fear of loss, and the treasury desk to focus on trading fixed income investments, all knowing the customer’s promised payoff structure is assured. The trading desk’s profit from market-making is directly related to the amount of order flow they process from the issuance desk, minus the cost incurred in the process (#B). Effective hedging improves the denominator in (1) directly and the numerator indirectly. Fintech has facilitated the ability to hedge effectively in both the micro and macro senses, by reducing costs, enabling online access and iterative dialog with retail investors, systematic order entry and execution, and the mass-customization of structured payoffs.

Marketing Management

Marketing management is a term we use to combine two well-understood marketing concepts— value propositions and marketing resources. “A customer value proposition is a strategic tool facilitating communication of an organization’s ability to share resources and offer a superior value package to targeted customers (Payne, et al., 2017).” “Marketing resources represent broad value propositions that affect the

stakeholders in any business and firms that generally deploy these resources to gain a competitive advantage in the market (Davicik & Sharma, 2016).” Together, marketing management is the ability to manage the retail relationship marketing process across operational silos while maintaining an overall cost structure, and it is a distinct competitive advantage in the structured products industry.

Interviewees #I, #J, #K, and #L specifically talked about the fact that structured products at their firms were developed as a result of co-creation. This causes clients to feel an emotional bond with the issuing firm. Thus, the issuer can control and modify its customer relationships. Its sales desk can exploit the emotional bonds with products that leverage the firm’s cost and hedging abilities as the environment evolves. The academic literature confirms this finding. Rowe & Barnes (1998), who define “four perspectives of relationship marketing (“locking in” customers, customer retention, database marketing, and building strong, close, positive relationships),” suggest “that only those organizations that build strong, close, positive relationships with their customers have the potential to develop a sustained competitive advantage that may lead to above normal performance.” Structured product issuers appear to exemplify this model of behavior.

Knowledge management plays an integral role in marketing management as a source of competitive advantage. Knowledge management from the perspective of ICAS is the bridge that spans the advantages derived from the outward-looking co-creation and from inward-focused hedging. Continuous adaptation in response to the complex and dynamic opportunities in the market for retail investments, risks in financial markets, and the enabling fintech environments is paramount. By harmonizing the relationships among the silos through understanding of the customer and guiding the customer’s understanding of the firm, good marketing management reduces demand risk, overhead costs, and allows the issuance desk to operate efficiently. Thus, this organizational ability has a direct effect on all terms in (1). The overall effect on the firm’s continued capability flows from its ability to adapt its knowledge management appropriately.

DISCUSSION

Table 1 summarizes the sources of competitive advantage and how they affect the variables in the capability theory model (1).

TABLE 1
SOURCES OF COMPETITIVE ADVANTAGE AND THEIR IMPACT ON SURVIVAL

Source of Competitive Advantage	Description of Impact on Performance	Impact on the Performance Variable
Hedging	Generates market-making revenue.	$\pi \uparrow$
	Increases product differentiation to increase sales.	$N \uparrow$
	Reduces market risk.	$\sigma \downarrow$
Co-creation	Increases customer loyalty and sales.	$N \uparrow$
	Increases product differentiation and sales.	$N \uparrow$
	Increases the chargeable fee.	$\pi \uparrow$
	Reduces fixed costs of product development.	$c \downarrow$
Relationship Marketing	Increases sales and lowers demand risk.	$N \uparrow, \sigma \downarrow$
	Lowers costs of overhead.	$c \downarrow$

Fintech has lowered the cost of and increases the effectiveness of each of the three sources of competitive advantage in Table 1. Deploying fintech efficiently is a common theme across all silos, simultaneously enabling both differentiation focus and cost focus. More products customization has

increased the fee retail investors are willing to pay. However, only recently has fintech lowered these costs below the customers expected return minus their certainty equivalent for the structured product, or $E(r) - CE_{Sp}$. Fintech has lowered costs for each desk, making each of them more capable and the issuing firm more capable.

