The Globalization of Retail Banking : The Role of Credit Information Service Providers and Information Technology

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Introduction

The term *global bank* functions somewhat like a catchphrase in the modern financial lexicon. Perhaps it is due to a knock-on effect from the rise in the use of the term 'globalization'. Or, perhaps the 'global financial crisis' served as a natural lead-in to discussions concerning global banks. Whatever the reason, or reasons, no definition exists to clearly establish what a global bank actually is. Using that as a starting point, this paper examines *global banking* by first laying out characteristics for identifying a global bank. Later we draw on those characteristics to identify the global banks we analyze in depth. We uncover the following during the course of that analysis: we describe where global banks operate; what banking activities they engage in; explain what support system aids their operations; investigate the latest technologies they employ; examine the influence they have on local banking systems; and theorize how these banks have been able to grow into globally operating institutions.

Below we will take steps to sort through three important terms, international, multi-national, and global bank. After laying out the differences for each, we introduce one of the most significant changes in the structure of bank's foreign claims over the last three decades: the localization of credit. Simply, banks' foreign claims to local residents in countries outside of their home markets are increasingly conducted via local subsidiaries in local currency. Following from that, we lay out this paper's criteria for selecting global banks. We also consider another important feature of today's banking system: the retail banking segment. Retail banking has undeniably become one of, if not the most, salient banking segments, especially since the onset of the 2008 global financial crisis. Indeed, even if non-retail banking segments recover in years to come, worldwide revenues from retail banking are still expected to experience very strong growth over the next decade. A significant portion of which, will occur in emerging markets such as China, India, Latin America, Emerging Europe, and Emerging Asia. As a result, the share of total retail banking revenues originated in the developed countries of Western Europe, North America, and Japan will likely fall. Throughout this paper we refer to the retail segment's surge in

global prominence as the *Rise of Retail* because the future of banking hinges at least partially on retail. Therefore, we think a discussion on global banks and the globalization of retail banking is absolutely imperative.

Reviewing previous literature, we find a number of cases where research is very reluctant to accept the retail banking segment can be successful on a global level. Given retail's increased weight in revenues though, we think an objective analysis on global banks' most recent developments will make an essential contribution to the existing literature. Thus this paper's main aim is to question the notion that global banks will likely be unsuccessful in globalized retail. In doing so, we seek to not only uncover *whether* global banks are participants in the rise of retail, but we also consider the crucial question of *how* they would be able to participate in retail on a global level. This research is particularly meaningful because in addition to contributing to global bank literature, and theories on multi-national banking, our analysis statistically demonstrates concrete examples of global banks. As will be stated below, we emphasize both overall size and geographic reach to provide examples of such institutions.

Reviewing developments within global banks, we find retail is not only an important part of global banking activities, indeed we find it may be the *most* important segment. Furthermore, we find that, for certain banks, retail revenues generated from retail activities in host markets are more significant than those in their home markets. In fact, it might be said that the global retail banking segment is the lifeblood of some banks. Moreover, we consider some crucial reasons retail has become such an important segment, not least of which has been the role of credit information service providers.

Similar to global banks, consumer credit information service providers are also undergoing a globalization process. We identify major players in information provision, and demonstrate where and how they have expanded globally. Also, we show the services they provide to banks are evolving by becoming more sophisticated than consumer credit information. Decision analytics, fraud detection, data warehousing, and software services are all extremely important types of services within their activities. We refer to these institutions as information service providers below (abbreviated ISP). Moreover, the

relationship banks and information service providers share is very tight, and as we demonstrate below, for most ISP, banks (and other financial institutions) are their most important customer type. In fact, an important conclusion this paper makes is to state the information production function is being partially transferred from financial intermediaries to information service providers on a global scale.

We also assess technology's impact on banking, finding it is not only deep, but also intensifying. Bank channels, the ways banks and customers interact, are evolving rapidly. An important feature of more recently developed channels is information collection. In addition to offering the same services, newer channels permit banks to gather more detailed information from their customers. In fact, another conclusion we make is that increased ease of information collection is perpetuating the bank-customer relationship, pushing forward deeper relationships which make retail possible. At the same time, technology is reshaping the competitive landscape. Admittedly, new entrants in retail financial service provision are miniscule when compared to established banking institutions such as the global banks we analyze in this paper. And further, new entrants are not always capable of providing precisely substitutable services. Nonetheless, we show that a result of changing bank channels is the opening of a new window through which customers can connect to competitors, implying the platform on which banks and customers interact is ripe for drastic change.

Host markets appear to be profoundly impacted by the entry of both global banks and credit information service providers. We find that impact to be more in the form of deepening informational availability and quality, and less in the form of a reduction in financial stability. Indeed, we suggest that the entry of global banks may be an important impetus to also attracting foreign-owned information service providers. In combination, their activities are producing a rapid expansion of information coverage on adults and improving the quality of credit information available in a number of countries where they are present. By comparison, we find that countries where foreign-owned banks and credit information service providers do not have significant operations, there is a lag effect in credit information. Indeed, this may have an important implication for countries trying to

shift away from export-led economic growth strategies, and towards expanding internal consumption. Since, information is more readily available, banks (domestic and foreign alike) can lend to wider segments of the population, which in turn may produce stronger demand for consumer durable goods. Thus, as a policy implication, we suggest allowing foreign-owned banks and information service providers to enter an economy in tandem might be important factors in increasing overall access to credit.

In conclusion we do however heed a crucial warning. As is well-known the roots of the 2008 global financial crisis, which gripped the world economy, come from voluminous loans extended to uncreditworthy individuals that produced housing bubbles. Some of the global banks and information service providers we highlight in the analysis that follows are domiciled in the very countries where those housing bubbles occurred.

In fact, since the IMF has recently predicted a shift away from a two-speed world economy -- developed economies experiencing slow growth while emerging markets achieve high economic growth -- towards a worldwide economy where even 'emerging markets' experience waning economic growth, there is even more reason to focus on developments and trends in global banking. Despite benefits from global bank and information provider entry, knock-on effects to host markets are a real possibility. If prudent financial regulation of both banking practices and credit information provision does not accompany global bank entry, the consequences could be another crisis; this time taking shape mostly in emerging markets. Host market regulators must be aware that while benefits to global bank entry are likely, their entry alone is not a panacea for permanently securing the overall financial system.

Chapter 1 Previous Literature, Problem Definition, and Methodology

1.1 Literature Review

1.1.1 Theories of Financial Intermediation

Banks, and other financial intermediaries, are vital to financial markets. Over decades, various analyses have attempted to explain reasons why financial intermediaries emerge in the first place. Much of the theoretical discussion has surrounded transaction services on the one hand, and informational asymmetries on the other. The transaction services-side asserts financial intermediaries provide the service of converting illiquid assets (in the form of comparatively long-term loans) into liquid assets (mostly in the form of deposits). Essentially, this side claims, even if lenders and borrowers could find each other, they would not be able to enact the loan process amongst themselves because lenders would be unwilling to forfeit liquidity. Financial intermediaries step in to fulfill this role, ultimately shouldering risks involved with managing the maturity mismatch inherent in providing liquidity to depositors. The costs shouldered by financial intermediaries are thus referred to as transaction costs (sometimes also referred to as transformation costs due to the process of transforming assets), and explain why an intermediary forms.

Those entrusting the answer of financial intermediation to information production, highlight their role in overcoming informational asymmetries. This side of the debate asserts that ultimate lenders and borrowers are unable to enact the loan process because they are unable to locate one another. The overall inexistence of direct informational exchange between potential lenders and potential borrowers permits intermediaries to emerge. Banks and other intermediaries fulfill a role as mediator by producing information. As stated by Heffernan (2005), "[i]nformation plays an important role in banking; the presence of information costs helps to explain why banks act as intermediaries" (p. 38).

Leland and Pyle (1977) stated, "[t]ransaction costs could explain intermediation, but their magnitude not in many cases appear sufficient to be the sole cause. We suggest that informational asymmetries may be a primary reason that intermediaries exist" (pp. 382-383).

They point out that by expending resources, firms can obtain information which is not typically available publicly. However, firms especially devoted to buying and selling this information may emerge. Such firms and buying/selling of information give rise to problems concerning the information's quality and free-riding information collection (or re-selling). In conclusion, Leland and Pyle (1977) state that both of those problems "can be overcome if the firm gathering the information becomes an intermediary, buying and holding assets on the basis of its specialized information" (p. 383). The reason an intermediary solves any issues related to the sale of information is because the firm's information is 'embodied in a private good.' "While information alone *can* be resold without diminishing its returns to the reseller, claims to the intermediary's assets *cannot* be" (p. 383). Therefore, by increasing the value of its portfolio through the creation of assets based upon information it has produced, banks and other financial intermediaries are able to earn returns.

Turning back towards transaction services though, literature on this side includes Diamond and Dybvig (1986), Berger et al. (2012), and Mishkin (2006 & 2013). Diamond and Dybvig (1986) explained that of all the valuable services banks perform the transformation service, "converting illiquid assets into liquid assets", is "probably the most important function of banks" (p. 62). In conclusion they state, the transformation service "seems to be provided almost exclusively by banks, and, consequently, it is particularly important to preserve the ability of banks to create liquidity" (p. 67). Furthermore, Berger et al. (2012) state how important banks are to supplying deposits and loans as well as providing liquidity to the economy "by transforming relatively small liquid deposits into larger illiquid loans" (p.1).

