



BancZero New Product Development

“Porqué no podemos completar la transaccion del swap? Ya estamos a Diciembre, y empezamos a trabajar en esto en Junio. Que está pasando?”¹

That was the complaint made by Fernando Manzanilla, head of derivative products sales in BancZero’s Mexico City office, to Ricardo Elizondo, Technology and Operations new products manager. For more than six months, T&O had been working on a currency swap product requested by the Developing Markets Sales and Trading front office in Mexico City. Local clients were asking for a flexible currency hedging alternative to existing products; in response, the front office had created a financial product that met those needs, and aggressively marketed it. At the same time, it requested that T&O begin developing the technology and operations infrastructure to handle the offering. Yet, with clients eager to close the transaction, T&O was still not yet ready.

Manzanilla and Elizondo were arguing about the status of the project as they prepared for a project review meeting with Susan MacLaughlin, worldwide head of Risk Management, and a member of the board of directors. Manzanilla had been pressuring Elizondo to finish the project, but Elizondo remained concerned about a number of unresolved operational issues.

The Financial Services Industry

Financial intermediation was as old as money itself—Sumerian documents dating from around 3000 BC showed the granting of loans for agriculture, for example, while Hammurabi’s code, written around 1800 BC, contained sections on the regulation and granting of credit.² Beginning in the 12th century AD in the Italian city-states of Genoa, Florence, and Venice the first formal banking institutions appeared, taking deposits and making loans to merchants, governments, and royalty. Even derivatives were not new; organized exchanges for trading financial futures and other early derivative instruments were set up in Amsterdam as early as the 17th century. How the activities of borrowing, lending, and investing were carried out, however, altered dramatically, so that by the late 20th century the following broad institutional forms could be distinguished:

Commercial Banks granted credit to individuals and companies, and took demand and interest bearing deposits.

¹ “Why can’t we close this swap deal? It is now December, and we started work on this back in June. What’s going on?”

² Homer, S (1977), *A History of Interest Rates*, 2nd Ed., New Brunswick, NJ, Rutgers University Press.

Charles M. Williams Fellow Alberto Moel and Professor Marco Iansiti prepared this case as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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Investment Banks made loans and granted credit to large corporations, institutions, and governments; loans were funded by issuing liabilities, which were bought by other large institutions. Investment banks also underwrote new securities on behalf of corporations and governments, structured transactions such as mergers and acquisitions, and gave financial advice.

Traders and Market Makers engaged in the buying and selling of securities, both in organized exchanges and markets, such as the New York Stock Exchange (NYSE), and in over-the-counter (OTC) transactions. These institutions bought and sold for their own account and for their clients.

Investment Management firms collected funds from individuals and institutions, pooled the funds, and invested them in other securities in search of a financial return.

A single bank or financial services company might have units dedicated to different functions. For example, most large banks had investment banking, trading, and investment management divisions, thereby offering a broad range of financial services.

Innovation in Financial Services³

Always a hallmark of the financial services industry, innovation accelerated swiftly with the advent of electronic computing in the late 1940s and early 1950s, which led to increasingly lower transactions costs. By the mid 1990s, the decision to implement a financial innovation was generally based on a simple cost-benefit tradeoff. When transactions costs were reduced, the incentive to introduce an innovation previously considered unprofitable was greater. As the costs to change were reduced, it became profitable not only to introduce new products and services and develop new markets, but to modify existing institutional arrangements (including geographical presence) more elastically. Much smaller shifts in customer preferences or smaller reductions in operating costs were sufficient to trigger changes previously deemed not cost-effective.⁴

Merton⁵ postulated that the financial system's evolution could be viewed as an innovation spiral, in which organized markets and intermediaries competed with each other statically and complemented each other dynamically. Indeed, the history of innovative financial products suggested a pattern whereby products first offered by intermediaries would ultimately migrate to markets. For example:

Junk bonds. Junk bonds arose from the untapped borrowing needs of small companies, and from the realization that these firms' default risks did not justify the high interest rates charged. Junk bonds linked investors in search of higher yields with borrowers willing to pay them. With the establishment of junk bond markets, mutual funds, pension funds, and individual investors were able to purchase these bonds directly, allowing this new class of investors to fund corporate issuers that had previously depended on banks as their source of financing.

Mortgage bonds. Similarly, the rise of national mortgage markets allowed mutual funds and pension funds to purchase mortgages from thrift institutions, and to compete with these same institutions as funding sources for residential mortgages.

Interest rate and currency swaps. The exchange of fixed income assets and liabilities across asset and liability classes and currencies lowered companies' borrowing costs. For example, company

³ This section is based on the work of Merton and Hayes, cited below.

⁴ See, for example, Hayes, S.L. III (1993), *Financial Services: Perspectives and Challenges*, S.L. Hayes III, ed., Boston: Harvard Business School Press.

⁵ See for example, Merton, R.C., (1993), "Operation and Regulation in Financial Intermediation: A Functional Perspective" in *Operation and Regulation of Financial Markets*, P. Englund, ed., Stockholm: The Economic Council.

A, able to borrow favorably in yen at floating rates, might want fixed rate dollar financing, while company B could borrow at low fixed dollar rates, but wanted floating rate yen liabilities. A swap, arranged through a financial intermediary, lowered the borrowing costs of both companies. Swaps began in 1982 as specialized over-the-counter transactions but quickly became commoditized and widely traded.

When products had standardized terms and were widely available, and when enough information about them existed to determine a fair price, financial markets tended to be more efficient than intermediaries, which were better suited for low-volume custom products. As new products, such as options and swaps, entered the market, their terms became standardized, and their transaction volume increased; they therefore moved from intermediaries to markets. The proliferation of new trading markets in these products, moreover, made the creation of new custom-designed financial products more feasible. The new market boundaries could extend geographically (e.g., derivatives in Mexico) or along new segments of existing markets (e.g., swaps of different terms). The increase in transaction volume in these new markets reduced transactions costs. This led intermediaries to develop more new products and trading strategies, which in turn led to still more volume, repeating the cycle.

Growth in the markets was propelled both by intermediaries, who created the new products, which formed the basis of new markets, and by increasing transaction volume in existing markets. On the other hand, intermediaries used markets as the building blocks for constructing new customized products. Hence, even though markets and intermediaries competed, they also complemented each other in the innovation spiral.

