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FINACLE CONNECT

CONNECTING THE BANKING WORLD

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Chairman and CEO, BBVA
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Co-Chairman, Infosys

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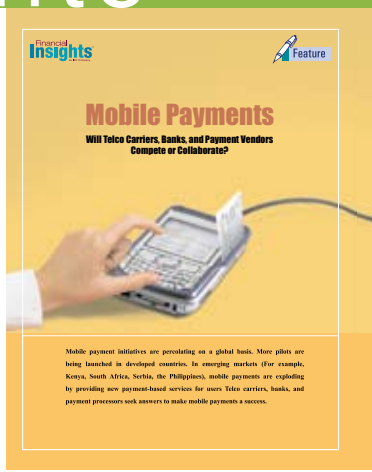

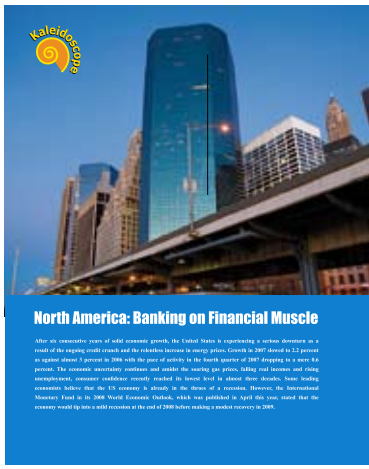

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Voice from the Desk

"When America sneezes, the rest of the world catches a cold." This phrase coined during the Wall Street crash of 1929 can certainly be applied today in the context of the ongoing financial turmoil that originated from the US sub-prime mortgage market. The Western European economies are slowing. Recently the British Chambers of Commerce issued a warning that the UK is facing a serious risk of recession within months and even emerging markets are feeling the heat. The slowdown is especially evident in the United States where the banking industry has experienced the first year-over-year decline in profits in six years. The good news, however, is that because of the six consecutive years of record earnings, an overwhelming majority of banks remain well capitalised and profitable. Kaleidoscope, in this issue of FinacleConnect, looks at key business and technology issues impacting the banking landscape in the United States.

In keeping with our philosophy of covering the latest tech-trends influencing the banking sector globally, this issue of FinacleConnect provides an exhaustive view of the mobile banking space. Over the past 18 months, several leading banks around the world have started offering mobile banking. Analysts predict that the number of people accessing banking services via their mobile phones is set to soar in the coming months. The mobile space offers exciting possibilities and rather than being regarded as yet another delivery channel, is slated to play a much more central role in the financial life of a customer. It is a second coming for mobile banking, which not so long ago, was dismissed as clunky and impractical. Mobile payments too have taken off, especially in emerging markets such as Kenya, South Africa, Serbia and the Philippines.

Banking is a mature industry with most of the leading global players having been around for some time. It is not very often that a new bank breaks into the top league. By that measure itself, the journey of Spain's Banco Santander Central Hispano from the 152nd position globally, two decades ago, to being ranked today among the top ten banks in the world is outstanding. In this edition of FinacleConnect, we have reviewed a book that explores the drivers and influencers behind Santander's success.

As usual, this edition carries several other interesting features as well. Tech Watch looks at Event Driven Architecture for banking, while in Inside Talk BBVA's chairman and CEO takes his stance on globalization and technology.

I am sure you will enjoy reading this issue of FinacleConnect. To keep our dialogue going, please do keep sending us your feedback.

Till next time!

Haragopal M

Vice President and Business Head - Finacle
Infosys Technologies Ltd.

Mobile Payments

Will Telco Carriers, Banks, and Payment Vendors Compete or Collaborate?

Mobile payment initiatives are percolating on a global basis. More pilots are being launched in developed countries. In emerging markets (For e.g., Kenya, South Africa, Serbia, the Philippines), mobile payments are exploding by providing new payment-based services for users. Telco carriers, banks, and payment processors seek answers to make mobile payments a success.

Background

The first step in our analysis is focused on what constitutes a mobile payment. The corollary to that answer also defines what is not considered a mobile payment. Understanding both sets of answers is essential to determining where mobile payments presents a real opportunity or where it is destined to fail or, at best, deliver a marginal, niche benefit to mobile customers and providers (i.e., telco carriers, banks, and payment processors).

Mobile payments is "a system for authorizing the transfer of funds between two parties that is confirmed in real time, using at least one portable wireless communications device, through a wireless data network." This definition fits well with the payment methods that are used to authorize payment for the purchase of digital content from a third party, transfer funds from one person to another through a service such as PayPal Mobile or Obopay, or as an interface to authorize bill payments to third party payees. Within this definition, banking transactions such as checking balances and transferring funds from one account to another (with the same ownership) are not considered mobile payments.

The scheme proposed for linking contactless payments to the mobile phone does not constitute a mobile payment. For example, near-field communication (NFC) technologies that are being embedded into the mobile phone are a substitute transaction device, much like the NFC chip that is being loaded onto credit or debit cards for contactless payment processing at a retail POS device.

Recently, another wave of mobile payments pilots has popped up in the United States, Canada, and across Western Europe. In the United States, the Financial Services Technology Consortium (FSTC) plans to launch a mobile payments project that will identify and document technology-based opportunities for banks in the mobile arena. Coincidentally, rapid adoption of mobile payments is occurring in emerging markets such as Kenya, South Africa, Serbia, and the Philippines. Other countries targeted for mobile payments initiatives include Egypt, Jordan, Senegal, and the Ivory Coast. The interested mobile payments participants fall into these main camps: telco carriers, banks, payment processors, and vendors (For example, Visa, MasterCard, Western Union, Monitise, mFoundry).

"Understanding the real market potential in a given country and the factors driving a solid opportunity are important."

Sorting out the opportunities, forging a plan to participate, and doing it successfully leaves many questions to be answered, particularly for bankers. One of the questions facing all stakeholders is whether to compete or collaborate with each other. Understanding the real market potential in a given country and the factors driving a solid opportunity are also important. Essential to this issue is the utility of electronic money for sender and receiver, and the access points to receive cash. Finally, understanding where mobile payments are not destined to succeed or will only achieve a tiny share of the payments volume can save time and money in spite of the forecasting hype for rapid adoption in markets such as the United States, Canada, or Western Europe.

The timing

Mobile payment debates will probably continue on over the next 10 years. The United States–based FSTC study was launched in April 2008, initially to study the mobile payments landscape. The ultimate goal is to ensure that banks will be on an equal footing when it comes

to offering mobile payments services. This project envisions more than one phase, so a timeline for actionable conclusions is not yet defined. Since the United States is the epitome of mature payments alternatives, if banks move too slowly, it will currently be considered a low market risk.

In other markets, the timing could be quite different for banks. In particular, emerging markets will not wait for the local banks, particularly where there are large segments of under-served consumers, which include India, China, and Africa. Figuring out the flow of funds and associated fees within the context of the telco carrier's business model and transaction processing infrastructure may well be the critical path to rapid adoption of mobile payments. Mobilizing money transfers from developed economies to emerging markets is also likely to contribute to the adoption of mobile payments.

"Mobilizing money transfers from developed economies to emerging markets is also likely to contribute to the adoption of mobile payments."

Assessing the impact

Mobile payments have taken on many different forms from a variety of sponsors over the past 10 years. Market participants should evaluate the opportunity for mobile payments for each country by evaluating several key issues:

- Understand the key enabling and inhibiting factors for mobile payments and rigorously estimate the demand for mobile payments in each relevant market.

- Enabling factors can include a weak or limited land-based telecommunications infrastructure. It can entail a large percentage of unbanked or under-banked consumers and small business entrepreneurs. It could also include the need for more liquid, reliable, and certain payment schemes that facilitate a money-based transaction between two unrelated parties.

- Inhibiting factors can include the existence of mature, widely used telecommunications alternatives, mature banking and payments infrastructures, alternative payments schemes that facilitate a transaction between two unrelated parties, strong governmental oversight of banking and money (including cash) transactions, and existing fee structures for mobile usage and payments/ money transfers.

- Security and compliance issues are now being examined by governmental agencies and cross-border task forces that are charged with curtailing money movement for terrorism funding and drug trafficking. How these agencies and task forces decide to combat "under the radar" money movement with evolving technology platforms (including mobile payments), could become a factor. Fraud and identity theft issues are also important because non-bank stakeholders are less equipped to address these types of risk.

- Interoperability issues seem to be important only within a country market. Cross-border regional standards for interoperability for mobile payments may eventually develop as cross-border trade or transaction processing develops for emerging markets. In developed markets such as the EU, the interoperability issue will likely track the establishment of cross-border payment processing via mobile payments. Interested parties will try to answer the question: Could a pan-regional mobile payments scheme leapfrog established bank and/or processor-controlled cross-border payments systems and standards.

Processing environments range from closed, proprietary systems tightly controlled by a telco carrier to open platforms:

- Closed systems for purchasing digital content such as ringtones or topping off a mobile exist to provide more content for the mobile customer by using the network to authorize the purchase of the content and post the transaction amount to the carrier's billing system. This transaction is similar to using a credit card to purchase goods at a retailer while the transaction posts to the card issuer's accounting system. However, a difference in the movement of money does exist as the carrier's billing system cycles on a monthly basis.

"The odds of mobile payments achieving more than a niche, or one-off presence are low."

- The carrier's closed system is difficult to penetrate for payment processors and banks. The best opportunity may come into play when more goods are purchased via the mobile device, and fulfillment requires an independent distributor. Telco carriers may not be equipped to function beyond digital content they can source quickly and easily, and they may be adverse to the risks associated with posting large dollar amounts to phone bills.