Mishkin (2006 & 2013) indicates the reason banks are able to provide liquidity and asset transformation services to customers is because they are able to achieve lower relative costs by realizing economies of scale. "The presence of economies of scale in financial markets helps explain why financial intermediaries developed and have become such an important part of our financial structure" (Mishkin, 2006, p. 173). That is because "[t]ransaction costs, the time and money spent in carrying out financial transactions, are a

major problem for people who have excess funds to lend" (Mishkin, 2013, p. 79). In addition to providing liquidity, "[a]nother benefit made possible by the low transaction costs of financial institutions is that they can help reduce the exposure of investors to risk -- that is, uncertainty about the returns investors will earn on assets … This process of risk sharing is also sometimes referred to as asset transformation, because in a sense, risky assets are turned into safer assets for investors" (Mishkin, 2013, p. 81). Thus, for this school of thought, banks and other financial intermediaries are what enable the circulation of funds from savers into productive uses within an economy.

Campbell and Kracaw (1980), though criticize the idea that explaining financial intermediaries is as simple as an either 'transaction services' or 'information production' argument. They stress that it is the efficiency of information production that is the key determining factor in the formation intermediaries, stating, "intermediaries prosper when they simultaneously produce information and provide other services" (Campbell & Kracaw, 1980, p. 881). Furthermore they conclude:

> The problem is not that the market is unable to produce information which leads to the identification of the true value of assets. Rather, it is that this production of information will not be done efficiently or at least cost. The underlying reason for this is that efficient information producers may not have a sufficient stake in the market to persuade the market of their reliability. Each investor-information producer's initial wealth endowment acts as a constraint on reliability and as a barrier to entry in the information production industry. (Campbell & Kracaw, 1980, p. 881)

Even if firms which produce information emerge, they will likely be unable to convince banks that the information they produce is credible because they do not have a financial stake in the outcome of the asset. Since only the information producer knows the true accuracy of the information, the only agent in a position to provide financial services is the information producer. Therefore, according to Campbell and Kracaw, the theory of financial intermediation cannot be dichotomized into an 'information producer' camp and a 'transaction services' camp. Instead the two function in tandem.

1.1.2 Global Banks and Foreign Bank Presence

A fair portion of research devoted to foreign bank entry and global banking has tended to focus on the general characteristics of foreign entry. Research specific to global banks' international retail banking activities is to yet gain widespread popularity. To the extent previous research has discussed global retail banking, it has mostly viewed that banking segment in a negative light.

Smith and Walter (1990, 1996, 1997, and 2012 with Gayle DeLong) highlighted shifts in corporate finance, deregulation, and technological development as important to the expansion of domestic retail banking. Internationally, they stress the role of globalization in the financial industry, hastening the pace at which financial innovation takes place. On one hand, globalization and rapid innovation allow global banks to transfer retail approaches to foreign markets. On the other hand however, since financial products and services can easily be copied, maintaining that advantage is extremely difficult, even for large banks. Additionally, Smith and Walter discuss difficulties in understanding the retail banking market in foreign countries. Grasping cultural and customary intricacies in a vast number of countries' banking sectors is an undeniably ambitious endeavor. Therefore, Smith and Walter (1997) concluded, "failures in international retail banking are perhaps more common than successes" (p. 110). Ultimately, they view these two obstacles – local intricacies of retail banking markets and the ease of copying financial products – as being insurmountably high hurdles preventing global banks from being successful in global retail banking.

Research statistically demonstrating global banks find it difficult to compete includes Roberts and Amits (2003), Sturm and Williams (2004), and Fachada (2008), whom all provide evidence showing domestic banks copied global banks in some capacity, or at the very least made concerted efforts to improve operating efficiencies in the face of increased competition. Roberts and Amits (2003) confirm domestically owned Australian banks copied foreign bank financial innovations. "Of the numerous documented major innovations, none were conceived (in whole or in part) within Australia. Rather, the ideas tended to come from banking industries in other countries" (Roberts & Amits, 2003, p.111). Furthermore, Sturm and Williams (2004) state global bank entry was an important source

of improvements in technology and operating efficiencies within the Australian banking system. Focusing on Brazil's banking system; Fachada (2008) discusses the impact of foreign entry to the Brazilian banking industry over a 10-year period from 1996 to 2006. Fachada shows domestic banks responded to foreign entry by improving operating efficiencies. As a result, some global banks that entered Brazil found it difficult to compete, and withdrew from the market in the mid-2000s.

Other research that falls into a similar camp on international retail banking is not in short supply. Heffernan (2005) indicated multinational banks focused more on wholesale banking than retail, and that in the 21st century, many financial markets will internationalize, but the retail banking market will likely be an exception (p. 56). Grant and Venzin (2009) emphasize the complexity of local markets:

> In retail banking, given that regulations and customer preferences vary greatly from county to country, the dominant feature is the need to adapt to national markets, and the potential to access cost economies from the international integration of function and activities is therefore limited. (p. 571)

Tschoegl (2005) takes issue with the duration global banks would be able to conduct international retail. Tschoegl asserted, "[f]oreign banks have not displayed any long-term *comparative* advantage in retail banking vis-à-vis host country banks" (Tschoegl, 2005, p. 9). And furthermore, "[a]s the banks, foreign and domestic-owned alike, become more competitive and adept, the foreign owners will no longer have a comparative advantage in general retail" (Tschoegl, 2005, p. 39). And Grubel (1977), made a similar assertion over thirty five years ago, "[r]etail banking by foreign-owned firms is a relatively unimportant phenomenon quantitatively", later pointing out foreign retail operations were "declining rapidly in Latin America" at the time (p. 351). He goes on to note,

> Multinational retail banking in developing countries has diminished sharply as policies motivated by economic nationalism led to restrictive legislation and takeover by nationals. Competitive advantage based purely on product differentiation is rather precarious and can easily be curtailed by innovative responses from the domestic industry. (Grubel, 1977, p. 351)

More generally, Buch and Delong (2004) and Berger et al. (2001) held this view with respect to the entire financial services industry. "The infrequency of international mergers is likely due to their limited success" (Buch & Delong, 2004, p. 2078). Berger et al. (2001) stated that efficiency barriers in language, culture, currency, regulatory or supervisory structure, act as prohibiting factors in cross-border bank mergers even within Europe, implying even higher barriers on a global scale.

Contrastingly, a relatively early article on the subject, Guillén and Tschoegl (1999), insinuated international retail banking had 'at last' arrived. They pointed out that large Spanish banks were attracted to countries in Latin America because they "provided the possibility of growth with the development of the banking sector" (Guillén & Tschoegl, 1999, p. 17). Later, in a 2008 publication, Guillén and Tschoegl specifically discuss the Spanish bank Santander's development into a global bank. They emphasize differences between various countries' retail banking markets as making competition in host country banking markets difficult. But, as they explain, global banks realize two important benefits from *acquiring* local banks. First, the global bank is able to not only achieve entry into the foreign market, but also it is a relatively fast means of obtaining market share, especially in highly concentrated banking markets. Second, by acquiring local banks, global banks are able to obtain vital knowledge on the local banking market. In other words, international retail banking activities can proceed only if, global banks are both able and willing to purchase locally owned banks.

Various research has sought to describe the impact foreign bank entry has on host countries. Perhaps one of the most famous articles on this topic was Claessens, Demirguc-Kunt, and Huizinga (2001), which provided empirical evidence for declining domestic bank profitability after foreign bank entry. They implied that foreign bank entry has a positive effect on the local banking market, stating, "in the long run, foreign bank entry may improve the functioning of national banking markets, with positive welfare implications for banking customers" (Claessens, Demirguc-Kunt, & Huizinga, 2001, p. 908). However, they heeded an important warning, asserting that foreign banks may have a destabilizing effect on banking systems "if the domestic prudential regulations and supervision are not strong"

(Claessens, Demirguc-Kunt, & Huizinga, 2001, p. 909). Thus, while foreign entry may have a positive impact, without the necessary framework, undesired outcomes may emerge.

In another earlier work, Goldberg, Dages, and Kinney (2000) assessed the impact of foreign banks on Mexico and Argentina. They suggested foreign bank participation brought more stability to the banking systems of those two countries. They concluded, "in both Mexico and Argentina, foreign banks exhibited stronger loan growth compared to all domestic-owned banks, with lower associated volatility, contributing to greater stability in overall financial system credit" (Goldberg, Dages, & Kinney, 2000, p. 23). Furthermore, they insisted that rather than focusing on bank ownership, bank health should be the main focus for promoting stability.

Other articles have echoed similar notions about foreign bank involvement. Crystal, Dages, and Goldberg (2002) found that foreign ownership contributes "to sounder and more stable banking systems in emerging markets" (Crystal, Dages, & Goldberg, 2002, p. 5). Tschoegl (2005) extended the idea to the whole economy. "Foreign banks tend to have a stabilizing effect on the economy to the degree that they are present" (Tschoegl, 2005, p. 20). Cull and Pería (2010) examined the consequences of foreign bank participation on financing conditions. "Overall," they state, "foreign bank entry has enhanced competition and stability in developing countries" (Cull & Pería, 2010, p. 19). Galindo, Micco, and Powell (2004) stated a "combination of domestic and foreign banks may be an optimum for host countries" (Galindo, Micco, & Powell, 2004, p. 27). Furthermore, "[g]lobal banks are often an important source of new capital for a devastated banking sector following a crisis, and many are among the most efficient in their own country" (Peek & Rosengren, 2000, p. 48). Results by Arena, Reinhard, and Vazquez (2007) also "indicate that foreign bank participation in emerging markets has not led to increased stability in credit markets", and the "response of credit to economic activity and monetary conditions seems to be roughly similar across domestic and foreign banks" (p.19).