This research has implications for knowledge managers generally. They can use the capability framework and Table 1 to define success for their unique silos, and to focus on those sources of competitive advantage that enable it. Integrating their knowledge bases, their performance variables, and their management strategies into a single framework can clarify the path to capability. Better performance is always better, but satisficing relative to performance goals is what leads to continued employment and bonuses. Further, understanding how supporting the goals of each silo leads to improved capability of the firm helps top management quell conflicts among silos, facilitate operational harmonization, and improve morale. Because effective change management is a key contributor to survival in dynamic industries, such as financial services, iteratively testing capability's performance hypothesis can help managers navigate evolving customer demands and the new knowledge bases necessary to exploit them. As in the structured products industry, new technologies are today key enablers of product differentiation and cost leadership across the economy. Using them strategically drives capability.

Effective marketing management is essentially an implementation of the ICAS model. As a knowledge management bridge that spans the silos, effective marketing management will have sales people selling creatable products and operations creating sellable products. Then, silos work together to ensure the others continued capability, and ensure the capability of the firm. Nevertheless, it is useful to point out the caution that marketing management is not aligning the entire firm to be a unified profit maximizer. In (1), improving firm capability through coordination, harmonization, and heuristic adaptation is a goal that allows each silo to retain its individuality and personal career-stakes while taking ownership of the firm's overall success. The importance of knowledge management in providing motivation for information transfer between inward- and outward-looking sources of competitive advantage without becoming coercive and reducing adaptability applies to all firms.

CONCLUSION

The retail structured products market is a growing and evolving rapidly. This paper investigated the reasons for this recent growth using semi-structured interviews, analyzed from the perspective of capability theory. The research answered two main questions. First, the lag in development of retail structured products relative to other financial services was mainly due to the necessity of fintech lowering costs and enabling creation of individualized structured products. Second, the firms that are succeeding in this industry have definable sources of competitive advantages that make them more capable than their rivals. These firms are likely to survive.

The sources of competitive advantage are the outward-looking ability to co-create new products, the inward-looking ability to successfully implement through risk-hedging the fabrication of these products, and the firm-wide ability to manage the various complexities of information flow among the silos that make operationalized transactions. Thus, this industry is a rapidly evolving mix of finance and technology-centered knowledge bases and knowledge management.

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APPENDIX

**TABLE A1
DATA ON HEDGING**

Primary Data	
Secondary Data	
<p>“When a product is sold, the Greeks of this product is immediately registered on the trader’s book. He then needs to trade certain things to offset the exposure.” (#A)</p> <p>“A trader’s goal is to try to replicate the payoff of a product in terms of its Greeks in a cost-efficient way. However, he does not always try to exactly replicate the payoff of a product because sometimes it is impossible to do so for some exotic options and at other times it is just not worth it.“ (#B)</p> <p>“Smoothing Greeks is key because it just makes it a lot easier to rebalance. A lot of exotic options have Greeks that have erratic behavior or even flip signs. Especially towards maturity. That’s just not easy to manage. So, we will just trade to mimic the positions of those exotic options but not quite.” (#C)</p>	Micro
<p>“This encompasses the intimate knowledge of the behavior of every derivative product with respect to time and market movement and the thorough thinking in multiple dimensions required by the derivatives trader's function.” (Nassim Taleb, 1997, <i>Dynamic Hedging: Managing Vanilla and Exotic Options</i>.)</p>	