- Mobile payment systems are taking off in emerging markets such as Kenya, South Africa, and Serbia. In some cases, the mobile carrier (e.g., Safaricom in Kenya) is the facilitating agent. In other cases, the collaboration between carriers and banks, in Serbia, has produced a universal payments standard that is carrier independent and is supported by a consortium of 10 banks.

- Payment vendors such as Monitise, mFoundry, Firethorn, OpenMarket, and others are seeking sponsors to use their applications as the mobile payments platform. This niche vendor market will probably play out as has the Internet banking application marketplace through consolidation and failures.

- Payment processors (e.g., MasterCard, Visa) and money transfer agents (MTAs), such as Western Union, do not want to miss out on the action either. Card-based networks are hamstrung by their card — POS/ATM infrastructure in emerging markets. MTAs are constrained by agent networks and their infrastructures in the receiving countries.

The stature and influence of established payment behaviors and payments infrastructures are controlling parameters in developed markets such as the United States, Canada, Western Europe, and Japan. The odds of mobile payments achieving more than a niche, or one-off presence are low. Further, banks and payments processors will need to append a fee to pay for the investment in mobile payments.

Follow the fee — who pays how much to whom is the question that needs to be answered:

- Consumers must believe any mobile payments fee is worth the cost because of superior convenience versus other (if any) alternative payments. The absence of a compelling rationale for consumers will doom a mobile payments initiative, especially in mature banking markets such as the United States, Canada, and Western Europe.

- Providers, whoever they are, must achieve reasonable net operating fee income to cover investment spending and operational costs, including customer care, exception handling, and fraud losses. The bar for this answer in every developed market is both high and difficult to clear.

Guidance

Banks must carefully understand their market. In developed markets, being an innovator is very likely to be expensive and disappointing. The odds of losing significant market share to a first mover are low. Collaboration is a safer, slower, but still effective, strategy for following mobile payment developments.

In emerging markets, banks should understand the competitive landscape and align their strategy to avoid being boxed out over the delivery of payment services to significant segments of underserved consumers. Depending on the interest in local market collaboration, banks may have a choice. Collaboration may slow adoption but will ensure that banks have a seat at the table.

"Collaboration is a safer, slower, but still effective, strategy for following mobile payment developments."

One common strategy may be for banks to push their established retail payments processing networks (Visa, MasterCard) as the authorization and settlement network and add a mobile payments fee structure that parallels the foreign ATM fee model. Such an approach reinforces the value of the payment network infrastructure and overlays a fixed fee that covers the extra convenience value to the consumer.

Payment processors are the ones that should be wary of exclusion, particularly if the banks have a captive payment processing cooperative that parallels an ACH environment. If not, the payment processors will be encouraged by the standards approach, particularly if Visa and MasterCard can leverage EMV (a standard for interoperation of IC cards) into the mobile payments marketplace in multiple countries.

Payment vendors have to be concerned about timing, scale, and the facilitating technology scheme. Investors are expecting a revenue ramp up that looks like a hockey stick. Rapid adoption that leads to high volume usage is the goal. Choosing between a text (short message system [SMS]) or application-based platform should not be overlooked. SMS usage is widespread in developing markets and currently has the advantage. Application-based solutions face a telco carrier — handset challenge, forcing these vendors to meet small footprint requirements in conjunction with handset obsolescence issues at the carrier level. One key risk the application vendors face is that they outnumber the real growth opportunities. Finding multiple greenfield opportunities for high mobile payments transaction volumes may elude most vendors.

Telco carriers are guaranteed a seat at the mobile payments table within each country. However, that does not guarantee success as has been born out in Kenya. In eight short years, the two telco carrier market leaders have been upstaged by Safaricom, which now commands 80% of the market and has introduced M-PESA, its mobile payments solution, to solidify its market dominance. Telco carriers may be open to collaboration if mobile payments will stimulate more end-user demand and sustain market share for the carriers. In developed markets, collaboration between telco carriers and banks should provide the best chance for successful, widespread adoption ▪

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Mobile Banking: Possibilities Unwired

Friday, July 20th, 2001: It's been a fast-paced work week. For a good part of the weekend I'm going to have to catch up with pending chores. Among other things, bill payments and routine finance management. Thank heavens! At least that trip to the bank is a ritual I have not had to bother with for months. Internet banking is one weekend-redeemer I love. Now, let me just plan it all out. And yes remember! Remember to do it all…

Monday, July 21st, 2008: After the all-so-familiar race against time, I'm breathing easy at the airport lounge. Luggage checked in, I'm all set to take off for that 15 day workshop, scheduled on the other hemisphere of our planet. That's when it hits me…really hard. I have forgotten to pay my electricity bill again. A dark homecoming assured, if I don't act fast. Fishing out my mobile, I punch out a hasty SMS instructing my bank to pay the bill. It comes easily. After all, that's how I've been shopping, banking, ticketing, stock-trading and even socializing these days. I smile, as I think of how the same situation would have sent me scurrying in search of an Internet kiosk a couple of years ago. As if on cue, the beep on my mobile tells me I've just received a confirmatory message from my bank on having paid the bill successfully.

The call taken then…

The first wave of mobile banking hit world markets around 2001 with banks and financial institutions offering mobile banking services via SMS and the browser (WAP/GPRS).

Although customers, to start off, were wary about transmitting sensitive information like account numbers and passwords, over a text message, SMS-banking nevertheless saw a steady rise. Non-value transactions like account balance inquiries were the first to go mobile. Customers then warmed up to the SMS channel for utility bill payments and financial transactions like fund transfers.

"Non-value transactions like account balance inquiries were the first to go mobile."

However, browser-based banking, serving up a watered down version of websites, to a large extent, failed to replicate the Internet banking experience on the mobile. Key reasons for this failure include:

- Low speed and narrow bandwidth of cellular networks, with download rates in the vicinity of 80 kbps; far lower than speeds available for the Internet
- Proliferation of browser-unfriendly mobile handsets designed to deliver voice rather than data, with monochromatic and low resolution screens
- Inability of mobility vendors to present a convincing security framework to justify confidence for financial information transmission

The ringtone now…

Today, in most economies, mobile consumers are growing at a much faster rate than bank customers. Gartner has estimated that there will be 33 million mobile payment users worldwide in 2008, with the Asia Pacific taking the lead. Gartner expects this number to triple to 103.9 million users in 2011.

With every passing day, mobile handset technology is being revolutionized, to deliver so much more beyond voice. These devices are being enabled to deliver rich and attractive content to the user. In fact, in terms of usability, phones are challenging laptops and desktops too. iPhone is a prime example. Progressive banks have long since begun to urge their Internet customers to go mobile with their iPhone or iPod, to easily and securely check balances, pay bills, transfer funds, or locate an ATM or banking center in the neighborhood.

Network speeds have vastly improved too. Transmission speeds are now comparable to that of wired broadband Internet connections, with speeds as high as 3.6 mbps. Replicating and even bettering the Internet banking experience on the mobile is no more a distant aspiration.

Enhancing the acceptability of a mobile banking solution for the end customer entails some increasingly important 'to-dos'.

- The solution must leverage latest technological advances. It must provide customers with constant upgrades to help them stay on the cutting edge of technology-enabled usability
- Proven secure frameworks, including authentication and authorization mechanisms, must back data transmission and storage
- Appropriate functionality that can interface with multiple host systems must be provided
- Services must be optimized for usability and compatibility with a wide variety of mobile handsets, despite complexity in terms of varying resolutions
- A cost-competitive framework must be provided to allow exposure of new features and maintenance of existing features across all access channels via the mobile, like SMS, GPRS and WAP

- The model of operation must have minimal dependence on network service providers

As banks play by the ear…

Several recent studies conducted, point to a strong interest in mobile banking. They also reveal that mobile banking is still in its infancy around the globe. A recent Sybase Inc. research indicates that mobile banking service is almost twice as prevalent in Asia-Pacific, with 15.4 percent of those surveyed in the region reporting to have used a mobile phone to check their bank balance in the past three months. This compares to just 8.7 percent in the Americas and 7 percent in Europe, which shows there is a disparity between the demand for mobile banking services and the availability of these services.

"The model of operation must have minimal dependence on network service providers."

A pivotal drive for this seemingly univocal cheer for mobile banking worldwide, seems to be the trend among banking consumers to manage their finances to the last cent and by the minute. In both the United States and Europe, 40 percent of those surveyed claim to know exactly how much money lies in their bank account at all times and 41 percent check bank balances on a daily basis. Mobile banking services cater to this near-obsessive need, offering banking consumers the option to check account balances, transfer funds, and make payments or validate transactions, anytime anywhere.

For banks, mobile banking is another opportunity to take services where customers and their needs lie.

Platform for m-commerce

The number of potential banking customers with mobile connectivity is more than double the number of users with Internet connectivity. This means that banks investing in the mobile channel are theoretically tapping into a market that is colossal. That's why banks see merit in extending mobile banking services like fund transfers and bill payments to fit into various models of m-commerce.

Recent surveys find that 16 percent of mobile phone subscribers already use mobile banking services, with 60 percent of these people using the services at least once a week. Many others, presently not banking and buying on-the-go, expressed interest in mobile banking, with 35 percent open to checking bank account balances and transferring funds through their mobile devices. A third of those surveyed (33 percent) also said they would like to receive text message alerts from their financial institutions. About 25 percent of mobile phone users with mobile access to the Internet now use their devices to buy goods and services online using a credit card. One in five respondents (20 percent) said they would like to someday use their phones like a "mobile wallet", where charges would be billed directly to their mobile accounts. In addition, ten percent of the survey participants said they would consider wire transfers and stock trading through their mobile phones.