1.1.3 Retail Banking

As far as the author could determine, one of the earliest works to use the term *retail banking* was Morison and Frazer (1982). They asserted, as economies grow, so too do individual and household incomes, and consequently, their demand for retail financial services. A determining factor in whether financial institutions are able to meet the demands they face rests with strategies they employ in approaching retail activities, which may lead to the copying of strategies. This makes it "difficult for any one institution to monopolize a successful idea for very long" (Morison & Frazer, 1982, p. 114). So even if banking institutions implement profitable strategies, successful approaches soon become industry-wide staples.

With respect to recent developments within banking, there has been a renewed focus on the retail segment. Famously, Clark et al. (2007) drew attention to the "return to retail" banking that took place in the United States banking industry during the 2000s. They indicated retail "does cycle in relatively predictable ways with the performance of nonretail banking and financial market activities" (Clark et al., 2007, p. 14). Since, retail may be vulnerable to the same shocks as other banking segments; in conclusion, they make clear that grasping retail banking's impact on the banking system is imperative. Hirtle and Stiroh (2005) suggested that increased intensity with respect to retail had somewhat counterintuitive results. The renewed focus on retail in the U.S. banking industry exhibited signs of lower equity market returns and volatility, which as they point out, would be "completely reasonable if consumer-driven retail banking is simply a low-risk, low-return business", but that contrasts with "the perception of some that retail banking offers the advantages of both higher returns and higher risk" (Hirtle & Stiroh, 2005, p. 23). Indeed, in conclusion they offer a reason for the return to retail in the U.S., stating, "the current level of focus may well be temporary as banks react to the turbulence in capital markets since 2000" (p. 23). Thus, retail's rise may be less about retail and more about capital markets have been seen as too volatile, prompting banks to evade that volatility with a 'sit-and-wait' approach with retail. However, Obermann (2006) pointed out retail is rising in developing nations as well, labeling developments in Latin America a 'revolution' in consumer finance. Though, in the same vein as other research, Obermann emphasizes the importance of

understanding the macroeconomic impact of retail's rise. Obermann suggests the establishment of regulatory institutions, or a 'safety net', to protect the future of retail banking in the region (Obermann, 2006, p. 13).

Puri, Rocholl and Steffen (2011a) and Anderloni, Llewellyn, and Schmidt (2009) make two additional points about the retail segment. First, Puri, Rocholl and Steffen (2011a) stress the importance of customer-bank relationships in preventing defaults. Their results suggest,

> relationships even in the form of simple transaction and savings account are economically important, even after controlling for detailed borrower characteristics and their internal and external credit scores. Hence, from a practical viewpoint, our results suggest that having people open simple savings or checking accounts can enable banks to make better credits. (Puri, Rocholl & Steffen, 2011a, p. 43)

Second, Anderloni, Llewellyn, and Schmidt (2009), suggest that the retail segment of banking is a driving force in financial innovation. "Overall, the most frequent targets for innovation appear to be retail customers and, to a lesser degree, SMEs" (Anderloni, Llewellyn, & Schmidt, 2009, p. 53). Thus, the retail segment likely impacts financial stability, and thus the macroeconomy, as well as promotes financial innovations and the use of sophisticated technologies throughout the banking industry.

1.1.4 Technology in Banking

Research on technology's impact on banking and financial intermediation is still ongoing, perhaps mostly due to the fact that technology is constantly changing. In fact, reviewing literature from the past two decades on technology in banking, two relatively recent papers, Frame and White (2009) and Wilson, Casu, Girardone, and Molyneux (2010), recognize the dire need for more research. Nevertheless, both studies certainly leave a clear impression that technology is completely changing the banking industry. Frame and White (2009) explain advances in telecommunications and information technology have "transformed many of the relationship-focused intermediaries of yesteryear into data-intensive risk management operations of today" (p. 1).

Other researchers share the opinion technology has had a transformational impact in shaping the modern banking industry. Hunter, Bernhardt, Hughes, and Skuratowicz (2000) pointed out, "[n]ew technologies profoundly changed the ways in which banks conducted their business" (p. 33). Lapavitsas and Dos Santos (2008) describe the impact as so profound that "[c]ommercial banks today hardly fit the traditional image of deposit-taking intermediaries that collect information on borrowers and make advances for industrial and other projects" (p. 52).

One group of research highlights technology's impact as being largely in altering the geographic structure of banking. Berger (2003) was an influential work that pointed out how technology lowers barriers created by geographic distances. Berger (2003) noted, "new services created by technological progress may be delivered with fewer distance-related diseconomies than traditional services" (p. 25). Berger (2003) further explained, by reducing significant 'distance-related diseconomies', technological progress consequently alters banking in four ways: (i) it enhances banks' abilities to create new services; (ii) it improves loan monitoring and management from greater distances; (iii) it assists banks in assessing and offering traditional banking services through improvements in credit scoring; (iv) and makes monitoring and evaluating staff more efficient (p. 22-23).

Degryse and Ongena (2004) also looked into the impact technology has on the geographical scope of banking. They indicated, "spectacular advances over recent decades in information processing and communication technology" have probably "expanded the geographical reach of financial institutions" (Degryse & Ongena, 2004, p. 571). Specifically, Degryse and Ongena sought to separate the discussion on technology by banking segment: SME, consumer, and large corporate. In their view, corporations and consumers share at least one characteristic: observability. Corporations are observable through "accounting statements and public track record", while consumers "can be readily scored on the basis of observable characteristics, such as age, income, and marital status" (Degryse & Ongena, 2004, p. 573). SMEs on the other hand, are much more opaque. Thus, as banks want to keep close watch over SMEs, the SME banking market will remain relatively local in nature. Their conclusion, differs slightly from Berger (2003),

> retail banking markets remain to a large extent local: pricing and availability of credit hinges on local market conditions. The most recent deregulatory steps and the recent technological developments will most likely not remove the remaining exogenous and endogenous economic borders. (Degryse & Ongena, 2004, p. 586)

So, according to Degryse and Ongena, retail banking is less bound by geographical limitations than before because of technological advancements, but retail is still more local in nature than wholesale banking.

However, Berger and DeYoung (2006) showed that the impact of technology not only lowered geographic barriers within any one country; technology also facilitated the physical geographic expansion of banks. Signifying a monumental shift in the structure of the banking industry, they point out,

> [a]t one time, nearly all customers were served by locally based institutions. In contrast, it is now much more likely that the bank or branch providing services is owned by an organization headquartered a substantial distance away, perhaps in another state, region, or nation. (Berger & DeYoung, 2006, p. 1483)

They emphasize technology allows executives to monitor decisions made by loan officers and managers at subsidiary, or affiliate, banks from great distances more easily. They conclude, "technological progress has allowed banking organizations to reduce the agency costs that arise when nonlead affiliate banks are located far away from headquarters" (Berger & DeYoung, 2006, p. 1510). Furthermore, Berger (2007) explained banks from developed countries are likely to take advantage of superior technology when expanding into emerging markets. Berger (2007) stressed their advantages are "significant and differ substantially depending on whether the host nation is a developed or developing nation", and that this may "explain in part why foreign organizations have often taken significant market share in relative short time periods in some developing nations" (p. 136). Thus, technology likely lowers geographic barriers in banking, but there may be limitations to how low those barriers can be lowered.

Literature focusing on technology's impact on efficiencies and processes raises other issues. Perhaps somewhat counterintuitively, technological progress may not have a

substantially positive impact on operational efficiencies. Research such as Prasad and Harker (1997), Furst, Lang, and Nolle (1998), and Lapavitsas and Dos Santos (2008), point out that through the use of technology, costs per transaction have indeed been reduced. However, banks have not realized lower overall costs because customers quickly grow accustomed to sophisticated transaction and contact methods. As a result, transactions per customer increase over time and banks are forced to make investments to support increasing customer transaction demand.

Furthermore, Autor, Levy, and Murnane (2000) suggest managerial decisions are as important as the technology itself. They underline a specific example where technology initially improved check processing in the United States. Banks used to process checks by hand, a very laborious and costly process that sometimes produced mistakes. Using a computer with a built-in high-speed camera, many banks replaced some workers and switched to image processing. However, they point out, internal reorganization required by the new technology, canceled some benefits. They suggest real cost benefits banks realize from the implementation of newly developed technologies may thus be less the result of the technology, and more the result of superior management capabilities in its implementation process. Essentially, even if a technology's implementation is initially cost-effective, whether it produces competitive advantages over time is still debatable.

1.2 Problem Definition

The literature makes clear challenging obstacles might prevent the retail segment of banking from truly globalizing. Acquiring local institutions may provide an opportunity to overcome prohibiting factors, but even if at first global banks are successful, over longer periods of time, they may eventually lose their advantages through competition with domestically-owned institutions. Plus, the specific customs and cultures existing in various banking sectors are an extremely difficult, if not insurmountable, task facing global banks. Locally owned banks should naturally have deeper knowledge of their home markets, putting global banks at a significant disadvantage. Furthermore, as Morison and Frazer (1982) pointed out, competing institutions can easily copy retail financial products and strategies. Even with advantages such as superior products and cost efficiencies, global

banks may find it extremely arduous to compete and distinguish services from the domestic competition that quickly introduces similar financial products. Thus, the general consensus seems to be global banking institutions will find the retail banking segment too difficult, and as a result will likely be unsuccessful. An analysis on global banks and their international retail banking activities is therefore warranted to determine whether or not this indeed the case.

This paper takes aim at that notion by analyzing specific global banks' international retail banking activities. We actually show the contrary to be true: global banks can indeed be successful in retail banking on a global level. We begin by identifying global banks for analysis, and then demonstrate the role international retail banking activities plays in their activities. While stating global banks can be successful in global retail is a significant contribution to the literature in and of itself, we continue our analysis to illustrate *how* global banks have been able to achieve success and the impact they have on host markets.