The financial innovation cycle was characterized as follows:

Low capital investments. New product development did not require large capital investments, only human capital.

Low cycle times. Development of new financial products was rapid, and new products were sold to clients based on meeting customer needs at lower costs. Sometimes new products filled an otherwise latent need.

Low barriers to entry. Financial products were not patentable and could not be copyrighted, and were therefore quickly copied by competitors, reducing first-mover advantage.

Fast testing cycle. Financial products could be quickly tested in the marketplace, determining their success or failure rapidly and leading to a fast(er) innovation cycle.

BancZero

BancZero, headquartered in New York City, was the holding company for a number of subsidiaries that provided a wide range of financial services around the world. One of the largest banks in the United States, BancZero had achieved great success in the securities business. Important to its ability to make large inroads in well-established markets and gain market share were its credit rating and large, stable capital base.

Because BancZero carried out a strict credit screening process, the amount of its bad debts was substantially smaller than that of other banks its size. Although some claimed that BancZero was too conservative and lacked creativity in its lending policies, from the bank's standpoint, most of loans it denied did not offer sufficient returns given the risks involved. Additionally, BancZero was rather cautious when increasing transactions with a particular customer. It increased the size of its exposure only if the additional risk provided a more than adequate return.

BancZero aimed to attract and retain clients with a broad range of financial service needs, for example, market-making in foreign exchange, derivatives, fund raising from various markets, advisory, and mergers and acquisition services. Large conglomerates needed such services, and BancZero focused on increasing its transactions with these corporations rather than expanding the size of its client list.

Overseas divisions were important sources of profit. BancZero had established an unrivaled position in Europe and in parts of Latin America, far ahead of other commercial and investment banks. It had recently turned its attention to the emerging markets of Asia and Latin America. Investors from advanced countries were eager to enter emerging markets, and clients in the developing countries were beginning to need the bank's skills.

BancZero's internal organization consisted of Corporate Finance, providing comprehensive services for institutional clients; Markets, serving market clients; and Asset Management, offering investment management services to clients. The Legal, Technology and Operations (T&O), Financial, and Audit divisions supported the other three divisions, as shown in **Exhibit 1**. The basic rule in BancZero's structure was to create an organization that benefited clients. Its practical formulation was an established procedure by which employees of various divisions formed a "relationship team" for each client and cooperatively provided comprehensive services.

In all of its businesses, BancZero and its subsidiaries operated in an highly competitive environment, especially with respect to services and pricing. In the U.S, it faced competition from other money center bank holding companies, investment banks, many regional and foreign banks, and a wide range of non-bank financial institutions. Globally, the firm faced competition from investment banks, commercial banks, and universal banks in the money centers of Europe, Asia, and Latin America.

BancZero and Derivatives

A financial instrument whose value was *derived* from an underlying asset or index, derivatives were structured as contracts or agreements wherein the underlying asset was interest rates, foreign currencies, securities, commodities, or financial or commodity indices. Examples of derivatives included options, futures, forwards, and swap contracts. With a strong presence in the derivatives market, BancZero had a number of competitive advantages that made it a desirable counterparty for a wide range of clients: a strong capital base, high credit rating, expertise developed over many years, global distribution capabilities, and long-standing client relationships.

Derivative contracts were either negotiated with specific counterparties (over-the-counter) or standardized contracts executed and traded on an exchange. Negotiated over-the-counter derivatives included forwards, swaps, and specialized options contracts. Standardized exchange-traded derivatives included futures and options contracts. Although over-the-counter derivatives were generally not traded like securities in an exchange, they might be terminated or assigned to another counterparty. The terms of the agreement, the timing of cash flows, and other special considerations were generally determined by a contract written and signed by both parties.

BancZero utilized derivatives extensively in its trading and asset and liability management operations. As part of its trading activities, it acted as a dealer in derivative instruments to meet clients' risk management needs by structuring transactions that allowed clients to hedge their exposure to prices of securities and commodities, financial indices, and interest rates. BancZero also took positions based on its assessment of market expectations and to benefit from price differentials between different instruments and across markets. And it used derivatives extensively as hedges to transactions carried out with clients as part of the client's risk management activities. Members of the

local sales organization and the local office senior management, unlike most other bank employees, were compensated in part with a negotiated percentage of the transaction amount.

As an end user, BancZero utilized derivative instruments in the management of its asset and liabilities. Derivatives were used to hedge exposures to interest rate or currency fluctuations, and to modify interest rate characteristics of balance sheet instruments, such as loans, short-term borrowings, or long-term debt.

BancZero and Risk Management

With the increasing flow of trade and capital, derivatives proved efficient tools for managing risk and implementing basic business strategies across national borders; they essentially were innovations responding to new needs in the global marketplace. As a derivatives dealer, BancZero was oriented towards helping clients manage risk, not trading for its own account. The average credit quality of its derivatives exposure was well above the high quality of its traditional loan portfolio.

BancZero was extremely careful in minimizing the risks inherent in its derivative operations. These included market, liquidity, credit, legal, and operational risks (described below). Comprehensive risk management processes had been developed to facilitate, control, and monitor risk-taking, and control mechanisms were in place at different organizational levels. Especially important was the Risk Management group, in New York, headed by Susan MacLaughlin, a member of BancZero's board. MacLaughlin had a bachelor's degree in mathematics and a Harvard MBA. Her 20-year career at BancZero had spanned a variety of functional assignments, including credit analysis, capital budgeting, and large loan approvals. Previous to her current assignment, MacLaughlin had been the world wide head of Technology and Operations and was instrumental in spearheading BancZero's push into emerging markets. She was known both for her sense of humor and uncanny ability to mediate between the salespeople and the operations staff.

Risk Management included an independent group that oversaw the overall risk profile at BancZero, as well as specialized units within Audit, Legal, Financial, and Technology and Operations. All these groups were involved in monitoring risks from a variety of perspectives and ensuring that businesses were operating within established corporate policies and limits. New businesses and changes to existing ones were subjected to new product reviews to convince this group that all significant risks were identified and adequate control procedures in place.

Market Risk

Market risk represented the uncertainty that future cash flows were exposed to due to changes in the value of portfolios of derivative instruments. This risk was a consequence BancZero's derivative exposures in the market-making, position-taking, and asset and liability management activities in the interest rate, foreign exchange, equity, and commodity markets.