Branchless banking

Banks are seeking to make a strategic shift from competing on price to managing cost structures, by leveraging disruptive service concepts that span across multiple channels of delivery. They are also aggressively exploring alternative channels of customer acquisition, and means to enhance the service experience. This has effectively paved the path for financial institutions to cross-channel enable their products, pricing and transactions. The mobile as a channel of transaction is not very cost intensive, for banks that have invested in maintaining the proverbial 'white elephant branch' for decades. As a form of branchless banking, mobile banking primarily entices banks with its promise of significantly lower per-transaction costs.

Means to bank the unbanked

Mobile banking is by far the best option for financial service providers to reach the unbanked because of three main aspects:

1. **Penetration**

   In most economies, mobile usage is growing at a much faster rate than banking services, as many people have mobile phones as compared to bank accounts. The high mobile phone penetration offers a way to cheaply and rapidly provide financial services to the unbanked, something no other technology offers. Mobile banking is increasingly being seen as convenient, fast, simple, and secure.

2. **Cost**

   In banking, where margins are low – which is especially the case with banking the unbanked – financial service providers need to keep their fixed costs low. There is no higher cost than the one that involves setting up and running branches and ATM networks. Mobile banking's branchless advantage can help banks provide cost-effective services and accelerate access to their products.

3. **Infrastructure**

   Mobile banking uses the existing mobile communications infrastructure which already reaches the unbanked. Thus a bank does not have to invest time, money and effort in setting up new infrastructure. It offers the physical proximity that other methods, such as the Internet or ATMs, cannot match. With mobile phones, customers do not have to walk miles to find a branch — they are instead carrying their bank with them.

"Mobile banking is by far the best option for financial service providers to reach the unbanked."

The following example clearly illustrates the point. The Inter-American Development Bank (IDB) recently reported that unbanked Latin American immigrants working in the United States will send an estimated $45 billion to their home countries each year and are expected to send more than $100 billion annually by 2010. Globally, the remittance market is valued at $239 billion. And at $20, $50 or $100 a remittance, these people are spending an enormous amount on the transactions alone. For instance, a conventional money transfer of $200 to Mexico costs $14.99. Mobile service providers believe that by using the mobile phone as the basis for transactions, they can reduce the cost of completing most financial transactions to 0.4 cents. It can eliminate the cost of cashing payroll checks; it can reduce that $200 money transfer charge from $14.99 to $5 and reduce the cost of paying utility bills through conventional means from $12 per bill to $2.

Managing the network service provider relationship

Mobile banking is all about providing banking services over mobile connectivity (SMS/GPRS/WAP). By virtue of its very nature of operation, this brings in a certain clash of interest with respect to ownership of end customers and revenue sharing between network service providers and financial institutions. Network service providers offer mobile services for users and at times heavily subsidized handsets, while financial institutions share a relationship with the customer in terms of holding the account and credit card, owning the expertise to process transactions, and so on. Given this scenario, it is obvious that the financial institution must clearly establish the dynamics of the partnership, for business viability. Mobile banking solution providers would do well to optimize the deployment mechanism to reduce dependency on network service providers, to a viable minimum.

Mobile banking: more than banking

Mobile banking is hitherto touted as yet another channel through which customers can access

various banking and non-banking services. It supports always-on, on-demand banking. However trends suggest that mobile banking is moving away from this definition and is slated to play a more central role in the financial life of a customer.

To understand this trend, let us consider a rather simple situation of one forgetting one's wallet at home before stepping out for the day. With the wallet holding items as critical as cash, driving license, credit cards and such like, one would have to either go back to get the purse or rely heavily on acquaintances to make it through that day. Well, with a mobile wallet, you will not miss your trusty, pocket-protruding leather wallet at all.

"Mobile banking supports always-on, on-demand banking."

The mobile wallet is literally a wallet in your mobile. It is smart software running on your mobile which can be used not only for plain vanilla banking services but also to store information about your credit cards, debit cards, membership cards and gift coupons. It is also intended to store personal data like passport and driving license details. Not unlike the conventional cash-carrying wallet, the mobile wallet can also 'carry' cash by transferring cash from your debit or credit cards to itself. This wallet can be used for making transactions by swiping over the counter at a POS terminal, at ticketing counters instead of your plastic cards and even at stores. It automatically provides updates on your transaction history and banking statements. These wallets will also be enabled with RFID technology. When walking into a store, terminals in the store would be able to read the relevant credit details from the mobile wallet and make offers or gift coupons in real time. Once the mobile wallet concept is used in a cross-country scenario, you may not have to pay commission for exchanging currency, saving considerable amount of money.

But, like always, there's that prick at the thought of your pockets being picked. Concerns surrounding the security of such critical information lying on the mobile are something one can't wish away. Just as such trepidation concerning the Internet was mitigated over the years, technological advances, in the years to come, must work towards addressing the perceived risks that abound around the use of the mobile wallet.

And tomorrow…

Monday, July 19th, 2010: Another day. Another airport. The beep reminder from my mobile wallet tells me that back home it's my wife's birthday. The world-clock on the gizmo says its way too early to wake her up. Transferring a generous birthday allowance to her mobile wallet, I SMS instructions to the florist to have an extra-large bunch of her favorite carnations delivered to her office desk. Not as personal as she'd have liked it, I admit. But then again there are some fixes that technology is yet to get around to. Maybe in time…some time soon... ▪

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North America: Banking on Financial Muscle

After six consecutive years of solid economic growth, the United States is experiencing a serious downturn as a result of the ongoing credit crunch and the relentless increase in energy prices. Growth in 2007 slowed to 2.2 percent as against almost 3 percent in 2006 with the pace of activity in the fourth quarter of 2007 dropping to a mere 0.6 percent. The economic uncertainty continues and amidst the soaring gas prices, falling real incomes and rising unemployment, consumer confidence recently reached its lowest level in almost three decades. Some leading economists believe that the US economy is already in the throes of a recession. However, the International Monetary Fund in its 2008 World Economic Outlook, which was published in April this year, stated that the economy would tip into a mild recession at the end of 2008 before making a modest recovery in 2009.

The economic instability is reflected in the commercial banking industry as well. While the industry was healthy in the mid-2000s, surviving the 9/11 terrorist attacks, it has not been able to escape the effects of the sub-prime crisis. The banking sector regulator, Federal Deposit Insurance Corporation (FDIC) reported that Q4 2007 earnings at banks and thrifts insured fell to a 16-year low because of sharply lower trading revenues and higher provision for loan losses primarily due to weakness in residential mortgage and construction loans. "It's no surprise to anyone that the second half of 2007 was a very tough period for the banking industry. Fourth quarter results were heavily influenced by a number of well-publicized write-downs by large banks," noted FDIC Chairman Sheila C. Bair. Between 2006 and 2007, the number of banks on the FDIC's "problem list" increased from 50 to 76 and to 90 by the end of the first quarter of 2008.

What is heartening amidst this gloom is the fact that the financial strength of the banking system appears to be more or less intact at the current point in time. "The industry as a whole is coming off a golden period of record profits. Because of this financial strength, the over-whelming majority of banks and thrifts remain well capitalized and profitable," states Blair.

The future outlook is not very rosy. A recent report by analyst firm Celent stated that revenues in the US banking industry will decline by approximately 2 percent in 2008. US banks are under pressure from rising credit losses and the emphasis on squeezing out additional efficiencies and reducing costs, it said, adding that to maintain their profit margins, banks will have to cut their operating costs by over 15 percent. This, says Celent, will include significant headcount reductions to the tune of approximately 150,000 to 200,000 jobs in the next 12 to 18 months.

Banking industry structure and trends

Ever since the first bank was chartered in the US in 1782, the banking industry has become a central feature of the US economy. Today there are 7,240 commercial banks, 1,254 savings institutions and over 8,000 credit unions that together employ over 2.4 million staff. Commercial banks have nearly 80,000 branches and as of end 2007, total assets of $11.2 trillion and $5.2 trillion of deposits.