Tackling the issue of how global banks have been successful we examine their performance, support structure, and technological breakthroughs. The examination on performance details how global banks have improved operating efficiencies at home and abroad. When considering the support structure aiding them, we look into credit information from third parties, such as credit bureaus, and how it is available on a global level. While the literature made clear technology is transforming the banking industry, an important issue remains with respect to technology. If, as suggested by some of the literature, technological investments do not offer a true cost advantage, perhaps banks have other motivation for technological implementation. Below, we show that in addition to cost-per-transaction considerations, banks have another incentive for technological implementation.

Furthermore, the literature noted the presence of global, and foreign-owned, banks may have the benefit of improving host-country banking sector stability. Hardly any of that literature though paid specific attention to the retail segment. Many of the countries into which global banks have expanded, have experienced economic growth. As indicated by previous research, retail expands as economies grow. Hence we should expect the retail

banking segment is also growing in those countries. If retail banking strategies are copied by domestic banks, quickly becoming industry-wide staples though, the possibility exists for excessive expansion. If that were the case, retail banking could possibly have a *destabilizing* effect. Since we already know a major crisis occurred in the United States, with origins in the allocation of numerous loans to uncreditworthy individuals; whether a similar outcome is possible in countries where global banks operate, is worthy of examination. Thus, a final question we seek to answer is whether global banks' retail banking activities have had a negative impact on financial systems in host countries.

Lastly, we incorporate the latest developments in global banking into a theoretical discussion with the aim of adding new insight into why financial services offered to households and individuals are globalizing.

1.3 Methodology

This study analyzes a wide range of data on global banks, and the host markets where they operate. As chosen by the criteria outlined above, the global banks we observe are HSBC and Santander, in addition to Citibank and Unicredit as data availability permits. Statistical data employed in analyzing these global banks derive from the following sources. Data comparing assets, returns on assets (ROA), and operating efficiency is derived from *The Banker*[1]. Data on the structure of loans and bank earnings were originated from annual reports and financial statements published by each individual bank. In discussing the method and reasons for global entry we also draw on previous literature.

To understand what support system exists for global banks we examine major credit information service providers. The credit information service providers (ISP) we observe are the largest in the industry by revenues, and crucial suppliers of services to financial institutions. Data on these institutions is taken directly from their annual reports and websites, and in addition, we make use of data available through the United States Securities and Exchange Commission (SEC) to make important observations about their respective relationships with global banks.

[1] This paper refers to efficiency as the ratio of cost to income.

Our analysis on technology uses a somewhat unique approach by observing developments in banking through the lens of what has occurred in non-financial industries. Specifically, we observe bank channels, or the way customers and banks connect, to understand what is changing about access to retail financial services. And, we observe competitive transformation since technology is lowering barriers to entry. A discussion on technology is, by nature, shaped by recent developments in any given industry. When possible we employ data from the World Bank Databank, the IMF, the OECD, the *World Retail Banking* report, and the academic literature. At times, the most recent data and statistics are not available from these sources. Thus, we also utilize information and statistics from very recent relevant finance-related publications. In addition, we employ information directly from bank websites, as well as other service providers when applicable.

When observing global bank impact, we take a country-by-country approach in analyzing both economic and financial developments. We describe the host country selection process at the beginning of chapter 6. In comparing macroeconomic developments, we observe indicators such as overall gross domestic product (GDP) growth rates, GDP per capita rates of growth, in addition to GDP per capita and household consumption levels per capita in constant 2000 U.S. dollars. Then, we examine financial developments by comparing the share of retail loans in total loans, bank credit as a percent of GDP, loan interest rates, and interest rate spreads. We also examine select domestic banking institutions in order to make more detailed financial observations. In analyzing stability we consider both total nonperforming loans (NPLs) and nonperforming loans granted to individuals (and households). Data derives from the World Bank, respective national banking authorities, annual reports, and *The Banker*.

This approach is not without caveats. Statistics from *The Banker* may eliminate smaller institutions during the bank and country selection processes, altering banks and countries presented in the analysis below. Nonetheless, we feel that since the discussion is focused on retail activities by global banks, selecting a threshold to preserve relative size is appropriate. Clark et al. (2007) explained some of the most important retail banking changes have occurred in the largest commercial banks. “Although there have been other

periods in the past few decades when retail banking has been an important area of strategic focus, the recent cycle is particularly significant because of the role of the very largest banks" (Clark et al., 2007, p. 16).

Also, there may be slight discrepancies between various definitions of borrower and customer type. The author has made every attempt to ensure that borrowers indicated below are individuals, or households, and has indicated that information accordingly. When necessary we make the proper distinctions as to whether statistics include SMEs.

Chapter 2 Defining and Identifying Global Banks

2.1 Previous Discussions on International, Multi-National, and Global Banks

An important first step is to select a definition for global banks. As has been pointed out in some of the earlier literature, definitions concerning international banking operations have a history of being quite ambiguous (Kawamoto, 1995). Below we present previous definitions for international banking and multi-national banks, and then global banking. Using these previous explanations as a starting point, we then present our criterion for arriving at a new definition for global banks.

International banking and Multi-national banks have been the subject of research for decades. Aliber (1984) conducted a survey of international banking, noting that "international banks are a subset of domestic banks with significant numbers of foreign branches and subsidiaries", later adding, "there are few uniquely international banking activities; although foreign exchange trading may seem to be one" (p. 661). Aliber describes three forms international banking: (i) the geographic view whereby banks conduct business through foreign branches or subsidiaries; (ii) the currency view, which holds that services conducted in non-domestic currencies constitute international banking; (iii) the nationality view that said international banking occurs when the borrower and depositor have different nationalities. Thus, it seems, the notion of what international banking is, has at least been complex to define since the early 1980s.

Aliber (1984) concluded, "[b]anks participate in international banking transactions when they sell deposits and buy loans denominated in a currency other than that of the country where they are headquartered" (p. 677). Suggesting that foreign currency is what classifies banking activities as international, and not the geographic location of depositor or borrower.

More recently a 2010 paper by The Bank for International Settlements (BIS) provided an updated definition. They focused on the geographic nature of credit extension by referring to international banking services as:

> The extension of credit by a bank headquartered in a particular country to residents of another country can occur via: (i) cross-border lending; (ii) local lending by affiliates

established in the foreign country; (iii) lending booked by an affiliate established in a third country. (Bank for International Settlements, 2010, pp. 4-5)

Gone from this definition is the idea of defining international banking purely based upon the use of foreign currency. Instead, we see that the banks' headquarters and country of residence are the determining factors. While credit may occur in various forms, the participants' locations are the primary factors.

The tendency to stress geographic location of participants is evident when considering definitions for multi-national banks as well. In addition to location, size is also an important determining factor in previous research. Brimmer's (1973) framework for identifying multi-national banks, (banks with at least one foreign branch or subsidiary) demonstrated a correlation between bank size (as determined by assets), and multi-national expansion. In fact, "[a]ll but one of the multi-national banks" in Brimmer's study "were drawn from the 20 largest banks" in the United States (Brimmer, 1973, p. 440).

According to Grubel (1977), "[m]ultinational banking involves the ownership of banking facilities in one country by the citizens of another" (p. 349). From this perspective we can see that the term 'ownership of banking facilities' again suggests the idea that a subsidiary, or branch, exists physically within the host country's borders. In this same paper, Grubel analyzed multinational banking from three vantage points, one of which was retail. Grubel highlights the fact that Canadian, British and Japanese banks opened banks in California offering the same products and services to local customers.

Works by Ingo Walter and Roy C. Smith are crucial pieces to the previous literature. Walter and Smith (1997) indicate that "[m]ost financial businesses are now effectively global" (p. 14). They do not provide however, any real justification or distinction between a global financial business, and international or multi-national ones. Somewhat earlier on, they did offer an idea for what that process might look like:

> If the only place where such integration existed was between the United States and, say, Canada, then the whole subject might be represented by a different, more narrow expression such as *North Americanization*. But it is not -- integration is in evidence currently among the capital markets of North America and those of Europe and Japan.

> So we refer to the *globalization* of capital markets, and the term seems to have become accepted as a new buzzword in the lingua franca of finance. Apparently it was preferred to 'worldwidization' or even to internationalization...the process that individual firms must go through in order to become effective competitors in the globalized marketplace. (Smith & Walter, 1989, p. 49)

Thus, for Smith and Walter, international financial integration between North America, Europe, and Japan warranted the use of the specific term *global*.

Walter and Smith do shed light on the types of services provided by global banks. "International commercial banking services closely parallel those offered in purely domestic markets" (Smith & Walter, 1990, pp. 24). They indicate products offered fall into six categories: 1) deposit taking (in off and onshore markets these include demand and time deposits and Euro-deposits); 2) international trading and dealing activities (foreign currencies, foreign exchange contracts, financial futures, options, gold and other commodities); 3) international trade and cash management services (international documentary collections, letters of credit, acceptance financing); 4) international lending 5) underwriting and trading/dealing in domestic and international securities (foreign bonds, Eurobonds, and notes); 6) international personal banking and investment services (fiduciary trust, investment activities for institutional clients, and retail banking abroad) (1990, pp. 24-27). Also, the types of institutions providing these services are numerous. "If the variety and complexity of the kinds of international financial services are impressive, so too are the types of institutions that provide them. They range from enormous private and government-owned financial supermarkets" ... "to small specialist houses or boutiques that have carved out a position in international markets for a limited range of services." (Walter & Smith, 1990, p. 27).