Estimating potential losses arising from changes in market conditions was a fundamental element of managing market risk. BancZero employed a value-at-risk methodology to estimate such potential losses, whose main measure was "Value at Risk" (VaR). This measure took into account numerous variables that could cause a change in the value of the portfolio of derivative contracts, including interest rates, foreign exchange rates, securities and commodities prices, and their volatilities, as well as correlations between these variables.

With VaR, BancZero estimated potential market risk related to using derivatives in trading, position-taking, and asset and liability management activities. Management set global daily VaR limits for each of these business activities. The level of risk a business should assume was based on

overall objectives, the business manager's experience, client requirements, market liquidity, and volatility. Within these global limits, business managers set regional, local, product, and trader limits as appropriate.

On a daily basis, BancZero estimated VaR for each derivative instrument and for all derivative instruments combined. Similar daily estimates were made for asset and liability management activities. Risk Management reviewed a daily report of profit and loss, total positions, and BancZero's global market risk profiles.

Credit Risk

Credit risk arose from the possibility that counterparties might default on their obligations to BancZero. When a derivatives counterparty had an outstanding obligation to the bank, this represented an implicit asset to the firm whose probability of payment was linked to the counterparty's credit quality. BancZero was also exposed to credit risk in the payment and securities settlement transactions for its own account as well as for clients.

Managing credit risk had both qualitative and quantitative aspects. The qualitative aspect involved determining the creditworthiness of the counterparties. Credit officers evaluated the credit quality of the firm's liabilities and counterparties and assigned internal credit ratings based upon this evaluation. These officers, along with the business managers, were responsible for credit screening and monitoring. Credit officers with direct knowledge of the client's creditworthiness set credit limits for individual clients and counterparties. Risk Management regularly reviewed established limits and actual levels of exposures.

The quantitative aspect of credit risk consisted of measuring credit exposure to the counterparties. BancZero's senior management, located predominantly in New York, was responsible for establishing the framework of policies and practices required to measure such risk. BancZero measured credit exposure in terms of both current and potential credit exposure given the counterparty's current and expected credit quality.

Liquidity Risk

Liquidity risk arose in the general operation of BancZero's derivative transaction activities and in the management of derivatives positions. The major liquidity risk in derivative transactions was that of being unable to liquidate a position in a timely manner at a reasonable price.

Legal Risk

Legal risk came about from the uncertainty of the enforceability, through legal or judicial processes, of the obligations of BancZero's derivative counterparties. BancZero tried to remove or minimize such uncertainty through constant consultation with internal and external legal counsel in all countries where it had offices or clients. It took extreme care in drafting contracts that were enforceable and valid in all countries where the firm conducted business.

Operational Risk

Operational risk represented the potential for loss caused by a breakdown in information, communication, transaction processing, or settlement systems. BancZero attempted to eliminate or reduce operational risk by maintaining a thorough system of internal controls, which included maintaining key backup facilities and undertaking regular error-recovery planning. Internal controls also involved the establishment of systems and procedures to monitor transactions and positions, and extensive documentation of all derivatives transactions.

BancZero and New Product Development

At BancZero, new product ideas could originate from the client, who suggested the new product to the bank, from traders and salespeople, who saw a market need, or from business managers, who realized that the bank had to offer a given product as part of its business strategy. The process was driven by a search for new forms of revenue. A new product assumed various forms:

- **New business.** Any new activity that exposed the firm to operational, financial, or other risks not previously encountered and which required that a new support infrastructure be introduced (e.g., establishing a securities lending desk).
- **New financial product.** Any introduction of a new service within an existing business that required a significant change in operating or support procedures (e.g., a new kind of derivative contract.). As in a new business, a new product might also expose the firm to certain risks.
- **New instrument.** The trading of a new security within an existing product line. New instruments represented products that were currently traded but differed in terms of the issuer or the country of the instrument. For example, currency swaps, widely available in the US, would be a new instrument in Mexico.
- **New market.** Any business initiative that resulted in developing a new market for either an existing or new product.
- **New location.** Any new business initiative that involved either locating professional staff in a new office or required significant change in the legal or capital structure of an existing location.

In the past, whenever a new product was proposed, either through internal idea generation, or in response to competitive pressures, an *ad hoc* team would form, led by the person most interested in the product's success. The team leader would converse with different functional groups and discuss the new product's requirements. Each functional unit would then work on developing the product according to its own priorities and schedules. The process was not formalized, but there was enough implicit knowledge and experience among the people involved that it moved along reasonably well.

However, changes in the marketplace and the increased unease that the growth of derivatives was causing for market players had led to a recent change. The increasing rate of product innovation and the firm's increased emphasis on risk management were straining the informal new product development policy. The lack of accountability, unclear reporting relationships, and lack of formal authority were causing confusion among the people entrusted with developing and implementing new products, leading senior management to formulate a new product approval process. The motivation behind this move was to introduce a structured process by which the new product's risks and requirements would be clearly documented and dealt with.

The New Product Approval Process

The objectives of BancZero's new product approval process were to ensure that:

- The risks associated with new products were defined, analyzed, and understood, and procedures to manage them were in place prior to product launch.

- The needed support infrastructure would be put in place in a timely manner to permit smooth and well-controlled operation.
- Any conflicts or overlaps with existing businesses were identified and resolved, important inter-entity linkages were defined and control procedures in place before proceeding.
- The pace of the product's expansion was consistent with the bank's capacity to manage the risks associated with the new product.

Given the dynamic nature of financial innovation and a firm's strategy to compete in servicing the constantly changing needs of sophisticated clients, it was difficult to provide an all-purpose definition of "new product." As a result, business judgment was required to determine what constituted a new product and for which special risk management review. As a general guideline, a new product was any new or modified financial instrument, trading activity, or business venture that resulted in risks that deviated from those already taken in existing products or which entailed significant incremental risks.