Apart from being the largest banking sector in the world, the US banking industry has certain unique characteristics that make it stand apart. For instance, the number of banks in the US is extremely high. Over 90 percent of the banks are

TOP 20 BANK HOLDING COMPANIES IN THE U.S. (31/3/08)

Rank	Institution Name	Location	Total Assets
1	CITIGROUP INC.	NEW YORK, NY	$2,199,848,000
2	BANK OF AMERICA CORPORATION	CHARLOTTE, NC	$1,743,478,291
3	JPMORGAN CHASE & CO.	NEW YORK, NY	$1,642,862,000
4	WACHOVIA CORPORATION	CHARLOTTE, NC	$808,575,000
5	TAUNUS CORPORATION	NEW YORK, NY	$750,323,000
6	WELLS FARGO & COMPANY	SAN FRANCISCO, CA	$595,221,000
7	HSBC NORTH AMERICA HOLDINGS INC.	METTAWA, IL	$493,010,805
8	U.S. BANCORP	MINNEAPOLIS, MN	$241,781,000
9	THE BANK OF NEW YORK MELLON CORPORATION	NEW YORK, NY	$205,151,000
10	SUNTRUST BANKS, INC.	ATLANTA, GA	$178,986,947
11	CITIZENS FINANCIAL GROUP, INC.	PROVIDENCE, RI	$161,759,026
12	NATIONAL CITY CORPORATION	CLEVELAND, OH	$155,046,667
13	STATE STREET CORPORATION	BOSTON, MA	$154,478,813
14	CAPITAL ONE FINANCIAL CORPORATION	MCLEAN, VA	$150,608,527
15	REGIONS FINANCIAL CORPORATION	BIRMINGHAM, AL	$144,251,469
16	THE PNC FINANCIAL SERVICES GROUP, INC.	PITTSBURGH, PA	$140,026,464
17	BB&T CORPORATION	WINSTON-SALEM, NC	$136,417,064
18	TD BANKNORTH INC.	PORTLAND, ME	$118,171,246
19	FIFTH THIRD BANCORP	CINCINNATI, OH	$111,396,404
20	KEYCORP	CLEVELAND, OH	$101,596,38

Source: FFIEC

small in size with assets lesser than $1 billion (called community banks). Incidentally, community banks hold only around 14 percent of industry assets. However, unlike other developed countries such as UK, Canada where the top four or five banks dominate the banking industry with around 90 percent of assets, the top 10 banks in the US account for only around 60 percent of total assets. There is however, a growing concentration of assets among these extremely large financial institutions, a fact that is discussed in detail later. Another distinctive feature of the US banking sector is the absence of nationwide branches for commercial banks. Even the few banks such as Bank of America, JPMorgan Chase and Wachovia that have an extensive network of branch locations across the country, do not have a presence in all the fifty states.

The regulatory environment in the US too makes it stand apart from other G10 countries. Where most countries have only one bank regulator, banking in the US is regulated both at the state and federal levels. Moreover, depending on a banking organization's charter-type and organizational structure, it may be subject to numerous federal and state banking regulators. For instance, a bank's primary federal regulator could be the Federal Deposit Insurance Corporation, the Federal Reserve Board, the Office of the Comptroller of the Currency, or the Office of Thrift Supervision.

The changing regulatory landscape has played a key role in defining the structure of the banking sector. Below are a few main banking legislations:

- **McFadden Act (1927):** In 1927, McFadden Act prohibited branch banking across state lines. It was proposed to be pro-competitive and put small, state-chartered banks and large, nationally-chartered banks on an equal footing by only allowing banks to operate in one state. As a result, the US banking industry consisted primarily of a large number of relatively small banks.
- **Glass-Steagall Act(1933):** The Glass-Steagall Act did not allow banks to offer commercial banking, investment, and insurance services under one roof. The Act was a response to the 1929 Stock Market Crash and the Great Depression during which 9,000 banks, one-third of the total number of US banks, failed and represented an effort to restore wide spread confidence and stability in the banking system.
- **Riegle-Neal Interstate Banking and Branching Efficiency Act (1994):** Riegle-Neal repealed the McFadden Act and allowed bank holding companies to purchase banks in other states. This led to an increase in bank branches and decrease in number of total banks in the country.
- **Gramm-Leach Bliley Act (1999):** Also known as the Financial Services Modernization Act, Gramm-Leach Bliley repealed the Glass-Steagall Act. It opened up competition among banks, securities firms and insurance companies as they were able to offer similar, broad services under one roof without restrictions.
- **USA Patriot Act (2001):** It was passed by the United States Congress in 2001 as a response to the September 11, 2001 attacks. It amended the Bank Secrecy Act to provide additional tools to prevent, detect and prosecute international money laundering and the financing of terrorism.
- **Sarbanes-Oxley Act (2002):** SOX was enacted in response to a number of major corporate and accounting scandals such as Enron to protect shareholders and the general public from accounting errors and fraudulent practices in the enterprise.

Some of the main trends dominating the US banking industry are outlined below:

1. **Consolidation:** Spurred by globalization, technological developments and competitive pressures, the US banking sector has experienced a dramatic level of consolidation in recent decades. Compared to over 14,300 banks in 1984, there were 7,240 banks at the end of 2007, a nearly 50 percent reduction in 25 years. Deregulation, namely the Riegle-Neal Act and Gramm-Leach Act have both played a key role in enabling the consolidation trend. While smaller banks account for most of the acquisitions, the trend is visible across the financial landscape – banks acquiring non-banks, banks acquiring brokerage firms, mergers of large banks and so on. Some of the notable deals have been merger of Citicorp and Travelers Group, JPMorgan's acquisition of Bank One and Bank of America's acquisition of FleetBoston. Over the past few weeks Bank of America has also completed the acquisition of beleaguered Countrywide Financial, the nation's leading home loan provider.

   As a result of this consolidation trend, the concentration of banking industry assets at the top-tier has increased from 20 percent to nearly 50 percent between 1995 and 2006. Interestingly, a 2006 study published by the FDIC suggested that the consolidation trend will slow down in the coming years and the banking industry will continue to retain its current structure characterized by "several thousand very small to medium-size community bank organizations, a less-numerous group of midsize regional organizations, and a handful of extremely large multinational banking organizations."

2. **Increasing number of branches:** This is another trend helped by the Riegle-Neal Act of 1994 that allowed banks to branch and merge across state lines. Disproving predictions about the demise of the brick-and-mortar bank in the late 90s, bank branches are thriving in the US. In the past decade itself the number of branches increased by 72 percent. Today there are around 80,000 commercial bank branches in the US. HSBC, which currently has 460 branches as against rival bank, Bank of America, which has around 6,100 branches, announced plans in April this year to open 22 new US branches by the end of 2008, and 30-40 per year in 2009 and beyond. Banks are also redesigning their branches and reducing the number of employees per branch.

"Retail banking is a key focus for banks in the US, in sharp contrast to the 1990s."

3. **Retail banking focus:** Retail banking is a key focus for banks in the US, in sharp contrast to the 1990s, when banks deemphasized branch networks and aimed to reach a wider variety of clients through diversified services. The retail focus is proved by the growth in retail loan and deposit shares on commercial bank balance sheets and a continuing increase in the number of bank branches. Large banks have played an especially important role in the industry's renewed interest in retail banking, it is estimated that retail activities account for 50 to 60 percent of revenue at a typical large bank. A recent report by the Federal Reserve Bank of New York suggests mergers of First Union/Wachovia, Citigroup/Golden State, Bank of America/FleetBoston Financial, and JPMorgan Chase/Bank One, were all motivated in large part by retail concerns. The key role of very large banks gives extra weight to this episode of retail banking focus in the US, says the report.

4. **Risk management and compliance:** Given the stringent regulatory environment in the

US post 9/11, compliance issues regarding anti-money laundering, anti-terrorism financing and Sarbanes-Oxley are a critical preoccupation among US banks today and a key area of investment. Risk management, in the current economic climate and Basel II compliance is another focus area. By October this year, large internationally-active US banks need to tell the regulators their approach towards Basel II compliance. The other smaller US banks will on the other hand, have the option to adopt alternative risk-based capital adequacy rules based on the Basel II accords. According to estimates by consulting firm, Capgemini, instituting Basel II - compliant risk management procedures in US banks alone will cost nearly $4.2 billion through 2008.

5. **Disintermediation:** Technological developments in recent years have given rise to a few innovative non-bank firms that are servicing customers' financial requirements. The most notable of these are online peer-to-peer lending outfits such as Prosper and Zopa. The Virgin Group has also entered the fray. With peer-to-peer lending, individuals, some of them with little or no collateral, seek loans from ordinary people looking to lend. Lenders compete with each other to issue loans, often resulting in lower rates for borrowers — averaging 1 percent to 16 percent — than are available on unsecured bank loans. Typical loan amounts range from $8,000 to $20,000; on some sites, multiple lenders may fund a loan, each offering to lend $25 to $200 to a borrower. While the volumes of loans being processed are very small, it is certainly an area that banks are closely following.

Trends in banking technology

Historically, US banks have been early adopters of technology. While the first bank automation survey conducted by the American Bankers Association in 1963 showed only 7 percent of all commercial banks to be users of on-premise or off-premise computers, by 1968, the number had risen to 49 percent, and by 1980, 97 percent of US banks were tech-users. Investment in technology has consistently grown over the years. According to estimates by Celent, IT spending by US banks in 2002 was to the tune of $34 billion with top banks spending in excess of $2 billion each annually on technology. Since then, IT spending has increased to $42 billion in 2007 and will be just under $45 billion by 2009. Nearly 60 percent of all this investment is in retail banking, notes the analyst firm.

Celent however points out that while 2007 spending growth levels are relatively constant, 2008 bank's IT spending growth will experience a slowdown for the first time in several years as a result of the credit crunch. It says that US bank's IT spending will climb by a modest 3.6 percent in 2008, a significant 0.6 percentage point drop from the 4.2 percent growth experienced in 2007.

Below we discuss a few key trends in banking technology investments among US banks:

- **In-house vs. off-the-shelf.** Traditionally, most of the top-tier US banks have opted for in-house development of their core-systems and community banks primarily adopting an ASP model with a third party service provider. Mid-tier banks have had a mix of in-house and off-the-shelf solutions. However, the trend is changing with banks increasingly making use of external providers as they try to focus on core competencies. Celent estimates that spending on external software by US banks will rise by 7.1 percent to US$6.8 billion in 2007. This figure will continue to grow, rising to US$7.7 billion in 2009.