Eventually, Smith and Walter admit the very idea of global banking is extremely complex. Their research attempts to "wade into the chaos and confusion of today's global banking capital market environment"..."to gain a better understanding of the evolution of international banking and finance." (1997, p. 15). Nonetheless, a truly concrete definition of global banking, or multi-national for that matter, does not emerge from their analysis.

Alternatively, Berger, Qinglei, Ongena, and Smith (2003) refer to global banks as being "headquartered in a few financial centers, but with offices in many nations around the world" (p. 384). Furthermore, they add, "[b]ank reach refers to the geographic scope and size of the chosen bank. A global bank operates in many nations and is among the world's largest institutions, a local bank operates in a single nation, and a regional bank lies between these extremes" (Berger, Qinglei, Ongena, & Smith, 2003, p. 385).

2.2 Revisiting the Concept of a Global Bank

Essentially there is no clear-cut definition for a global bank. An imperative task facing financial academic literature on an international level is establishing a theory to constitute what a truly global bank actually is. Drawing from previously mentioned research, we operate on the assumptions that (i) internationalization is a process that produces multi-national and global banks; (ii) as a result, multi-national and global banks have a physical presence in countries and regions outside their domiciled nation; (iii) in addition to physical presence, institutional size is significant to identifying institutions as global.

Above, BIS (2010) offered three notions for considering international banking. This paper focuses on the second type: financial activities conducted by local affiliates inside a foreign country. We do so for the following two reasons. First, as we will indicate below, a major aspect of our analysis centers on retail banking. Both the first and third types of banking from BIS (2010) are somewhat problematic because of issues with exchange rate vulnerability and difficulties monitoring large quantities of transactions with many individuals across borders, essentially rendering both of the other types of international banking ill-suited to a discussion on retail banking. Second, local banking activities have become increasingly important over the last three decades, particularly since the 2008 global financial crisis. Figure 2-2.1 shows local lending is on the rise as a percentage of total foreign claims on non-residents; and in total value, local lending has recovered, surpassing 2007 levels whereas cross-border lending has not[2]. We emphasize local presence

[2] Figure 2-2.1 statistics represent claims on non-residents of the bank's reporting country on an immediate borrower basis in millions of US dollars (and percent on right scale).

because, as mentioned, figure 2-2.1 indicates the localization of bank credit to non-residents has been an important feature of banking in recent years[3]. These statistics point out at least four further reasons to justify our emphasis on local operations. First, local claims have been continuously rising as a percentage of total foreign claims for nearly 30 years, which suggests a continual localization of bank credits. Second, the overall dollar-value growth, from 1983 to 2012, is hugely different. Local credits grew 221 times their 1983 value, while cross-border credits grew just 27 times. Third, even though cross-border claims are still larger in total; they have been declining since 2007. Fourth, in the meantime, local claims have recovered, surpassing 2007 levels, and approaching 40 percent of total foreign claims. These developments suggest any growth that has taken place in global credits over the last 6 years has been almost entirely local in nature. Placing a local presence criterion into our analysis thus ensures we grasp truly *global* banking developments. In short, we seek to find banks that operate foreign owned subsidiaries on a wide scale, engaging local residents in local currency because that area of international banking is much more important than at any point in the last thirty years.

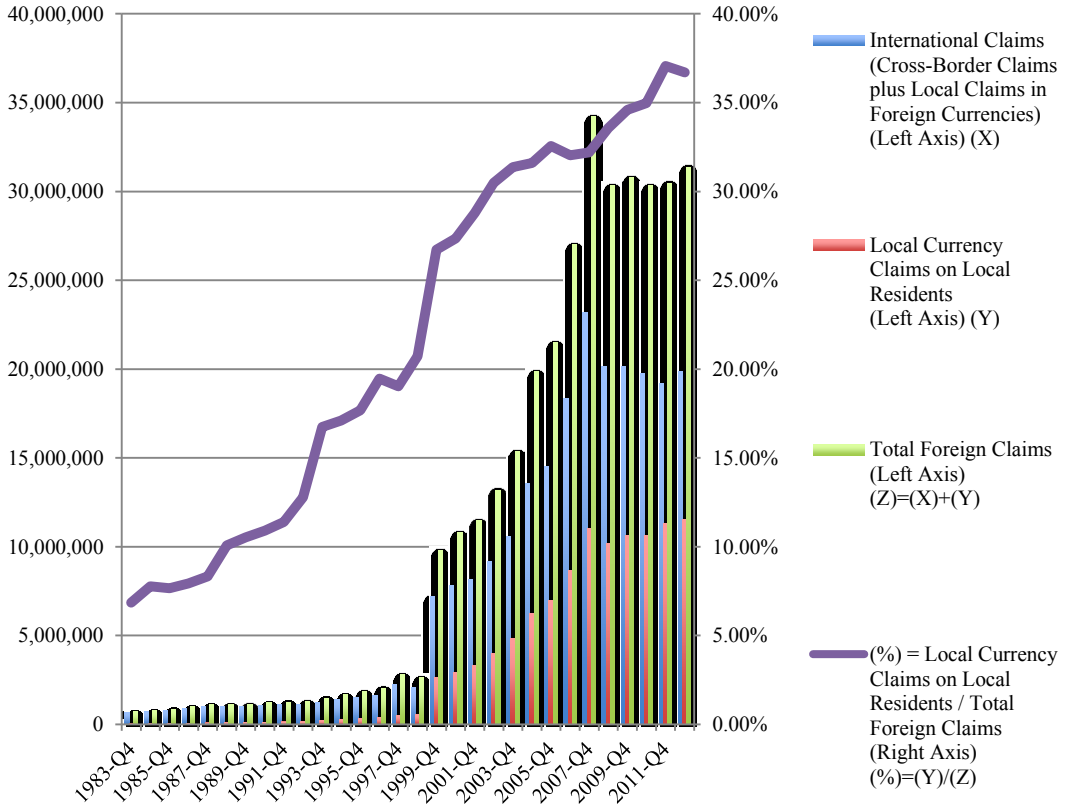
Moreover, the ownership of multiple major foreign subsidiaries has become quite common in recent years. We select banks for analysis below by applying statistics from *The Banker*'s Top 1,000 World Banks publications. Specifically, we seek to analyze banks that share three characteristics. First, we capture geographic breadth by observing banks that are present in multiple countries and regions. Below we observe banks with a major presence in more than five countries as of 2011[4], including both developed and developing nations. Second, banks should measure up to a certain asset size. Thus, below we establish a threshold for total major foreign subsidiary assets in order to separate regional players from global ones[5]. Third, we seek to observe banks with relatively longer international

[3] Here localization refers not only to having a physical presence in the host country, but specifically to local currency claims made to local residents.

[4] Aliber (1984) highlighted The United Nations measure of 'five or more different countries' as a significant level for international presence. *The Banker*'s statistical information allows us to confirm we observe major subsidiaries, and thus banks with substantial global presence.

[5] This paper focuses on the asset side of banking operations for two primary reasons: 1) assets provide an extremely valuable measure for bank size, and 2) below we examine retail loans as a

Figure 2-2.1 Bank for International Settlements (BIS) Foreign Claim Statistics, 1983-2012



Source: *BIS* Consolidated Banking Statistics, All Reporting Banks and All Countries

experience. Therefore, we observe banks that have had at least five years' experience at a certain foreign subsidiary asset level by utilizing *The Banker's* July 2005 publication. Below, we outline which banks meet these characteristics.

We now apply these criteria in order to statistically identify global banks operating on the largest scale and with the widest reach. Our approach proceeds through the following three phases. First, we provide an initial list of banks with relatively high foreign presence, which also reach our asset threshold. Second, we separate the notion of multinational banking from global banking by looking specifically into the countries and regions (not just the total number) where each bank operates. Lastly, we take a bird's eye view of these statistics to select banks with the widest global reach and largest scale. The sections that follow from bank identification briefly describe the history of global

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share of total loans, which are a common type of bank asset. Further meaningful research would do well to discuss liability developments. Asset sizes of 200 billion USD and 100 billion were selected as a means of preventing incomparability between very large banks and much smaller institutions.

expansion, explain *how* (entry method) and *why* (motivation) expansion has occurred, and analyze the structure of their activities.

2.3 Establishing Size and Duration

To begin, we statistically illustrate which banks are relatively large in size. Eliminating from the discussion banks that did not hold major subsidiaries in at least five countries in 2011, we present banks in Table 2-3.1 with more than 200 billion US dollars in assets[6]. These statistics *temporarily* narrow our discussion down to seven institutions: HSBC, Citibank, Santander, BBVA, Standard Chartered, Unicredit, and Paribas.

As one of our aims is to observe banks with longer globalized experience we also include statistics for the same banks' major foreign subsidiaries in the same publication in 2005. From this we can see some banks held less than 100 billion US dollars in foreign subsidiary assets at that time. Specifically, three banks did not meet this measure: BBVA, Standard Chartered and Paribas. We take that to mean their global experience is relatively shorter than the other four banks: HSBC, Citibank, Santander, and Unicredit.