<p>“A trader doesn’t just hedge one product. He has an inventory of products to hedge. He is a portfolio manager who tries to maintain the book’s overall exposure to all kinds of risks under a certain limit.” (#A)</p> <p>“A trader doesn’t get paid because he speculates. The profit comes from the premium of the products which is split between the salespeople, the structurer and the trader. The less cost the hedging incurs, the more money he makes.” (#B)</p> <p>“An issuer sells a lot of different products, some of which don’t exactly qualify ‘structured products’ and are possibly hedged by different trading desks.” (#D)</p> <p>“Sometimes, a trader will tell salespeople that he is short too much gamma and he wants products that can cancel out some of the exposure. He will encourage salespeople to try to sell those products even at a lower price. Because it’s good for the book.” (#D)</p>	Macro
<p>“Investors appreciated our capacity to extend our product mix very quickly for new underlyings, new payoffs and new product types..It can be beneficial to investors if they can access products with more interesting yields, but we as an industry need to pay proper attention to the appropriateness aspect of products. There is a risk of damage to this whole business if the industry doesn’t manage this with the due level of care we owe to investors.“ (Banks ride record structured products boom after dismal 2020, IFR)</p> <p>Tompkins (2002) points out that in practice, hedging for exotic options often needs to deal with the four issues: 1) hedging in discrete versus continuous time, 2) transaction costs, 3) stochastic volatility, and 4) non-constant correlation.</p> <p>“As ESG equity indexes proliferate and investors become increasingly discerning, demand for structured notes linked to niche and bespoke sustainable indexes is rising. Hedging such products, though, is challenging...”(Rega-Jones, Risk.net, 2021)</p>	

**TABLE A2
DATA ON CO-CREATION**

Primary Data
Secondary Data
<p>“Advisors will approach us with a trade idea. If we can’t hedge it or we don’t feel comfortable hedging it, then we really can’t make it. Pricing and hedging of derivatives are really the two sides of the same coin.” (#D)</p> <p>“These clients are looking for ways of asset allocation other than just holding stocks, ETFs and bonds. They tend to be more sophisticated than retail investors.” (#E)</p> <p>“We usually sell these products to RIAs who manage portfolio partially made of these products to their wealth clients.” (#E)</p> <p>“We also sell structured products to insurer who due to legal obligations cannot directly trade exotic derivatives but want novel exposure and can use structured products.” (#E)</p> <p>“Insurers in general are sophisticated investors that they tend to approach us with certain trade ideas.” (#E)</p> <p>“The transaction timeframes are longer than more classic financial products, since they involve an ongoing dialogue with clients to structure trades that work for them not only in terms of the economic payoff, but also in terms of its effect on their balance sheet profile, or knock-on effects to overall portfolio diversification.” (#F)</p> <p>“A structured trade can progress from idea to trade as quickly as a week, or as long as a year for large scale projects which involve a strategic shift in a client's product offering for example. (#F)”</p> <p>“A structurer is really a financial engineer who specializes in creating and analyzing bespoke derivatives products to enhance investment solutions .”(#G)</p>

“Sometimes a Client will approach us with a trade idea. We will evaluate it with the client. We may counter-offer because, for instance, we may not have certain expertise in creating the product. For instance, we don’t have a trading desk in Japan, so we really can’t properly hedge a note that’s written on a Japanese stock. But we do have a trading desk in Singapore, and we will show that the counteroffer is just as good.” (#H)

“Every bank is good at certain things. The way we as structurer work with a client is that we talk with a client and understand their needs and then if necessary, pivot a little so that we get to fully utilize our expertise while fulfilling the client’s needs. Because we only get to sell a product at a competitive price if we are truly good at making it”. (#G)

“The Goldman and Credit Suisse notes were custom-designed to meet the specifications of particular clients. “ (Structured Notes: The Risks of Insuring Against Risks, The Wall Street Journal).

“A survey of 700 financial advisers in the US has found that the main driver of interest in structured products is customised risk/reward trade-offs” (Structured products attract with risk/reward and protection, Risk.net, 2014)

“Hybrids can provide simple access not only to equities and bonds but also to a wide range of asset classes, including new markets with high potential but which are usually hard to invest in directly: oil, gold, currencies, base metals, etc. “ (Hybrid structured products are hotter than ever, Risk.net, 2005)

““The key consideration for us has been how to shift the distribution client segment towards solutions bringing less illiquid risk to the books ... and to fortify the other side of our client base that helps us to recycle the remaining risks as these volumes keep growing,’ said Alexandre Isaaz, global head of equity and hybrids payoff structuring at Citigroup.” (Banks ride record structured products boom after dismal 2020, IFR).

“BNP Paribas Global Equities and Commodity Derivatives offers a full range of equity, fund, and commodity-linked products which can be customised to address the various needs of financial institutions and hedge funds as well as corporate and retail clients. “(BNP, 2010).