- **Legacy systems and SOA.** Early adoption of technology has provided enormous efficiency benefits to US banks, however, the downside is significant as well. Investments in disparate IT applications for different lines of business over the years, has created a jigsaw of application systems within banks' IT infrastructures that are not able to talk to each other. The consolidation trend of recent years has added to the complexity with several banks running more than one hundred core systems simultaneously. Not surprisingly, these systems are unable to provide a unified view of the customer. Along with this siloed architecture there is the problem of legacy platforms, solutions built on archaic technologies that have not been replaced in time either due to inertia or the sheer effort and cost involved in a replacement exercise. Most of the leading US banks, which spend as much as 25 percent of their total expenses on IT, are saddled with such legacy systems, the maintenance of which accounts for approximately 80 percent of their IT budgets. In such a scenario, several leading banks such as Wells Fargo and National City have adopted Services Oriented Architecture (SOA) as an approach to integrate disparate systems and incrementally modernize their complex core systems infrastructure.

- **Delivery channels.** Over the years, US banks have made significant investments on delivery channels. ATMs proliferate throughout the country. The first ATM was a standard cash dispenser installed by JPMorgan Chase, erstwhile Chemical Bank, at Long Island in New York. Since then, the number of ATMs has increased to 415,321 and the annual number of ATM transactions to 14.9 billion. Online banking too is very popular. Nearly every major bank in the US offers Internet banking services today. According to recent estimates by research firm Gartner, 33 percent of US customers- regularly use Web banking services. Notably, one of the key findings of Gartner's survey was that use of Web banking did not lead to a substantial decline in visits to branches. Net banking, they say, is actually linked to higher use of other channels like ATMs and telephone banking. The past 18 months have also seen a renewed interest in mobile banking with leading banks like Bank of America, recently signed on its one-millionth mobile banking customer, and Wells Fargo offering mobile banking services. Wells Fargo, a front-runner in online banking and mobile banking, is also among the few banks to have adopted Web 2.0. It was the first US bank to launch a corporate blog in March 2006, and since then has gone on to expand its use of social media by launching its own online virtual world, Stagecoach Island.

- **Risk management and compliance.** This is an area that has seen a huge level of investment in recent years in technologies to manage compliance with stringent regulatory requirements such as Sarbanes-Oxley. In the wake of the ongoing financial crisis, there will be renewed pressure for banks to review their risk management processes and technologies.

Banking Method Americans Use Most Often

(According to ABA/Ipsos Survey, July 2007)

Branch – 36%

ATM – 21%

Online – 23%

Telephone – 5%

Mail – 8%

Sources: ABA, ATM & Debit News, Dove Consulting, American Banker

- **Green solutions.** The relentless rise of energy prices combined with a growing awareness of the need to cut down carbon emissions has seen several leading US banks such as Wachovia and Bank of America go 'green' in recent months. Not only are they designing new buildings using environmental guidelines, they are also adopting processes and deploying technology systems that can help reduce their carbon footprint.

Conclusion

After sustained growth of six years - a period that saw rapid consolidations, growth in bank branches and rising technology investments - the US banking industry is witnessing a downturn as the ripple effect of the sub-prime crisis extends across all sectors of the US economy. The financial crisis has led to the near-collapse of leading firms such as Countrywide Financial, one of the top independent residential mortgage lending firms in the US and Bear Sterns, one of the top US investment banks, while banks such as Citigroup have announced massive write-offs. Under pressure from rising losses, US banks will need to focus on cutting costs and improving operational efficiencies. As a result, technology investments too will be impacted. Nonetheless, analysts expect US banks' IT spend to show a marginal increase over the next year. Risk management will be a key focus area for IT investment, as will be areas such as core banking renewal with SOA and delivery channels especially internet and mobile banking ▪

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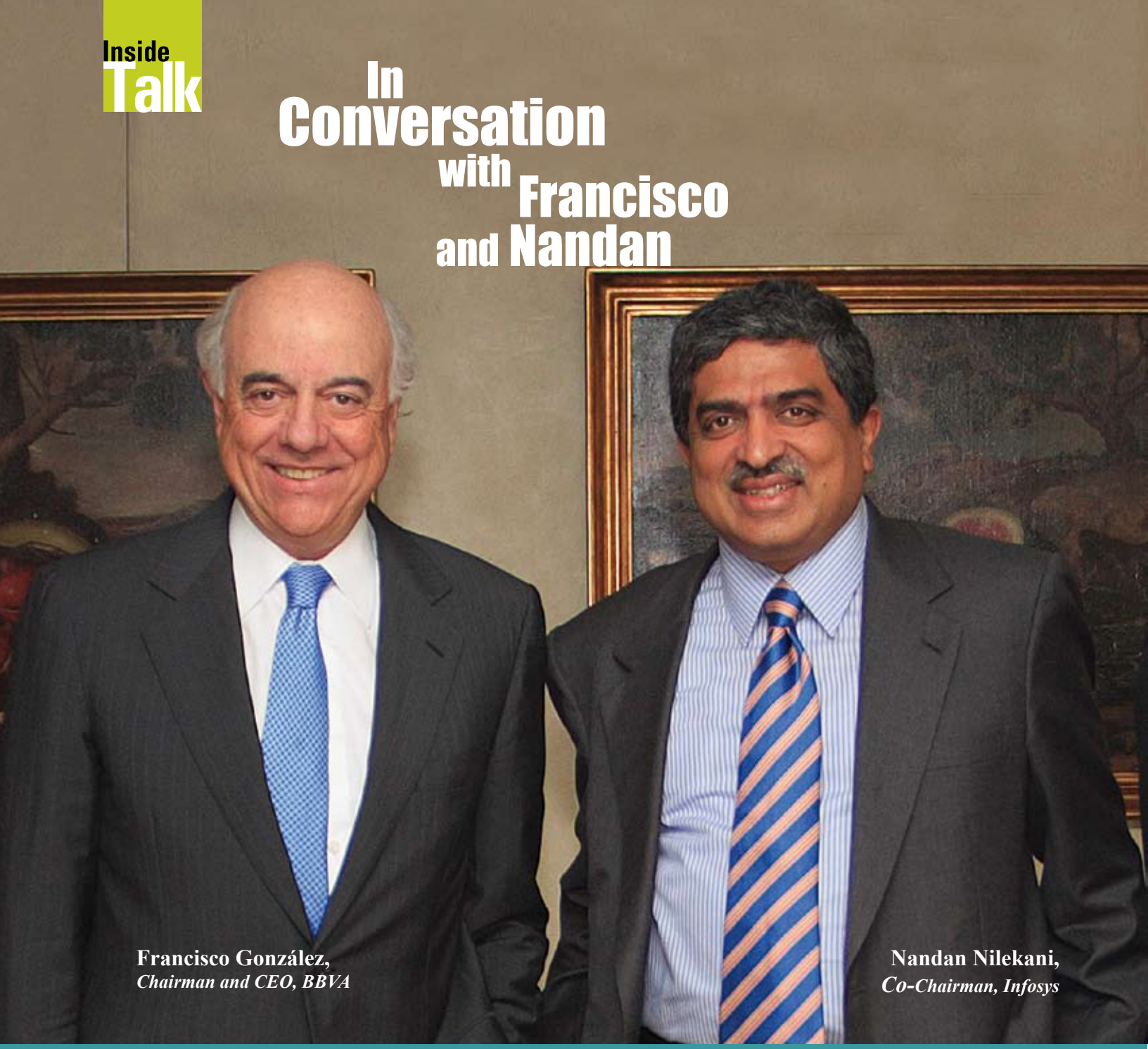
In Conversation with Francisco and Nandan



Francisco González,
Chairman and CEO, BBVA

Nandan Nilekani,
Co-Chairman, Infosys

'Europe is so rich that it does not realize it has to change'

Francisco González, BBVA's Chairman and CEO, and Nandan Nilekani, Infosys' Co-chairman, are bound by much more than friendship. Both share an entrepreneur spirit, are keen on technology and manifest deep interest in the globalization phenomenon, which they definitely support. Nilekani is one of the founders of Infosys, the big Indian technology company. He was in Madrid in the Conference Board's meeting, a forum for the study and analysis of big multinationals to which González also belongs.

Globalization has generated and will generate a lot of wealth, so this is an unstoppable trend.

Q **A few years ago, anti-globalization demonstrations were led by anti-system groups, but now protectionist messages stretch out to countries such as the United States, as well as among their leaders.**

A ***Nandan Nilekani.*** Globalization is an unavoidable process. Countries such as Spain, China and India have benefited from free trade and globalization, and will continue to do so. I don't think there can be a way back to protectionism.

Francisco González. Neither do I. This is a very short-sighted view. The United States has always promoted this freedom around the world, and they have also benefited. Globalization has generated and will generate a lot of wealth, so this is an unstoppable trend. When people understand how these forces work, when they realize that poverty has decreased and new opportunities have come up, they find no reasons to stop something good.

Nandan Nilekani. For the first time in history, millions of people are coming out of poverty, attaining a decent lifestyle and benefiting from free market and globalization. Besides, globalization is creating new markets. India and China are growing at 8% yearly rate and are producing new consumers, who make purchases from the richest countries. For example, India purchases 6 million cellular phones a month, all of them abroad. It is a two-way road.

Q **Thomas Friedman said that 'the world is flat', and everybody seems to agree with his idea. Is this theory still current with the present crisis?**

A ***Nandan Nilekani.*** Friedman meant that now there is a new opportunity so that more and more people may improve their standard of living, because technology brings more equality to the world.

Q **Doesn't the crisis introduce levels into this 'flat world'?**

A ***Nandan Nilekani.*** Yes, because in the end the countries and persons having better infrastructure and education will reap the most benefits from globalization.