Table 2-3.1 Statistics on Major Global Bank Foreign Subsidiaries

Global Bank	HSBC (United Kingdom)		Citibank (U.S.A.)		Santander (Spain)		BBVA (Spain)		Standard Chartered (United Kingdom)		UniCredit (Italy)		Paribas (France)	
Top 1,000 World Bank Issue	Country No#.	Assets (USD Bil)	Country No#	Assets (USD Bil)	Country No#	Assets (USD Bil)	Country No#	Assets (USD Bil)	Country No#	Assets (USD Bil)	Country No#	Assets (USD Bil)	Country No#	Assets (USD Bil)
July 2011	14	1,643.0	8	265.1	9	985.9	8	231.5	6	209.5	15	1,012.2	6	630.0
July 2005	9	744.7	7	112.7	8	457.2	6	74.4	1	6.2	3	230.8	1	7.9

Source: *The Banker*, Top 1,000 World Banks, Issues 2005 and 2011

[6] Note this list comprises the total sum of assets at *major* foreign subsidiary operations for each global bank. Some smaller subsidiaries may not be included. We employ these data because they allow for a relatively smooth comparison of global presence and scale. We also present statistics on time duration international expansion in this section. Examples exist of other banks, such as the Swedish bank Nordea, which held over the equivalent of 200 billion USD foreign subsidiary assets in 2011, however geographic distribution did not meet our criteria. Or still others, such as Austrian Raiffeisen, which held more than five foreign subsidiaries but did not reach the asset threshold. We elect not to list these banks in Table 2-3.1 on the grounds that they are not candidates for global bank classification.

2.4 Geographic Distribution

The geographic distribution of global banks' foreign subsidiaries varies widely by institution. Table 2-4.1 shows the countries where each of the global banks hold major foreign subsidiaries. Three important observations can be taken from this data. First, the foreign subsidiaries of two global banks, Unicredit and Santander, appear somewhat concentrated in two markets. Unicredit has concentrated its subsidiaries more in Central and Eastern Europe, with the majority of its subsidiaries operating in countries in that region. At the same time though, by being present in Turkey and Russia, Unicredit has demonstrated a willingness to expand beyond the core of the European Union.

At first glance, Santander's foreign subsidiaries seem concentrated in Latin America, in countries such as Argentina, Brazil, Chile, Mexico, and Puerto Rico. However, it is important to point out that Santander's operations are not limited to Latin America as they include subsidiaries in the United States and various countries in Europe such as the United Kingdom, Portugal and Poland.

Secondly, Citibank and HSBC's major foreign subsidiaries are more spread out geographically. Citibank holds major operations in emerging Europe (Poland and Russia), Latin America (Brazil, Mexico, Venezuela) and Asia (China, Japan, South Korea). HSBC operates major subsidiaries in 14 countries, spread out across Latin America, Asia, North America, Africa and Europe. Perhaps significantly though, HSBC does not hold a *major* subsidiary in Eastern Europe, a place where all three of the other global banks operate.

The third observation is emerging markets comprise the majority of nations for each of these global banks. Certainly, major positions in developed countries account for a sizeable share of total assets, but in terms of the number of countries, more than half are emerging markets. Of the 15 countries where Unicredit operates 11 are emerging markets. Similarly, emerging markets account for 6 of 9 countries for Santander, 5 of 8 for Citibank, and 9 of 14 for HSBC, signifying global banks view emerging markets as an essential portion of their global business.

Table 2-4.1 Countries Where Global Banks Held Major Foreign Subsidiaries – as of July 2011

Country	HSBC* (U.K.) Assets (USD Mil)	Citibank (U.S.A.) Assets (USD Mil)	Santander (Spain) Assets (USD Mil)	BBVA (Spain) Assets (USD Mil)	Standard Chartered (U.K.) Assets (USD Mil)	UniCredit (Italy) Assets (USD Mil)	Paribas (France) Assets (USD Mil)
Africa							
Egypt	7,787						
Morocco							7,934
Americas							
Argentina	4,880		9,041	8,236			
Bermuda	11,847						
Brazil	71,988	33,422	222,220				
Canada	71,425						
Chile			47,147	15,814			
Colombia				11,099			
Mexico	35,177	93,023	54,707	96,155			
Panama	14,636						
Peru				13,453			
Puerto Rico			6,868	4,833			
United States	343,644		89,652	63,345			
Venezuela		1,629		18,591			
Asia							
China	31,048	19,237					
Hong Kong	648,221				97,563		
India					19,839		
Indonesia	4,743				8,210		
Japan		49,338					
Malaysia	20,681				14,854		
South Korea		47,350			59,686		
Thailand					9,320		
Europe							
Austria						258,087	
Belgium							465,197
Bosnia-Herz.						2,461	
Bulgaria						7,699	
Croatia						17,269	
Czech Republic						14,409	
France	281,866						
Germany						497,205	
Hungary						7,414	
Ireland						31,677	
Italy							131,046
Luxembourg						38,462	
Poland		12,658	17,933			45,240	6,255
Portugal			64,414				
Romania						6,491	
Russia		8,414				18,867	
Serbia						2,106	
Switzerland	95,105						
Turkey						59,578	13,740
Ukraine						5,197	5,827
United Kingdom			473,959				

Asset Figures Expressed in Millions of US Dollars,
Source: *The Banker*, Top 1,000 World Banks, July 2011
*In line with *The Banker*'s statistics this paper treats Hong Kong as a foreign subsidiary of HSBC.

2.5 Differentiating Between Global and Multi-National Banks

We now take a bird's eye view of the preceding discussion. Beginning with an overview of subsidiary locations we examine countries where global banks hold a presence, grouped according to region in Figure 4-3.1. Considerable regional concentration is duly notable from these statistics. Four banks – BBVA, Standard Chartered, Unicredit, Raifeisen – have a presence in two or fewer regions. Moreover, these banks appear to have separated their market concentration into different regions. BBVA is mostly focused on Latin America. Unicredit and Raifeisen are exclusively concentrated on Europe, and mostly focused on emerging Europe. And, in the most extreme example, Standard Chartered is perhaps the most unique in this regard as it is the only bank to operate in more than five foreign markets but be solely concentrated in one region.

Contrastingly, four banks own subsidiaries in three or more regions. HSBC and Santander operate in four regions, while Citibank and Paribas are present in three. Paribas though, only holds one major subsidiary outside of Europe. By comparison, Citibank holds multiple subsidiaries in Latin America, Asia, and Emerging Europe. Santander operates nine major foreign subsidiaries in four different regions, five of which fall in Latin America. HSBC has by far the widest reach any bank in this exercise, both in terms of number of countries (fourteen) and regions (five). Furthermore, HSBC held three or more major subsidiaries in North America, Latin America, and Asia, in addition to two subsidiaries in Western Europe, signaling a diverse subsidiary structure even within regions. Interestingly though, HSBC is the only bank in our analysis to not hold a major subsidiary in Emerging Europe.

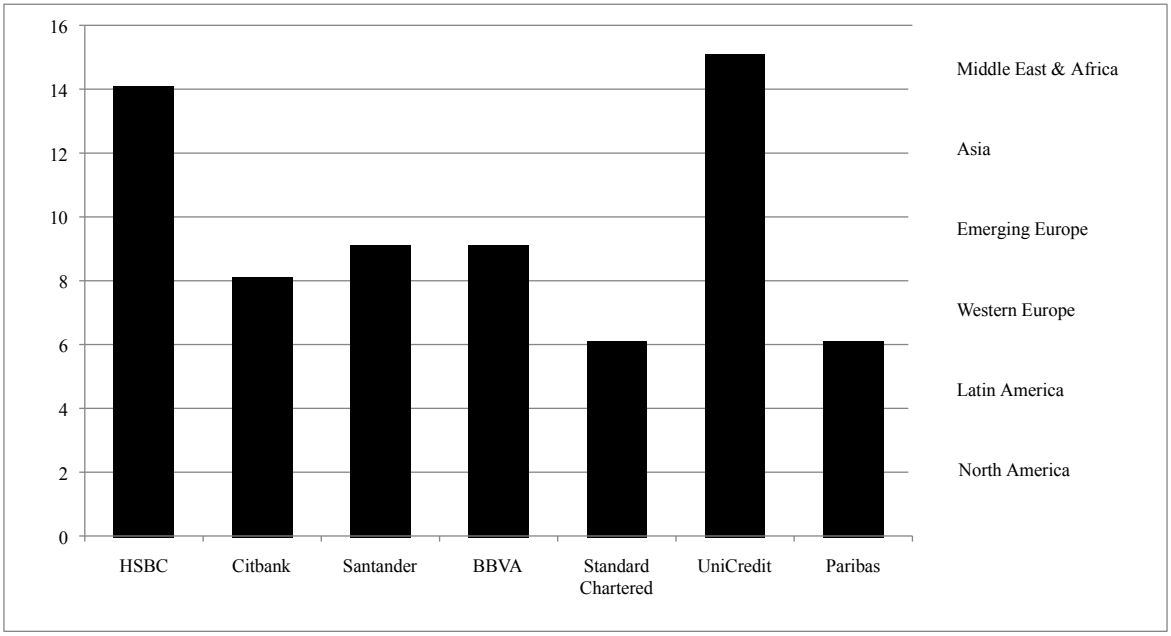
Next we analyze total foreign subsidiary assets for each bank by region. This analysis should offer a deeper understanding on regional distribution relative to asset size. Figure 2-5.2 presents total asset statistics for each bank's foreign subsidiaries by region in 2011. We can see a clear divide among banks from these statistics. Just four banks hold over 600 billion USD in foreign subsidiary assets – HSBC, Santander, Unicredit, and Paribas. The other four banks held roughly around a third of that total, with Citibank and BBVA barely eclipsing the 200 billion threshold. This suggests a stark contrast in terms of

size. Beyond that, we can see two of the banks with more than 600 billion in foreign subsidiary assets – Unicredit and Paribas – have the vast majority of those assets concentrated in Western or Emerging Europe. In fact, in the case of Paribas, the aforementioned Middle East and North Africa subsidiary barely registers when comparing assets.