The standard operating procedure at BancZero for a new product was the following (see **Exhibit 2**):

1. A proposal was written for the new product. Proposals for a product were usually initiated by a sales and trading or corporate finance professional. The new product proposal usually included the following:
 - *Description*: Product overview, features, benefits, target market, expected volumes, revenues, risk profiles of targeted client base, transaction steps, and typical work flow.
 - *Risks*: Description of types (types of market risks, types of credit risks, etc.), measurement and reporting methods, potential controls.
 - *Financial information*: Projected impact, start up costs, price schedules, accounting, tax implications, funding.
 - *Implementation plan*: Responsibilities of key support groups, timing and availability of personnel and systems.
2. Once the business manager approved the product proposal, a new products manager from the operations area became responsible for coordinating the product introduction and ensuring that deadlines were met. The new products manager's role in product introduction had several components (see **Exhibit 3**):
 - Gain consensus on product categorization. This step was critical to the entire process because the conclusions reached would determine the degree of effort required to implement the product. The new products manager completed a product approval proposal (**Exhibit 4**) with information gathered from the product sponsor, which was then distributed to the various support disciplines. Based on their response, the new products manager could either submit the product to a detailed new product approval process, or obtain sign-off from the support groups, indicating that the new product could be handled, and then advise the front office that the new product was ready.
 - Identify the working group. The new products manager had to identify a working group to sign off on the product. The working group included (but was

not limited to) representation from the business group (e.g., Sales and Trading, Corporate Finance), Operations, Legal, Financial, Audit, and Risk Management. Clearly, judgment was needed to determine the applicability and relative importance of the items for each product under review, and the need to involve various functions in the review.

- Complete a “new product task list” if a full new product approval process was required. A new product task list (**Exhibit 5**) ensured that key issues had been addressed prior to sign-off. Each support group completed the relevant section of the task list, which became part of the final document. Each discipline was expected to document its findings and opinions. Every new product had to be signed off by the business managers and support groups involved before it new was introduced.
- Manage the implementation of all tasks required to commence business in the product. Implementation included completing all steps in the workplan described in the new product task list, and a test trade to verify and clarify procedures. Also, the new products manager generally produced interim status reports and a final post-implementation report on the product introduction, ensured that sign-offs had been obtained, and maintained documentation.

The role of the new products manager was central to the successful introduction of new products. That individual had to understand the product completely, and then assign tasks to each group to get things done; he or she had to understand the concerns of each functional group and know when to apply pressure to get things done.

The new product cycle depended strongly on the product’s complexity, novelty, and urgency and could range from one-and-a half to three months. Simple products required shorter documentation cycles, a shorter new product task list, and usually went through fewer development cycle iterations. Complex products could involve many more people’s effort and attention. Also, an urgent need for the new product could sometimes cause the product description document and other documentation to be written at the end of the product development cycle, instead of at the beginning.

The most important new product development phases were the stress test and the test trade. The stress test calculated the product’s impact on the bank’s balance sheet and income statement to extreme changes in market variables. Extreme currency and interest rate volatility was simulated, and the value of the profit and loss position calculated for a large range of extreme values. The test’s purpose was to predict, with as much certainty as possible, the effect of a new product on the bank’s bottom line. A potentially highly profitable product might not be allowed to proceed to the test trade stage if the risks involved in transacting the product were too high.

The stress test was usually designed and executed by a quantitative support person in the front office. It involved developing extensive software, typically a couple of weeks’ worth of intense programming. The work would be based on existing software models developed by the New York office. Although the stress test was run in a standalone system, not linked to any real market transactions, real market data was used to analyze the potential market risks associated with the new product. Running a full stress test, therefore, required market information and a clear description of the product’s functionality.

In a test trade, a simulated transaction involving the new product was performed using actual systems and procedures. The objective was to validate the product’s operational side. The test trade was used to reconcile all remaining technical and operations loose ends in the product development cycle, and to prepare the system for an actual client transaction. The number and extent of unresolved issues at the time of the test trade varied with the product, with more complex and novel products requiring more cleanup work after the test trade.

Running a test trade typically meant simultaneously coordinating the activities of several dozen people scattered in New York, London, and other offices, since the bulk of the systems development group was in New York, yet bookkeeping operations (i.e., the tracking of the transaction through its life) were in London given its convenient time zone. A successful test trade might take two to three hours, with the group in constant contact to verify that the software executing the transaction was actually working as specified in all locations. During this time, considerable effort was usually spent debugging software and information flow problems. A test trade might be repeated a few times over the course of a few days until the system worked as required.

BancZero's Mexico City Office

The Mexico City office had been opened to take advantage of new business opportunities in emerging Mexican markets. The office's management (see **Exhibit 6**) was all transferred from other BancZero offices, mainly from Buenos Aires and New York. Fluent in Spanish and English, staff members were experienced local hires from other investment banks and brokerage houses. In addition to opening the office, hiring local staff, transferring systems and management, and establishing client relationships, the office had to cope with volatile economic conditions. The startup phase was chaotic.

The head of derivative product sales, Fernando Manzanilla, was hired from a competing investment bank, where he had been head of sales and trading—and one of the most successful salespeople in the bank's history. The T&O new products manager, Ricardo Elizondo, was hired from a large local bank, where he had been assistant comptroller. Elizondo had asked for a sales position but was told that the biggest need was in T&O management.

Elizondo's job was to make sure that a host of financial products were ready for transacting, while at the same time putting out fires in other areas where he had previous expertise. Initially, the bank offered basic financial services, such as currency exchange and government bond trading. Even these relatively simple products required a major effort, however, since legal approval and permits had to be obtained, systems purchased, and operational procedures developed, all of which occupied the time and effort of Elizondo and the office's other support groups.

The salespeople were making a strong effort to obtain new business from local companies, selling BancZero as a full-service operation willing to provide unusual financial expertise, for example in derivatives and complex financial transactions, that was unavailable elsewhere. The clients, eager to enter into such transactions, would work with the salespeople in creating transactions tailored to their needs. The salespeople, in turn, would request that the support groups develop a certain transaction capability or a new product.

Currency Swaps in Mexico

One such new product was currency swaps. A swap contract obligated two parties to exchange two defined cash flow streams at specified intervals, for a specified period of time. Suppose, for example, that Mexican Company A, a real estate concern, had borrowed abroad US\$10 million for 5 years at a fixed rate of 10% a year to purchase and develop land for houses. Company A would build and sell these houses to Mexican clients, who would finance their purchase by taking a mortgage in Mexican pesos (at Mexican interest rates fixed, say, at 20% per year). Thus, Company A would have Mexican peso assets and US dollar liabilities. To service its US dollar borrowings, Company A would have to take in the Mexican peso payments from the home buyers and convert them into US dollars at prevailing spot rates in order to make the US dollar interest payments, thereby exposing Company A to foreign exchange risk. To avoid this, Company A could enter into a

currency swap with BancZero: BancZero would make Company A's US dollar interest payments and in exchange, Company A would forward the home buyers' Mexican peso payments to BancZero.