Q **Globalization has burst more rapidly in the financial world, which is currently undergoing a deep crisis. Do your foresee a possible retreat?**

A ***Francisco González.*** In fact, in the banking sector there are many closed markets which we cannot access, and we will see this opening with time. The financial crisis is not going to stop this process. In the short term, there may be a few limitations, but in the middle and long term, and for the first time in history, human beings will have all means to solve practically anything. Except for death, everything can be solved.

Q **The prominence of sovereign funds from developing countries has caused certain resentment in rich countries.**

A ***Francisco González.*** Experience shows us that sovereign funds are very stable, long-term investments. And their objective is simply to invest, not to control companies. The IMF is conducting a study to define rules of conduct for the said funds. But being merely against them is a gross error. The amount of money they have is so huge, not only in the Near East, but also in countries such as Singapore, China, Russia and Norway, that a way should be found to lay bridges.

Nandan Nilekani. Sovereign funds are here to stay. The countries they come from have

"The five most important economies will be China, the United States, India, Japan and, of course, Europe. The relative weight of the Asian countries will grow enormously."

earned a lot of money due to the high prices of oil and raw materials, and they are trying to manage them well because these resources are not going to last forever.

Q **The paradox is that the West, which has always promoted free trade, is now the one that wants to restrict the sphere of influence of these sovereign funds.**

A ***Francisco González.*** Sometimes we Westerners would like to control the world as if everyone has to think like we do. This has to change. We must understand that there are people that have another lifestyle, another culture. Just take a look at China or India. We have to stop teaching the whole world how to behave.

Q **What role are the BRIC (Brazil, Russia, India and China) countries going to play? Is China going to be the world's manufacturer, India the world's service vendor, Brazil and Russia the world's power providers?**

A ***Nandan Nilekani.*** This is a way to see it. China has a very powerful industrial sector, India has become the world's services leader and Brazil is the leader in raw materials, but it is also a big industrial country. And India is also an excellent place to manufacture. The Tata Group has just acquired Land Rover and Jaguar; in India many companies are big manufacturers. The important thing is the role they are going to play in the next 40 or 50 years. The five most important economies will be China, the United States, India, Japan and, of course, Europe. The relative weight of the Asian countries will grow enormously. And this is not something new. Not so long ago, about 300 years ago, India and China represented more than half of the global GDP, so in a sense they are recovering their position.

Francisco González. By the way, the person who created the concept of the BRIC countries has forgotten one very important country, Mexico, which has enormous potential. We should add an M to the acronym.

Q **Currently there is a big division in national wealth in India and China. Is that sustainable?**

A ***Nandan Nilekani.*** That happens when there is such a strong growth. In India, people who live in cities, speak English, who are the

"Probably globalization is a consequence of technology and innovation."

most qualified, have far more probabilities of taking part in the globalized world. The challenge is that more and more people may benefit from this bonanza.

Q **You are writing a book on that, on how India will be in 10 years' time...**

A ***Nandan Nilekani.*** Yes, it is called *Imagining India* and it is about the way in which India is evolving through ideas.

Q **Can you imagine Spain in 10 years' time?**

A ***Nandan Nilekani.*** That is something you should do yourselves... Francisco thinks of the future better than most people.

Francisco González. Spain has done an incredible job in the last 50 years. And that started in 1959, when a certain degree of opening was resolved, continued with the advent of democracy and increased with the joining of the European Union and the Eurozone. History has shown that Spain has worked fine with opening policies. It is a major error to see foreigners as a threat. Foreign investment is one of the keys to developing a country. I don't care who the owner of the capital is: what I care about is how many work positions can be created in a country. And this is the story of Spain. Foreign investment has created a lot of work for Spanish people. Opening has been a key element to Spain's success and this should be kept in time.

Q **Are you optimistic in the long run?**

A ***Francisco González.*** I am very optimistic in the middle and long run, because what is happening is extraordinary, mainly because of technology. It is an engine for growth. Probably globalization is a consequence of technology and innovation. Currently in Spain we are experimenting a deceleration process, with the problem of being too attached to the real estate market. We have to change the productivity model. And that will take some time, but Spain will survive.

Q **What would you say to people who state that globalization will be detrimental to the workers of Western countries and beneficial to workers of countries such as India or China?**

A ***Nandan Nilekani.*** If we make the world more competitive, everyone will have to become more productive, it will be

necessary to work hard and to innovate. This is necessary and there will be no way to stop it. But Europe also benefits from globalization: it has big companies exporting to the whole world, and many tourists coming from these countries. It is a two-way road.

Q **What role do education and human resources play?**

A ***Nandan Nilekani.*** A huge one; in the long term, human capital is the one that really makes a difference: it is the source for innovation, the key to a country's progress. One of the main challenges of oil producing countries is that the crude oil generates so much money that human capital is not such an important investment for them. In India we import between 50,000 and 70,000 million dollars in oil every year, which is paid with what we earn exporting our services and what we obtain through the people who have gone abroad and send money home. So that, in a certain way, human capital is paying the oil bill.

Francisco González. Countries which do not have a good educational system are doomed to drop out of the system. In Spain we have to think a little more about that, we have to realize that giving people more education should be a priority. Statistics of the PISA report show that we are below where we should be and I think the central and the autonomous governments should face that.

Q **What about Europe?**

A ***Francisco González.*** Europe is not much better. It is so rich that it doesn't realize that it should improve its educational level, as China and India are doing. This is Europe's problem, that it thinks it should not change.

Nandan Nilekani. Besides education, it is also very important to create spaces for innovation so that more new companies may begin to operate.

Francisco González. Technology is the most democratic revolution of all times. People should join this revolution with an idea. In the past, during the last industrial revolution, capital was needed to start business. Now all you need is a small computer and a good idea.

Q **Internet is already an essential tool, but we are not living in the world predicted during the dot-com boom. Banks continue having many branches; people continue buying at stores...**

A ***Nandan Nilekani.*** Today, the best business model is the one combining the physical world and Internet. Branches are necessary, because people like going shopping, but online and multi-channel capabilities are also important. Both things are necessary.

Francisco González. We are working with a model based on two cornerstones. The physical side, with branches, which have to evolve a lot, physically of course, but also in the forms of contact, opening times, and so on. And the second cornerstone is the virtual one, Internet as a channel, as a new space. There will be brand new competition, characterized by a few banks and new competitors coming from the Internet side. Serious competition that we will face in the future, will come from the Internet. But we can be geared because we are strong on the physical side as well as on the Internet.

Nandan Nilekani. The important thing is that the client may go to the branch or access accounts via Internet, but at the same time the bank should recognize the client in all cases, irrespective of the channel chosen.

Francisco González. The customer should perceive a single world, both on the physical and the virtual sides, depending on what is

"Technology is the most democratic revolution of all times."

convenient at a certain moment. This is not easy to understand. Once we have this, we are using the tools provided by technology to somewhat predict the customer's behavior so as to offer more products, without being limited to financial products. Technology is critical. India is giving the best example of the way technology can be used as a tool for progress. Without technology, India would be a completely different country.

Nandan Nilekani. We have an electronic voting system, our banking system is electronic, our securities markets are electronic. We not only delocalize, we also use technology to progress and generate benefits for people.

"BBVA is creating a new culture which is quite international and technology-based, because that is the future."

Q **Is there a sort of race between China and India?**

A ***Nandan Nilekani.*** I don't think there is a race. China has grown a lot with production and manufacturing, creating a lot of positions in the industry, and India is growing a lot in the services area. But there are already companies such as Tata showing that production may also be an important business in India. And China is also looking for other ways to grow. In general, all countries adopt formulae proven successful in other countries.

Q **What are BBVA's plans in India?**

A ***Francisco González.*** We have opened a branch and we are very happy with it. Today it is not easy to enter this market since there are limitations to foreign investment, but in 2009 there will be a new government and maybe new opportunities. With India or China you have to think in the long run, not of arriving and beginning to make money right away. It is very important to know how markets and countries behave: India is India, China is China, each with their own mentality and roots. We like to have presence in these countries, but think long term.

Q **Are you happy with BBVA's investment in China?**

A ***Francisco González.*** Very happy. For us, being in China is a must, because it is a country with 1,500 million inhabitants. We are one of the four or five international banks which already have a presence in China; now, new business opportunities will come up and we will be there. And we have become the main private investors of the Citic Group. If China evolves in the right way, and I think it will, we will have an excellent opportunity to do good business in China, but this will take place in the next 10 or 15 years, not tomorrow. This bank is open, and will continue to be open, and will become a really global bank. And there is no doubt that in due time BBVA's future president may be Indian, Chinese or Mexican. A global bank may not be linked to a single territory or a specific nationality. BBVA is creating a new culture which is quite international and technology-based, because that is the future.

Q **You say that being in China is a must. What about Brazil?**

A ***Francisco González.*** Of course, Brazil is a great country and we have an excellent global banking operation there, so, if an opportunity does come up, we will grab it. It will probably come up quite soon and we will take it as a global opportunity. If it is tomorrow, it will be tomorrow, and if not, we will be patient, because we have many things to do, but we will definitely come back to Brazil ▪

tECH WATCH

Event Driven Architecture for Banking

Many banking operations provide opportunities to publish events which are of interest to other application owners or users within the bank.

Consider the following scenario. A registered customer has logged in to your bank's website and while browsing gets interested in a product, like a loan offering or a deposit scheme. She may just read a few details, click on something else and move on, forgetting the product or scheme that had initially interested her. In effect, the bank has lost out on an opportunity to take the customer's interest to the next level and create meaningful business interaction.