Organizations are concerned about attracting customers who want to contribute their ideas to the collaborative process (Chepurna and Criado, 2018). The banking industry is particularly interesting in analyzing the transition toward a value co-creation strategy (Mostafa, 2020). The fierce competition in the banking arena has facilitated e-banking as the most cutting-edge electronic-based and self-service distribution channel (Malaquias and Hwang, 2019).

Ramaswamy (2009) find that co-creation reduces the costs and risks associated with development. By understanding what consumers' value and engaging in active dialog and interaction, firms have been able to develop superior value propositions relevant to their target consumer base.”

**TABLE A3
DATA ON MARKETING MANAGEMENT**

Primary Data
Secondary Data
<p>“We have our own wealth management department which has distributors and internal wealth advisors who serve ultra-high-wealth-individuals.” (#I)</p> <p>“We (distributors) spend a lot of time hosting workshops and presenting new products to both internal wealth advisors and sometimes external wealth advisors. Our job is to cultivate a nice relationship with them and educate them. about new products.” (#J)</p> <p>“We (distributors) always go to internal wealth advisors first. Sometimes they will approach us with some trade idea. Then we will talk to the structurer who will evaluate if we can make the product. Other times, an external advisor or independent wealth management firm will approach us, who doesn’t have an internal distributor or their issuer can’t offer a product at a competitive price or offer an interesting payoff structure they want. There are only certain external advisors or institutional investors, such as insurers we will deal with. Mainly because we don’t try to target external advisors that much. It’s mostly customer retention than exploration.” (#K)</p> <p>“We have long term relationships with our clients. This means we are trying to provide a portfolio of SPs over a period of time rather than one or two on an opportunistic basis.” (#L)</p> <p>“Many distributors of SPs in the UK have a wide choice of providers (we call them Plan Managers). A Plan Manager is the go between that trades the SP with the bank and distributes to the buy side (Walker Crips, Meteor are the Plan Managers we have used previously)... The Plan Manager produces an FCA approved brochure and settles the trade with the counterparty (the distributor)...As the Plan Manager takes up to 2% we use an intermediary called IDAD. Trading is via a Factsheet rather than a brochure and we settle trades directly with the counterparty (bank). This means we can reduce their fee (IDAD’s fee is no greater than 1%) which means we can achieve better returns or lower risk terms for our SPs vs the rest of the market. (#L)</p> <p>“Big banks have close relationships with these intermediaries such as Plan Managers and IDAD which also form close relationships with independent distributors like us.” (#L)</p>
<p>“The challenge for JPMorgan will be convincing top-performing financial advisers to stick around and keeping its newly acquired customers happy as they move into the country’s biggest bank by assets. JPMorgan has said it is gaining 229 financial advisers from First Republic and about 80 branches that will be converted into JPMorgan offices.” (Adding the personal touch to wealth management, Financial Times)</p> <p>“Wealth management and the private banking industry have a specific client-banker relationship that goes beyond the formal communication between a bank and its high net worth clients. I have been in this industry for a long time now, and I can tell you that investors value relationships and trust people, not sleek pitch decks, products, features or big numbers. I’ve found that regardless of age, people generally trust other people, not chatbots or robots.” (People Over Products: Why Private Banks Should Focus On Relationships, Not Sales, Forbes)</p> <p>“In a rushed bid to ride out the storm sweeping American finance, 94-year-old Merrill Lynch & Co. agreed late Sunday to sell itself to Bank of America Corp.” (Bank of America to Buy Merrill, Wall Street Journal)</p> <p>Rowe and Barnes (1998) examined “each of the four perspectives of relationship marketing (“locking in” customers, customer retention, database marketing, and building strong, close, positive relationships). They suggested “that only those organizations that build strong, close, positive relationships with their customers have the potential to develop a sustained competitive advantage that may lead to above normal performance”. Hennig-Thurau, (2000) and Kangal, Balakrishna (2009) have similar findings.</p>