But now BancZero would be exposed to *exchange rate* risk. For example, if the currency depreciated from 7.50 pesos/dollar to 15 pesos/dollar, the incoming cash flow from the Mexican company would be the same, but twice as many pesos would be required to make the US dollar interest payment. The swap would also expose BancZero to *interest rate* risk. If interest rates in the US dropped from 10% to 8%, BancZero would be paying 10% to the US counterparty when the market demanded only 8%. Thus, the liability that BancZero took on by agreeing to pay the US dollar cash flow would be larger when revalued at the 8% cost of capital. This would impact BancZero's balance sheet and thus reduce its ability to make new loans. Similarly, if interest rates in Mexico increased from 20% to 30%, the asset that BancZero held from Company A would be worth less, since BancZero was receiving 20% for the loan, when the market was willing to pay 30%.

Also, by entering into the swap, BancZero became exposed to *credit risk*, both from the home buyers and from Company A. If a home buyer defaulted on the mortgage, Company A would still be obligated to pay BancZero the fixed amount. However, since Company A's cash flow was now reduced, its ability to service its debt to BancZero would be also reduced. This would imply that BancZero would want to charge Company A a higher interest rate for the loan. However, the contract specified a fixed 20% interest rate, and thus BancZero would effectively be lending money to Company A at rates below those demanded by the market.

BancZero, as a large diversified bank, however, had the ability to hedge some of these risks. It could hedge exchange rate risk by buying dollars forward to cover the US dollar interest payments, i.e., agreeing to purchase US dollars in the future at a pre-agreed price. This way, if the currency depreciated, BancZero would be insulated from currency fluctuation. But in the Company A case, BancZero would not be able to hedge all its risks, since some of the hedging instruments necessary to fully insulate BancZero from all risks with Company A either were not available in Mexico, or the fees charged by the counterparties to take on the risk were too high.

In exchange for providing the swap, therefore, BancZero would charge an intermediation fee plus a spread on the cash flows exchanged, in order to cover some its risk exposure. The salespeople had presented this product to clients, who were more than willing to enter into transactions with BancZero under BancZero's terms.

The Swap Project

Manzanilla first proposed currency swaps to BancZero's business management group in Mexico City in May, six months after the office opened. A number of clients had requested peso/dollar currency swaps, and Manzanilla realized the new product had great potential as a revenue source. The office manager gave verbal approval to proceed with new product development, which was entrusted to Elizondo. The office manager and Elizondo agreed that the project was of sufficient size and complexity to require significant changes in operational and support procedures. Thus, the new product had to be subjected to a full new product approval process review (**Exhibit 5**).

The complexity of currency swaps was far above anything the office had developed to date. The number of unanswered questions was staggering, and their resolution involved dozens of people in Mexico, New York, and London, where all offshore swap transactions were eventually logged. The existing software systems would require extensive modification to handle the new product. Regulatory approval had to be obtained. The product's impact on the income statement and the VaR limits for the office had to be calculated from the ground up.

As a first step, Elizondo went through the new product task list, assigning each task to the relevant group, and estimating the completion time. In late June, in a teleconference with all the support groups (shown in **Exhibit 3**), Elizondo outlined the tasks to be completed, the corresponding

deadlines, and the estimated product introduction date. The group agreed that a late September test trade would not be unreasonable. The salespeople proceeded to talk to potential clients, indicating that actual trades with BancZero as a counterparty would be available in early October. The clients, although slightly disappointed with the time lag, agreed to wait for BancZero to prepare the systems for the trade. Meanwhile, rumor had it that the competition was working on similar products, but clients were willing to wait for BancZero on the strength of its relationships, reputation, and credit quality, and the knowledge that the bank would not introduce a new product before it was ready.

Previous time commitments on the part of Elizondo the salespeople, and the working group made progress slow. The legal aspects of the transaction occupied the internal and external counsels' time, who had to negotiate with the regulatory authorities for permission. Software development had to be transferred to New York, since Mexico City had neither the resources nor the time to modify the systems to handle the new transaction. The financial group had difficulty determining credit lines and credit standards for the proposed counterparties, since no precedent existed for the transaction.

General product meetings were held every two weeks. The status of the currency swap project and of other projects was discussed, and revised schedules proposed. The product design was modified several times in response to regulatory constraints on the kinds of booking allowed by the Mexican regulatory authorities. Each modification involved small changes in the task list, sometimes resulting in backtracking and repeating work previously completed.

By mid-September, it was clear that the late September test trade would be delayed. Particularly troublesome was the pricing and valuation model. An existing US - G7 pricing model, used to price currency swaps between the US dollar and European currencies and the Japanese yen was modified to support the Mexican peso. However, the peso was a particularly volatile and unstable currency, and the model's assumptions regarding currency stability had to be reexamined. Meanwhile, the authorities had not responded to the request for executing currency swaps, so it was agreed to proceed with the test trade without the regulatory approval once all the systems worked. The assumption was that if the systems worked, regulatory approval would be a formality. Based on a late September review of the progress to date, the group agreed to a late October test trade, with actual client trades as soon as regulatory approval was obtained.

Work proceeded in ironing out the issues with the pricing and valuation model, and with the booking system. E-mail and phone communications between New York, London, and Mexico City were constant. Since the swaps' booking system was in London, the time difference made communicating with the systems staff difficult; people had to be tracked down for multiple conference calls, where progress was discussed and new deadlines set. The salespeople scoped out the marketplace for potential competitive pressures. It was not clear whether competing products were ready, or competitors were just "fishing" for business.

In mid-October, it was clear there were too many systems issues to be completed for the test trade to run at the end of the month. Against salespeople's objections, the test trade was again delayed, until the end of November, to give the support group time to wrap up loose ends. Fortunately, regulatory approval was obtained in late October, making system completion the priority. The Mexico City office manager put on pressure for the work to be finished, giving the currency swap product the highest priority in the office.

However, in late November, just before the test trade, the product failed the stress test, which was carried out by members of Manzanilla's staff in Mexico City. The preset VaR limits were easily broken under the extreme volatility of exchange rates and interest rates. The office manager ordered an analysis of Mexican interest rates and currency volatility to determine the historical probability of such volatility. A similar study for the G7 currencies had indicated that such a stress test failure would be extremely unlikely. However, the Mexican markets were unstable enough that the likelihood of a large loss was much higher.