Now consider altering the situation a little. The bank's applications support Event Driven Architecture (EDA). The customer's interest is captured as an event by the system, and it proceeds to take a series of further action:

- It records the visitor as a prospect for the product or scheme that interested her, and creates an opportunity in the CRM system.
- It sends out communication to the visitor's registered e-mail address with relevant details about the product or scheme.
- It alerts the bank's product sales team about the visitor's interest in the product and forwards her contact number, to the team, for further action.

These multiple automated steps help transform a potential prospect's interest into a tangible business opportunity for the bank, through events processing.

Let us now consider a retail bank that has successfully implemented a core banking solution and enabled branches, contact centers and Internet channels to provide the complete gamut of functionality using SOA-based infrastructure. While SOA can bring in benefits like opening up back-end business services to multiple front-end applications, it is still important to be able to capture and act on critical events. Let us consider some more examples:

1. ATMs in a particular locality frequently run out of cash. This leads to customer dissatisfaction, driving customers eventually to look for another bank in the locality. If the event 'ATM running out of cash' is brought to the notice of the right personnel at the bank, actions like replenishing

cash more regularly or installing another ATM in that locality could be taken.

2. Some events could be based on time. For example, as part of loan application processing, if property valuation is taking more than the desired amount of time, it should be brought to the notice of bank personnel. Only then can corrective action like improving the property valuation process be undertaken.
3. Some events could be related to fraud. For example, detecting fraud like payment to a black-listed party and taking appropriate action against it is of paramount importance, from the point of view of regulations.

The above examples illustrate the importance of capturing events and taking appropriate and timely actions. These can be addressed efficiently through EDA.

What is EDA?

Event Driven Architecture (EDA) is a technique to integrate components and applications by sending and receiving event notifications.

EDA, like SOA, seems to have the potential to catch on as a buzzword and be hailed as the next big thing. As with all successful buzzwords, although they might not make any difference to the way you work, it's important to be aware of what they mean. Let us try to refresh our definition of SOA and compare it with EDA.

The term 'Service Orientation' represents an architectural style which helps a business function to be designed with the following characteristics:

- Loose Coupling: Fundamentally not bound to other services
- Protocol Independent: Available over multiple protocols
- Location Independent: Accessed from anywhere, no matter where their location
- Coarse Grained: Performs composite business logic and returns result in a single call

SOA has transformed the design of software architecture and how business defines returns from technology. It has fundamentally brought IT and business to align towards a common goal. SOA holds out the promise of creating agile enterprises, which operate efficiently and respond rapidly to changing business needs.

Figure 1 depicts the move toward service orientation.

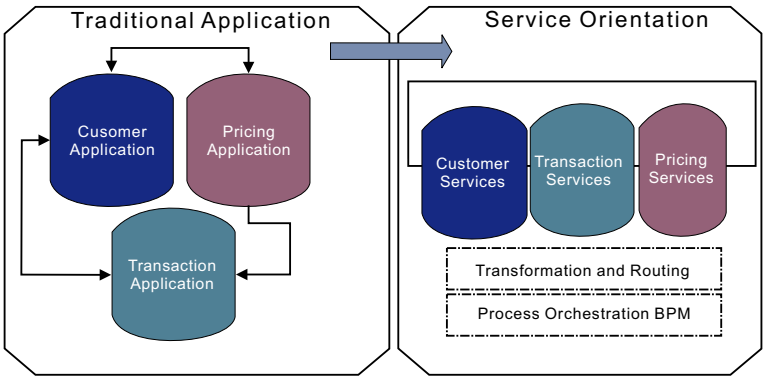


Figure 1: Transformation from Traditional Monolithic Applications to Service Oriented Applications

So what has SOA got to do with EDA?

EDA defines a methodology to design and implement applications and systems, in which events transmit between loosely coupled software components and services. While SOA is generally a better fit for a request-response exchange, EDA introduces asynchronous processing capabilities that can continue to run over a longer duration of time.

An event driven system is typically comprised of event consumers and event producers. Event consumers subscribe to an intermediary event manager, and event producers publish to this manager. When the event manager receives an event from a producer, the manager forwards the event to the consumer. If the consumer is unavailable, the manager can store the event and attempt to forward it later. This method of event transmission is referred to, in message-based systems, as store and forward.

There could be three styles of event processing:

1. Simple Events Processing – Herein, a notable event in the system, initiates certain down stream actions. For example, a simple alerting mechanism, or a message-based publish-subscribe mechanism.
2. Stream Events Processing – Herein, applications publish a stream of events to subscribers based on ordinary and notable events. For example, RFID transmissions.
3. Complex Events Processing – This is a more advanced form of events processing, and by definition is a high-volume, programmatic analysis of events to identify patterns and correlations across multiple heterogeneous event sources. This involves interpretation of events, pattern definition and matching, in addition to correlation techniques. For example, identification of suspicious transaction patterns in real-time, based on customer transactions.

EDA is the perfect answer for systems to operate in an unpredictable and asynchronous environment. EDA designed systems facilitate more responsiveness to events that take place in real life. While SOA brings a significant cohesion in the business process, the interaction is more transactional in nature by composing activities which are automatic or user-centric. SOA can even be applied across organization boundaries in business-to-business (B2B) or business-to-consumer (B2C) scenarios. On the other hand, EDA offers a high level of decoupling, and applications must be designed to respond to and to publish events.

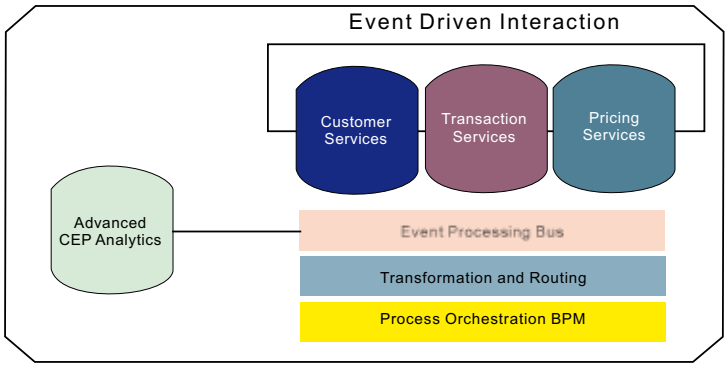


Figure 2: An illustration of EDA complementing SOA Enterprise

Figure 2 illustrates EDA complementing the SOA enterprise.

EDA market landscape

A couple of years ago, Enterprise Service Bus (ESB) stormed into the application integration landscape changing the dynamics of a hub and spoke integration model to take integration to standards-based, distributed integration infrastructure with advanced message routing and protocol conversion capabilities, thus promising the infrastructural vehicle SOA delivery.

From an EDA perspective as well, ESB is very well suited to function as a container for published business events, because it allows events to become widely available for subscription. As a result, ESB can be positioned as the enterprise's event directory making event intelligence uniformly accessible by all applications, regardless of location, time, and back-end technology. In the current landscape EDA is an emerging trend and ESB vendors are cashing in on building EDA capabilities in the ESB product.

The big application integration vendors (IBM, TIBCO, Oracle and SAP) are already competing in the EDA space by packaging offerings in their existing ESB products.

- IBM has acquired AptSoft to strengthen the WebSphere brand and the strategy has been to provide the ability for line-of-business professionals, analysts and business managers, to define and manage business events. For IBM, business event processing and BPM fit into the SOA vision.
- Oracle's Event Driven Architecture Suite (EDA Suite) provides the capabilities to easily create, process, analyze, and manage events with limited coding. The offering folds under the Oracle Fusion Middleware product to give a complete SOA portfolio to customers.
- SAP Business Activity Monitoring comes with an embedded event infrastructure that can collect, pre-filter and publish events for cross-

system use across SAP systems. There is also a process milestone monitor to subscribe and handle business process events.

- TIBCO Business Events help companies identify and quantify the impact of events, and notify people and systems about meaningful events so processes can be adapted on-the-fly and people can take appropriate action.

Standards are the key to ensure that there is interoperability among different vendors. Currently EDA and CEP standards are still maturing. Organizations such as OASIS (Organization for the Advancement of Structured Information Systems), W3C (World Wide Web Consortium) and WS-I (Web Services Interoperability Organization) are taking steps toward defining more standards that will help event driven applications. For example:

- WSDL v1.2: Standardize metadata for modules that participate in an event driven solution
- WS-Reliability and WS-Reliable messaging: To ensure guaranteed delivery of event messages
- WS-Notification & WS-Events: Bridging the gaps to support publish-subscribe models

The above standards do not define general purpose event mechanisms, but define a mechanism suitable for exchanging events using the web services infrastructure. For instance, WS-Events describes an XML syntax and a set of processing rules for advertising, subscribing, producing and consuming Web Services Events using a push and pull mode. It defines the following:

- An extensible XML representation of event notifications
- A simple subscription protocol between notification for consumers, producers and brokers
- Mechanisms to advertise and discover events
- Support for both asynchronous and synchronous communication of notifications from the producer to the consumer through a push and pull mode
- A lightweight XML syntax to describe event filters

EDA and banking applications

EDA has been supported across banking applications in several areas. It could be applied to application monitoring as well as for configuring banking applications to feed events in real time, thus giving a continuous graph of the health parameters of the service. A console-based application can provide an uncluttered view of various events across applications and provide sophisticated real time alerts on any deviation from the performance indicators.