Thus, we conclude only two banks have both the geographical diversity and size of a truly global bank – HSBC and Santander. Though, we do think Unicredit and Citibank are globalized to warrant analyzing their developments. Other institutions are better described as multiregional: Paribas, Standard Chartered, and BBVA. For the remainder of this analysis we omit multiregional banks, and focus on HSBC and Santander as global banks and compare Unicredit and Citibank where possible as banks *growing in global stature*.

Figure 2-5.1 Global Bank Subsidiaries by Region

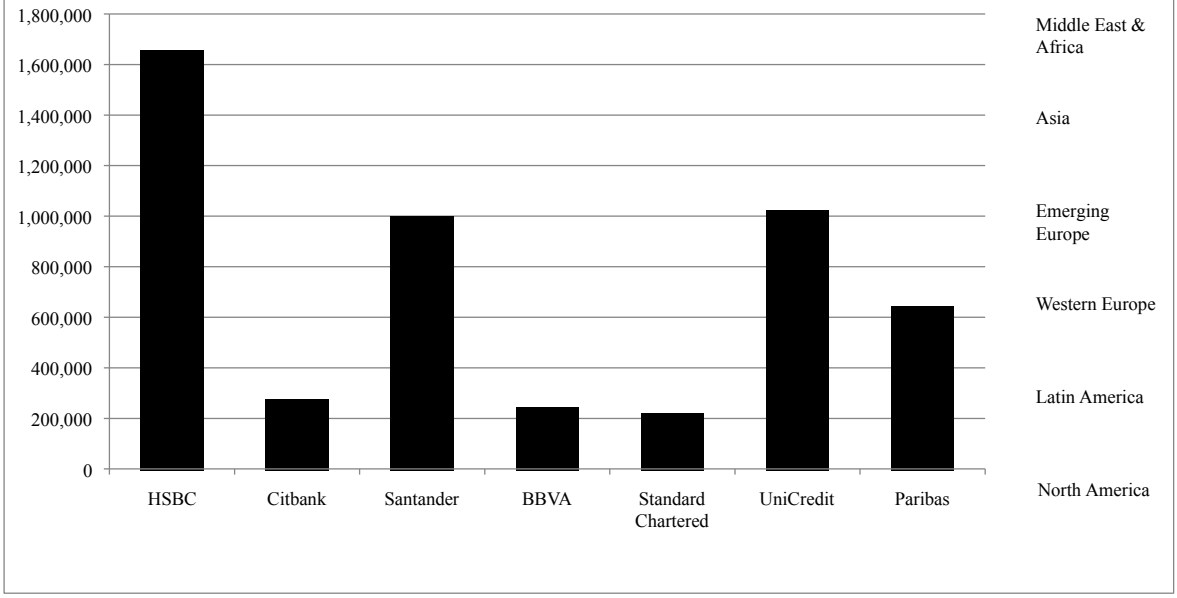
Number of Countries	HSBC	Citbank	Santander	BBVA	Standard Chartered	UniCredit	Paribas
North America	3	0	1	1	0	0	0
Latin America	4	3	5	8	0	0	0
Western Europe	2	0	2	0	0	4	2
Emerging Europe	0	2	1	0	0	11	3
Asia	4	3	0	0	6	0	0
Middle East & Africa	1	0	0	0	0	0	1
Total	14	8	9	8	6	15	6



In USD Million, Source: *The Banker*, 2011
Please note Turkey is included within Emerging Europe, and Puerto Rico within Latin America.

Figure 2-5.2 Global Bank Subsidiary Assets by Region

Assets By Region	HSBC	Citbank	Santander	BBVA	Standard Chartered	UniCredit	Paribas
North America	426,916	0	89,652	63,345	0	0	0
Latin America	126,681	128,074	339,983	168,181	0	0	0
Western Europe	376,971	0	538,373	0	0	825,431	596,243
Emerging Europe	0	21,072	17,933	0	0	186,731	25,822
Asia	704,693	115,925	0	0	209,472	0	0
Middle East & Africa	7,787	0	0	0	0	0	7,934
Total	1,643,048	265,071	985,941	231,526	209,472	1,012,162	629,999



In USD Million, Source: *The Banker*, 2011
Please note Turkey is included within Emerging Europe, and Puerto Rico within Latin America.

2.6 Historical Backdrop

We now briefly review international developments for each global bank from a historical perspective. Specifically, our attempt is to shed light on some of the earliest examples of foreign expansion by each institution[7].

By far the earliest of the three banks to begin international operations was HSBC. However, an important question remains with respect to how HSBC's international should

[7] For the sake of clarity, we keep each bank's name in unison with all previously mentioned terminology although the actual name of each institution over the course of these developments may have been different.

be defined. HSBC was originally founded as a British bank in Hong Kong. Furthermore, Jones (1990) deemed HSBC a British bank "on the grounds that its senior management has, from the 1860s to the present day, consisted of United Kingdom citizens, that for long periods of its shareholding was held in the United Kingdom" (p. 7). So while on the surface, the question over HSBC's 'nationality' have been worthy of discussion, it is probably safe to conclude HSBC has, throughout its long history, been a British bank. To be fair, HSBC officially claimed its domicile in the United Kingdom only in 1991, so we do acknowledge its deep familiarity with Hong Kong. While it may be difficult to argue a bank could have more than one home market, primarily, we treat markets aside from the UK and Hong Kong as foreign markets for HSBC.

HSBC established a number of offices outside of Hong Kong immediately after its founding in 1865. Beginning by establishing offices in Shanghai and then London months later, early on HSBC focused mostly on financing trade (Jones, 1990, p. 138). However, HSBC's international acquisitions started in earnest only after the Second World War. In 1955 HSBC created a subsidiary in California, and consolidated two other banks under their control, Mercantile Bank of India and British Bank of The Middle East, in 1959 and 1960 respectively (Jones, 1990, p. 138). Actually, the acquisition of Mercantile Bank of India transferred to HSBC a presence in various Southeast Asian nations while British Bank of The Middle East allowed them a presence in many Middle Eastern countries.

Citibank's foreign expansion began slightly later than HSBC. The Federal Reserve Act of 1913 permitted American banking institutions to establish foreign branches, allowing Citibank to begin expanding in the early part of the 20th century. Initially, Citibank's international branch expansion started as the result of a number of domestic customer's foreign expansion. Corporations (such as US Steel and DuPont) required financial services in foreign countries, especially South American branches which was where Citibank (then referred to as National City) began opening a number of branches in the mid-1910s (Cleveland & Huertas, 1985). Starting with Argentina, Citibank would later open branches in Brazil (Rio de Janeiro, Sao Paulo, and Bahia), Uruguay, Cuba, and Chile. Perhaps more interesting was Citibank's own admission they did not think foreign

expansion would be lucrative, but decided to go ahead anyways in order to prevent competitor financial institutions from encroaching on their customer base (Cleveland & Huertas, 1985, pp. 78-79).

Fortunately, for Citibank, that initial expectation turned out to be wrong. Managing to turn profits, Citibank later acquired The International Banking Corporation, through which they gained a huge foothold in the Asian markets of China, Japan, Singapore, and The Philippines. Later, in 1916 Citibank expanded into Europe, hoping to take the place of German banks that had been active before the First World War. By 1917 Citibank had thirty-five foreign branches, and had the most wide-reaching international presence of any American bank providing services including foreign trade finance, international branch banking for foreign and domestic residents, and foreign exchange trading.

Even as early as the 1910s, Citibank had ambitions to grow its retail segment, and in particular they had wanted to pursue investment and security banking services on the retail level (Cleveland & Huertas, 1985, pp. 85-87). Thus the idea of Citibank expanding its retail banking services internationally is at least a century old. In the 1920s, and years immediately following, Citibank's initial foreign expansion however were quite challenging and Citibank actually "considered closing the bank's entire foreign branch system", but eventually "chose to stay abroad, and the decision would set it apart from other U.S. banks for many years to come" (Cleveland & Huertas, 1985, p. 121).

Contrastingly Santander's history is significantly shorter than the previous two banks. As Guillen and Tschoegl (2008) point out, "[a]mong banks from countries with a history of colonization, the Spanish banks were latecomers to internationalization" (p. 76). In fact, Santander did not even open its first representative offices in another country until the 1950s, and only after which did it begin international banking operations. Similar to Citibank, preliminary efforts were concentrated in Latin America "mostly to establish a presence that would enable it [Santander] to serve its domestic customers with their dealings in the region" (Guillen & Tschoegl, 2008, p. 77). Though, Santander may have had an eye towards establishing a *limited* retail banking presence.

The earliest international forays included establishing representative offices in Cuba in 1951, Mexico in 1956, Venezuela in 1957, Argentina in 1960, and Peru in 1965. Santander's first ever foreign acquisition came in 1963 when it acquired the Argentinean bank, Banco el Hogar Argentino (Guillen & Tschoegl, 2008). Later, in 1967, Santander would acquire two more Argentinean banks, but eventually lost all operations in that country to Peron's nationalization of the banking system. In 1966 Santander purchased a subsidiary in Panama, and later established a branch in El Salvador.

The acquisition process continued into the 1970s and the very early 1980s. Santander made investments towards acquiring a bank in The Dominican Republic in 1976, Banco Condal Dominicano. In 1977, Santander established a subsidiary in Costa Rica and acquired Banco Inmobilario in Guatemala. In 1979, Santander entered Uruguay, Chile, and achieved a 20 percent stake in an Ecuadorian bank. In 1982, Santander purchased an insolvent Chilean bank and later merged it into its preexisting Chilean operations, and later did the same thing in Uruguay. Notably, acquisitions in the Brazilian and Mexican banking systems are missing from this period due to local regulations prohibiting foreign entry in both of Latin America's biggest economies.