The test indicated that the probability of a slight loss was less than 5% (a “slight” loss could amount to as much as 2% of the principal of the transaction—principals were typically tens of millions of dollars). The probability of a large loss (more than 10% of principal) was as high as 1%. On the other hand, testing estimated that the expected return for BancZero was above 10% of principal.⁶

A group of senior risk managers from New York flew to Mexico City to determine the level of risk that the bank would be willing to bear in order to roll out the product. Raising the VaR limits or reducing the dollar amount of the swaps was discussed. Manzanilla compiled a future forecast of interest rate volatility which showed that extreme future swings were unlikely, but senior management was not convinced.

The Test Trade

By December, the situation had come to a head. The competition was rumored to be ready to roll out a similar product. The systems people were ready to carry out a test trade, regulatory approval had been obtained, and support work almost completed. But senior management in New York was wary of allowing a test trade without a satisfactory resolution of the stress test. They felt that risk exposure should be further analyzed before the product was authorized.

However, performing a significant amount of analysis and modifying the product to meet the current stress test standards could take three or four weeks, or longer if changes had regulatory, legal, or operational implications. Alternatively, raising the VaR limits or changing other stress test specifications was discussed, but no precedent existed for such changes. Manzanilla pushed for either approval of the product or a waiver of the checklist sign-off. He felt strongly that his clients were about to defect to competing banks for similar products.

Ultimately, the decision lay with Susan MacLaughlin, the opinionated head of the risk management group in New York.

⁶ For comparison, in a typical G7 trade, the probability of a slight loss was less than 1%, the probability of a large loss was less than 0.1%, but the expected returns to BancZero were on the order of 1%.