Business Exception Referral is another functionality which is event driven. Application administrators can set up exception events and refer them to the appropriate level of authority for business exception approval online. To address situations wherein the required approvals are not granted within a pre-defined duration, such approval request events can be escalated to higher roles for approval.

The biggest challenge in realizing the benefit of EDA is for banks to tap the wealth of information available in the core banking solution and express patterns of interest with rules, in addition to obtaining feedback and acting on it. Banking applications are increasingly moving from request-response based processing to respond to an event, making them more proactive and agile.

A bank using a fraud analysis application to detect suspicious patterns, for example, would identify patterns that indicate fraud and then set thresholds for taking action when patterns emerge. This has to be handled in CEP using three layers:

- An event-absorption layer receives massive data feeds coming directly into the system.
- A processing and filtering layer allows the application to identify relevant events or information coming through the data streams. For example, looking at certain anomalies of huge withdrawal or very high volumes of low deposit transactions.
- The third component is a display layer, or dashboard, that alerts the monitoring

organization or automatically triggers a business process management solution.

A bank using a CRM system must tap into the levels of customer interaction. The interaction can flow into the product as inbound events or flow out of the product as outbound events. For example, a customer who has transferred large sums of money to a current account indicates a surplus and the bank can offer a improved interest return on investment by offering time deposit accounts. This is an inbound event which translates to a cross-sell.

A customer segmentation analysis could reveal many up-sell and cross-sell interactions and customers can be reached through e-mail, direct mail or other channels, through outbound events.

A healthy conversion of potential opportunities can occur only when the bank understands what the customer wants and needs during his interaction. This is a very compelling case for investing in event processing.

Conclusion

Event processing has been prevalent in system software, user interface, message driven applications for application integration scenarios. Its potential for retail banking applications is being realized fully only in recent times, and this article has explored how EDA can make a difference to the banking business.

The combination of SOA, EDA and CEP is being positioned as one of the most exciting trends, slated to truly take off in the next two years. This is still a significant hurdle for many banks that have just embarked on the SOA journey. Banks should focus on continuous improvement by optimizing business processes and realize the potential of frameworks, tools and runtime infrastructure which make this possible.

EDA and CEP essentially enable banking applications with dynamic decision making capability by presenting the right data at the right time, proactively ▪

Acknowledgements

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Infosys in the news

Q1 Revenues Grow 24.5% Percent YoY

Infosys Technologies Limited announced financial results for its first quarter ended June 30, 2008. Revenues for the quarter aggregated $ 1,155 million, up 24.5 percent from $ 928 million for the quarter ended June 30, 2007. Net income was $ 306 million ($ 263 million for the quarter ended June 30, 2007.)

Infosys in Forbes' Global High Performers

Infosys' consistent growth and profitability has been recognized by Forbes. The magazine ranked Infosys among its 'Global High Performers' in the Software and Services category.

Forbes analyzed 26 industries from its Global 2000 and ranked companies for a low debt-to-capital ratio, long-term and short-term sales growth, profit growth, return on equity and total return over five years. Global High Performers stood out from their industry peers in growth, return to investors and future prospects.

Finacle – The Universal Banking Solution from Infosys

BBVA and Finacle from Infosys Sign a Strategic Global Partnership

BBVA and Infosys Technologies announced that BBVA, one of the top 15 banks in the world, will implement Finacle universal banking solution. The bank, which has signed a global agreement with Finacle, will start the transformation exercise in BBVA Banco (Paraguay) by leveraging Finacle's agile new generation technology. BBVA will implement Finacle core banking, CRM, treasury and wealth management solutions.

Technology rejuvenation is at the forefront of BBVA's business strategy. In 2007, BBVA began its innovation and transformation journey to fuel growth and expand current offerings. As a strategic imperative, the bank decided to replace legacy solutions with a leading world-class banking solution. The rigorous selection process focused on acquiring a new generation platform to support the bank's crucial objectives on client-centricity, growth and time-to-market for business related changes.

Finacle Powers Transformation at Aspis Bank, Greece

Finacle from Infosys and Aspis Bank announced that Aspis Bank, Greece is live on Finacle universal banking solution. While the core banking solution went live in the last quarter of 2007, the treasury solution has been operational at the bank since September 2005. The state-of-the-art solution that has gone live across 83 branches has enabled the bank to embark on its ambitious business transformation strategy aimed at aggressive growth and rapid differentiation. Post implementation, the bank has seen the launch of 7 new products in a short span of 12 weeks, almost 40 percent increase in average transactions/day and a threefold increase in ATM charges.

Customer Speak

"Our aim is to transform BBVA to a winning player in the global banking industry of the 21st century. We need to think different approaches to customers, and IT is a key element in our innovative business model. BBVA is strongly committed to its innovation and transformation plan, and the partnership with Infosys and Finacle is a big step in that way. We like to work with the best partners and Infosys is a very strong global partner."

Mr. Francisco González
Chairman and CEO, BBVA

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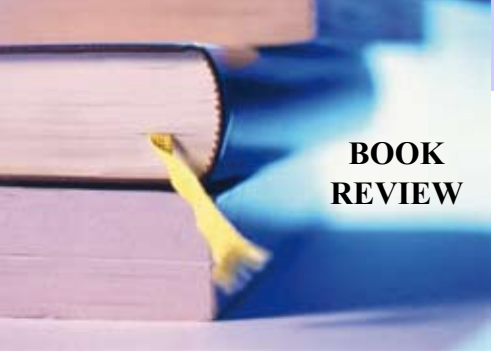
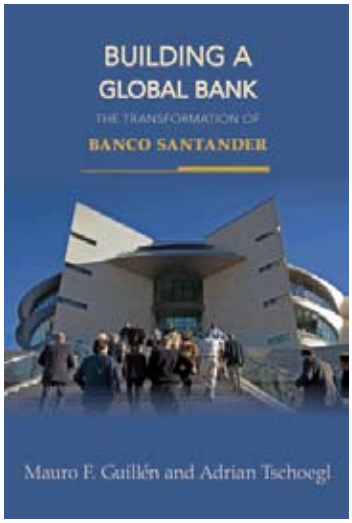


Mauro F. Guillen & Adrian Tschoegl

Building a Global Bank: The Transformation of Banco Santander

Spain's Banco Santander Central Hispano's transformation from a provincial Spanish bank to global leader is nothing short of remarkable. The past two decades have seen the bank's market capitalisation grow from approximately US$3 billion to US$115 billion, and customer base from 75,000 to 66 million. During this time, the bank has climbed from the seventh position to become the number one bank in Spain and from the 152nd position globally to being ranked the tenth largest bank in the world. The bank's success is marked by geographical diversification, operations in nine countries account for more than a third of its profits, and cross-border banking acquisitions, the crowning glory of which was the acquisition of Britain's Abbey National in 2004, a deal worth US$15 billion. Alliances too have played a key role in Santander's rise, such as the one with Royal Bank of Scotland (RBS). It had a long standing alliance with RBS since 1988 which ended in 2004. However, recently in 2007 both banks came together again to purchase Dutch Bank ABN AMRO, in the biggest takeover in banking history. Santander got ABN AMRO's operations in Latin America, further sealing its position in the region.

Santander's growth makes for a fascinating story and the authors' (Guillen and Tschoegl) obvious enjoyment in telling it is reflected in the well-researched content and strong narration of *Building a Global Bank: The Transformation of Banco Santander*. Tracing Santander's origins in the mid-nineteenth century, at a time when Spain was struggling to adopt a political and economic model to catch up with its more developed European counterparts, the book covers the bank's initial growth phase till the 1980s. This is followed by a discussion of its complex merger with three of Spain's largest banks and the subsequent internationalisation strategy in Latin America, United States and Europe. All along, Guillen and Tschoegl have tried to analyse the key drivers and influencers behind Santander's phenomenal progress. Factors such as the rivalry with other Spanish banks and the threat posed by the much larger European players in the wake of Spain's entry into the European Community in 1986, they say, contributed to the bank's thrust for growth. The authors also seek to evaluate the bank's strengths, weaknesses and its future growth options.



There are several factors that differentiate Santander from other global banks, Guillen and Tschoegl point out. Unlike banks such as HSBC and Citi that have a substantial presence in high-margin activities such as wholesale and investment banking, Santander's assets are primarily concentrated on commercial banking. By streamlining its operations and investing in information technology and marketing, the bank has been able to improve performance. In 2006, for instance, it reported the seventh largest profits globally. Another aspect is leadership. Santander is the only large bank in the world in which three successive generations of the same family, the Botins, have held the top executive position, despite owning a mere 2.5 percent of the equity. Despite criticisms of family-led firms, the authors believe that in the context of Spanish and European banking in the past few decades, the family character and associated decisive managerial style may well have given Santander a distinct edge over its competitors. "Santander stands out as an example of a modern corporation blending family guidance at the top with professional management throughout the organisation."

Building a Global Bank: The Transformation of Banco Santander is extremely well written with an appeal that extends beyond Santander aficionados. The book is to a large extent a comprehensive study of a banking industry in transition since it does not restrict itself to a mere chronological record of Santander's growth. The authors have taken on a much wider mandate of attempting to explain the key capabilities that have made it possible for a firm in a mature industry to better its rivals in several countries around the world. Moreover, by analysing Santander in the context of a banking industry undergoing rapid technological and competitive changes, the authors have been able to provide interesting insights, not just into the bank itself, but its domestic and global competitors as well ▪

Rekha Menon
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