Exhibit 1 BancZero: Organizational Structure

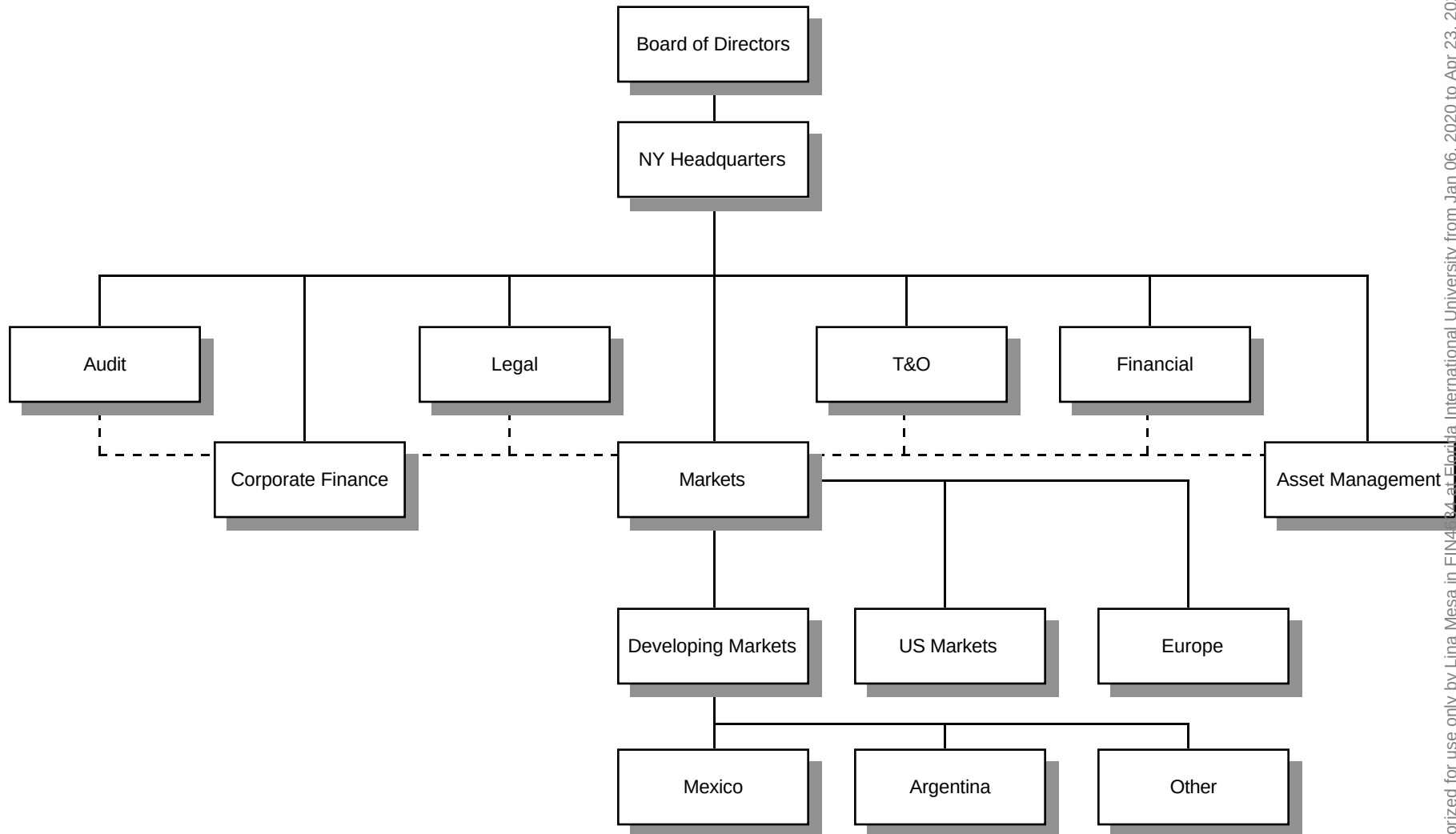


Exhibit 2 New products approval process

New Products Procedure Flow

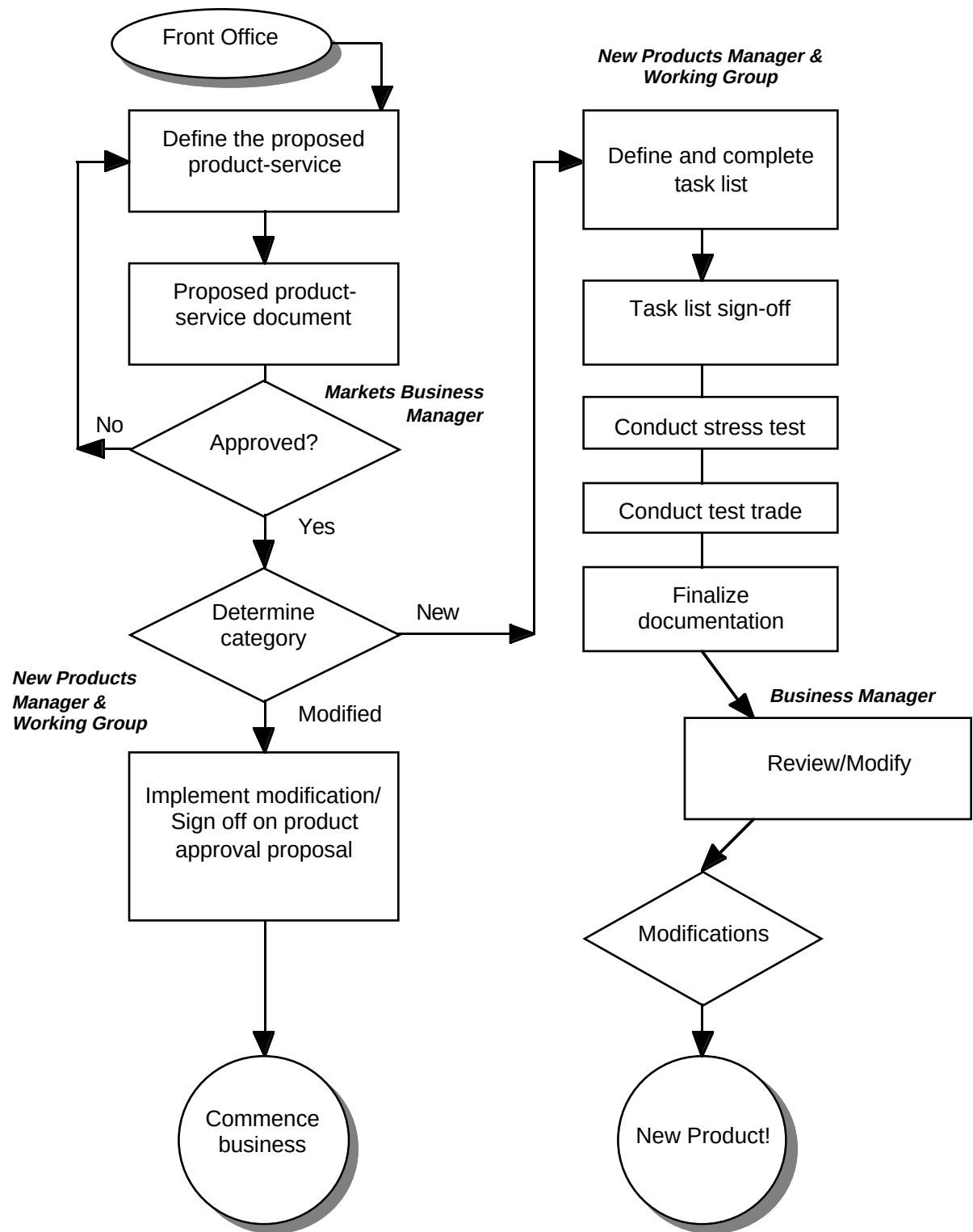
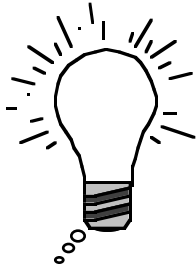


Exhibit 2 (contd.) New products approval process

New Products Procedure Overview

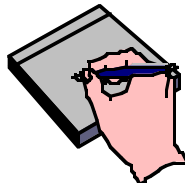
1. Proposal—front office



Document the business or products including:

- Targeted clients
- Volume projections
- Risks
- Expected Revenues

2. New Product Plan—New Product Manager



- A. Agree on the categorization of the product
(i.e. new or modified)
- B. Identify the Working Group
- C. Complete the Product Approval New Products Checklist
- D. Obtain approval for New Products Implementation

3. Implementation—Support Group



- A. Conduct Stress Test
- B. Conduct Test Trade

Exhibit 3 Role of new products manager

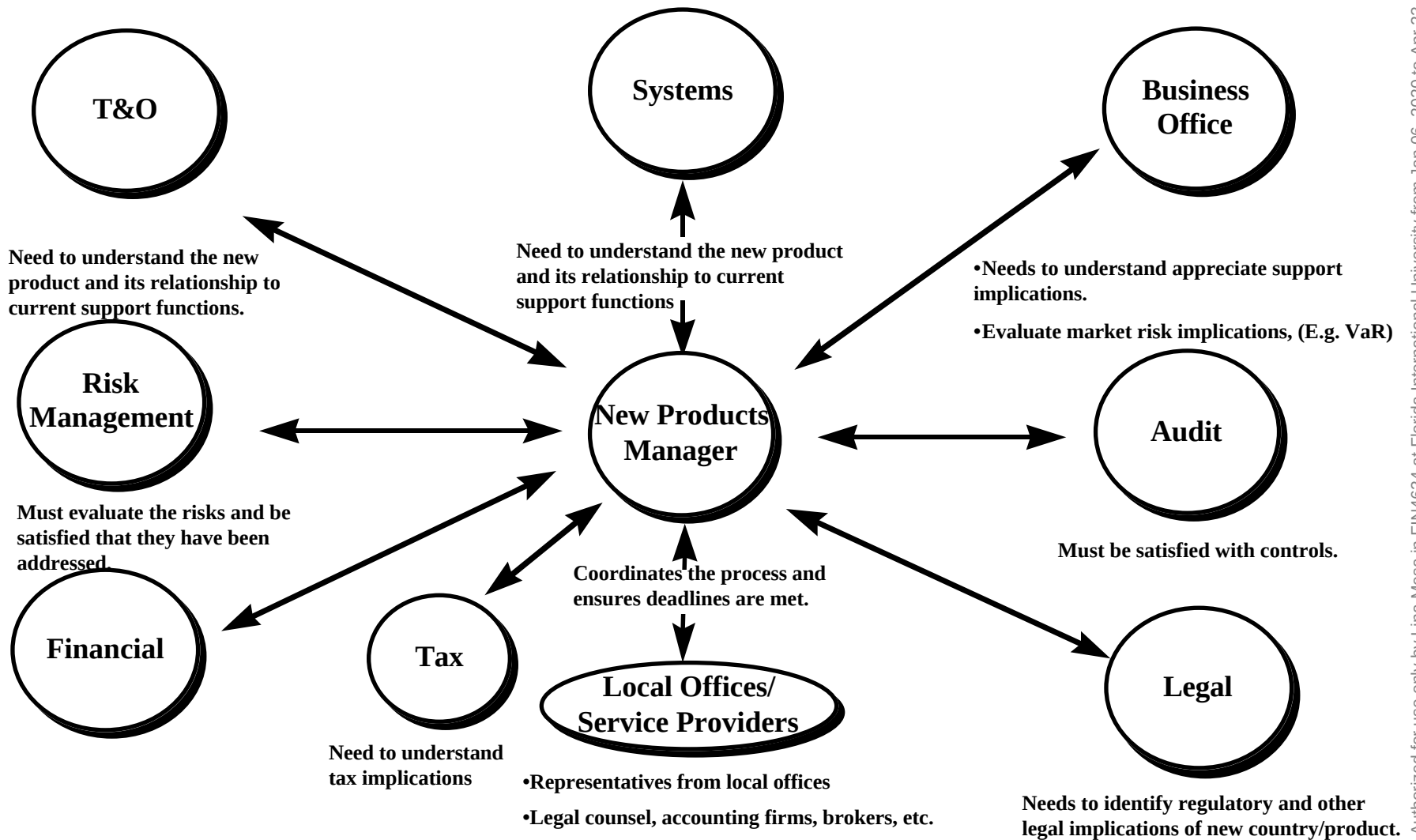


Exhibit 4 Product approval proposal

This form is to be utilized by the T&O New products manager to efficiently determine the ability of the various groups to support the new product without submitting it to a detailed new product approval process. This form will be used for any products which in any form deviate from something previously done, i.e., different currency, country, etc.

In the description/transaction flow section, the product specialist will include a short description of the product/transaction, with accompanying processing flows. The description will include volume projections, targeted clients, and expected revenues. The description will also illustrate the differences between this and other similar products/transactions. The completed form will then be furnished to representatives of the groups listed below for signoff. In the event that three (3) or more groups determine that the product/transaction represents a significant increase in risk, operational procedures or in resources needed to adequately support this transaction, a detailed new product approval process will be initiated. Additionally, there may be instances where a single group has an issue of such magnitude that the product/transaction may be unable to be implemented (i.e., the Legal department deems the activity to be illegal). This short form process is designed to efficiently and expediently bring to light such instances, as well as hasten the introduction of products/transactions in a controlled environment.

Description of Product/Transactional Flow

Expected Profitability (include revenue and estimated costs): \$
 Expected Volumes (one-off or expected to be repeated-how frequently):

Area	Name	Significant Change Yes/No	Date
Financial			
Legal			
T&O			
Tax			
Other			
New products manager			
Marketer/ Sponsor			
Business manager (last)			

Exhibit 5 Detailed new product approval task list

Task to be completed during analysis	Primary Accountability	Other Area(s) Involved
Business Strategy		
Sponsor new strategy.	Business Manager	
Understand and document the economics of the new activity.	Business Manager	Risk Management
Define the capital requirements for the new product.	Business Manager	Legal + Financial
Regulatory and Legal Risks		
Identify applicable regulatory restrictions for product or business.	Legal	Risk Management
Verify client/counter party power and authority to enter into activity under its local laws and regulations.	Legal	
Determine if the applicable entity is legally authorized to do the business.	Legal	
Determine what legal documentation is required	Legal	Business Manager
Develop and implement monitoring and review procedures to ensure compliance.	Business Manager	Legal + Audit
Designate the supervisor responsible to ensure that the product is sold only to clients/counterparties for which it is suitable.	Business Manager	Legal + Audit
Determine if sufficient resources are available to support regulatory and legal requirements.	Business Manager	Legal
For securities activity only:		
Check if there are any insider trading concerns.	Legal	Audit
Ensure the traders are properly registered and/or all salespeople qualify for regulatory purposes.	Legal	Trading/Sales Mgrs. + Audit
Credit Risks		
Identify and analyze the risks of product.	Business Manager	Audit
Define procedure for monitoring exposures.	Business Manager	Audit
Market Risks		
Identify and analyze market risk.	Business Manager	Risk Management
Specify management's intention. (Hold positions, actively trade, or both?).	Business Manager	
Approve pricing methodology.	Business Manager	Risk Management
Define procedures to independently test traders' valuation.	Business Manager	Financial + Audit
Determine hedging approach.	Business Manager	Financial
Establish separate VaR or other trading limits	Business Manager	Risk Management
Define how to independently monitor those limits	Business Manager	Financial + Audit
Establish and monitor special interim limits to control the new product expansion in a measured gradual manner.	Business Manager	Risk Management
Operational and Control Risks		
Verify if all departments involved in trading/processing this new product are able to handle the expected volumes.	Business Manager	T&O + Audit
Determine if the staff's and management's level of expertise is adequate	Business Manager	T&O + Audit
Develop and document control procedures to enable contingency processing.	Business Manager	T&O + Audit
Define and, if necessary, develop credit and market risk monitoring systems.	Business Manager	T&O + Audit + Legal
Specify adequate controls for physical settlements and fails.	T&O Manager	Financial + Audit
Develop capability to report daily credit usage	Business Manager	T&O + Financial
Define management reporting requirements in conjunction with front-office.	Business Manager	T&O + Audit
Provide accurate position data to front-office on timely basis.	T&O	Business Manager+ Audit
Ensure that P&L is compared and positions are reconciled on a daily basis to the back office.	Business Manager	T&O + Audit + Financial
Ensure that the transaction will be recorded daily on the general ledger.	Business manager	T&O+ Financial + Audit
Ensure that the new activity is being coordinated with other relevant offices.	Business Manager	T&O+ Financial + Audit
Verify that the necessary new accounts/securities/books are being/have been opened.	Business Manager	T&O + Financial + Audit
Ensure that all deal/transaction documentation is maintained in a secure location, and is in compliance with all regulatory requirements.	Business Manager	T&O + Audit + Legal
Document and provide systems requirements to Systems Support.	Operations Manager	Audit

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Exhibit 6 Mexico City office: Organizational Structure