Perhaps somewhat ironically, Mexico's 1982 sovereign default set off a series of divestments by Santander in Latin America. Santander divested from the Domincan Republic in 1985, Ecuador and Guatemala in 1986, closed Salvadorian operations and disposed its Costa Rican subsidiary in 1987, and sold its Panamanian and Argentinean subsidiaries in 1992 (Guillen & Tschoegl, 2008)[8]. In the end, Santander kept just two retail banking operations via banks in Chile and Uruguay. Essentially, Santander's internationalization can be broken down into two phases. The first took place from the 1950s until the Latin American debt crisis, which was the impetus for reversing Santander's focus on the region. The second wave, occurring in the form much more recent acquisitions (roughly from the mid90s until present), and is coincidentally the period we discuss in more detail below.

[8] Though Santander kept a representative office and an investment banking practice in Argentina.

2.7 How Have Global Banks Ventured Abroad?

Another important element to consider is the method banks chose when venturing abroad. There are at least three ways in which banks domiciled in one nation could attain a presence in another country: 1) direct acquisition of local banks 2) organic growth of a branch network, or 3) partnering with a local institution. While examples of all three exist, by far and away the method most commonly selected by these global banks has been the first, direct acquisition of locally owned banks. Indeed after crises left their banking systems undercapitalized in the 1990s, authorities looked to foreign entry as a means of recapitalization (Crystal, Dages, & Goldberg, 2002; Hernando, Nieto, & Wall, 2009). And as Tschoegl (2005) elaborates:

> [F]requently governments that have permitted some entry have still blocked foreign banks from acquiring control of domestic banks. It is not unusual for the governments to remove this restriction in crises. Foreigners frequently are the only parties able to recapitalize troubled banks as the domestic banks are themselves not strong and the government wishes to limit its expenditures where it can. (p. 23)

Regulations in other emerging markets explicitly prohibit the acquisition, and majority control of, domestic banks. Authorities in those countries have "viewed entry by foreign banks as a threat to domestic banks and as involving a loss of national financial independence" (Petrou, 2009, p. 620). Since foreign banks are only able to grow organically in those countries, gaining a larger presence proves immensely difficult. Grant and Venzin (2009) explain how overcoming this hurdle is especially arduous in retail banking:

> In retail financial services, the attractiveness of acquisition-based growth is further enhanced by the need for extensive distribution networks, which makes organic growth difficult. (Grant & Venzin, 2009, p. 573)

On top of that, "[s]ome nations also have explicit rules that limit the behavior and expansion of foreign banks *after entry*" (Berger, 2007, p. 1964)[9]. Thus, even if foreign banks were willing to compete organically, it may be next to impossible in some emerging

[9] Emphasis added by author.

markets due to those rules and impediments. As a result, it is perhaps better said that it is still early to expect foreign banks to have attained notable market share in many emerging markets *outside* of Latin America and Emerging Europe.

Some major subsidiaries took shape via the other two approaches though too. Examples include Citibank's operations in Brazil, China and Russia, as well as HSBC's operations in China and Indonesia, and Unicredit's joint acquisition in Turkey.

Table 2-7.1 represents a list of major international acquisitions by these global banks. Until recently, Unicredit and Santander both exhibited a clear geographic strategy to their acquisition activities. Unicredit focused on acquisitions in Central and Eastern Europe, while Santander focused on Latin American acquisitions. In recent years though, each has made acquisitions into countries further afield. Santander's purchase of Poland's Zachodni and Unicredit's joint-purchase of Turkey's Yapi Kredi both being examples. On the other hand, both HSBC and Citibank have spread their acquisitions over a wider range of countries and regions. In fact, they were the only banks to make acquisitions in Asia. Essentially, foreign acquisitions were a key element of international expansion for each of these global banks.

Table 2-7.1 Major Foreign Bank Acquisitions by Global Banks

HSBC			Santander*		
Year	Bank	Country	Year	Bank	Country
1997	Banco Roberts	Argentina	1990	Caguas Central Federal Savings Bank	Puerto Rico
1997	Banco Bamerindus	Brazil	1995	Banco Interandino & Intervalores	Peru
1999	Republic Bank	U.S.A.	1995	Banco Mercantil	Peru
2000	Credit Commercial de France	France	1996	Banco Osorno y La Union	Chile
2001	Demirbank	Turkey	1996	Banco Central Hispano Puerto Rico	Puerto Rico
2002	Bital	Mexico	1996	Banco de Venezuela	Venezuela
2003	Household International	U.S.A.	1997	Banco Rio de la Plata**	Argentina
2003	Polski Kredyt Bank	Poland	1997	Banco Noroeste	Brazil
2004	Bank of Bermuda	Bermuda	1997	Banco Geral Do Comercio	Brazil
2004	Bank of Communications of Shanghai***	China	1997	Banco Comercial Antioqueño	Colombia
2005	Metris Companies	U.S.A.	1997	Grupo Financiero InverMexico	Mexico
2005	Dar Es Salaam Investment Bank	Iraq	1999	Banco Serfin	Mexico
2006	Banca Nazionale del Lavoro	Argentina	2000	Grupo Meridonial	Brazil
2006	Grupo Banistmo	Panama	2001	Banespa	Brazil
2007	Banex	Costa Rica	2004	Abbey Bank	U.K.

2007	Chinese Bank	Taiwan
Unicredit****		
Year	Bank	Country
1999	Bank Pekao	Poland
2000	Bulbank	Bulgaria
2000	Splitska Bank	Croatia
2000	Pol'nobanka	Slovakia
2000	Pioneer Group	U.S.A.
2002	Zivnostenska Bank	Czech Republic
2002	Zagrebacka Bank	Croatia
2005	Bank Austria (Creditanstalt)	Austria
2005	HypoVereinsbank (HVB)	Germany
2006	Aton	Russia
2006	Yapi Kredi******	Turkey
2008	Ukrsotsbank	Ukraine

2006	Sovereign	U.S.
2008	Banco Real	Brazil
2010	Zachodni	Poland
Citibank		
Year	Bank	Country
1998	Banco Mayo Cooperativo	Argentina
2001	Confia	Mexico
2001	Banco Nacional de Mexico (BanaMex)	Mexico
2001	Bank Handlowy w Warszawie	Poland
2004	KorAm Bank	South Korea
2006	CrediCard Ownership*****	Brazil
2007	Grupo Financiero Uno	Central America
2007	Grupo Cuscatlán	Central America
2007	Bank of Overseas Chinese	Taiwan
2007	Egg	U.K.
2008	Nikko Cordial	Japan

Sources: Grant and Venzin (2009), Schulz (2006) Guillén & Tschoegl (1999, 2008), Fachada (2008), and annual reports)

*Santander has since sold the following operations: Banco Interandino & Intervalores, Banco Mercantil, Banco de Venezuela, Banco Comercial Antioqueño.

**Initial stake of 35% stake, raised to 98.9% in 2002.

***19.9% equity acquired.

****Unicredit includes information from subsidiary websites. Unicredit has also since sold Splitska Bank. Acquisition of Creditanstalt and HVB included the direct acquisition of banks in other Central and Eastern European countries.

*****In 2006, Citigroup and domestically-owned Banco Itau dissolved their joint venture in CrediCard, a Brazilian consumer credit card business. In accordance with the dissolution agreement, Banco Itau received half of CrediCard's assets and customer accounts in exchange for its 50% ownership, leaving Citigroup as the sole owner of CrediCard. Citibank later sold Nikko Cordial.

******Joint acquisition via 50-50 joint venture within Turkey.

2.8 Motivation for Foreign Expansion

Factors contributing to global expansion by financial institutions are commonly divided into microeconomic and macroeconomic-specific factors. Herrero and Simon (2003) pointed out banks may be profitable in foreign markets if they are able to realize gains from microeconomic factors such as competitive and efficiency advantages, and risk diversification. Similarly, Hernando et al. (2009) found evidence to support the claim banks with high levels of inefficiency were likely to be acquired. Global banks specifically targeted inefficient banks because they intended to improve efficiencies, and realize gains from their investments. Berger (2007) further discussed this idea by introducing the *lion's den* theory, whereby banks from developed nations are rarely eager to enter the *den* of other

banks' home countries. Explaining in large part why banks from developed countries venture to emerging markets: because they realize greater gains from acquisitions in those countries as they are less likely to face fierce competition with banks of equal abilities.

Typically macroeconomic specific-factors are divided into push and pull factors. Push factors relate to conditions in the home markets that provide banks incentive to expand internationally, or *pushing* them away. Contrastingly, promising conditions in host countries attract global banks, *pulling* them in. Some of the most important push factors include increasingly limited opportunities (i.e. market-saturation) and low interest rates in the home market (Guillén & Tschoegl (1999); IMF Global Financial Stability Report, 2010). Pull factors focus largely on host market conditions presenting global banks opportunities to capturing earnings. Expectations for high economic growth and relatively low levels of financial development in emerging markets have indeed been driving forces in international banking (Focarelli & Pozzolo 2001). Global banks have been pulled towards emerging markets with the hopes of gaining a slice of their growing banking sectors, and earning high returns in the process.

This paper assumes positive expectations for future household income in emerging markets is the most important motivating factor. As emerging markets develop, and household incomes grow, so too will the demand for consumer products in those markets. From the financial institution's vantage point, this growing demand for consumption is an opportunity to extend households the chance to purchase consumer goods on the front-end. Furthermore, with economic growth emerging markets will improve their overall infrastructures, and many households will be able to take advantage of that infrastructure to live more suburban-style lives. Household financial needs will grow as well, in the form of mortgages, automobile and other loan types. In turn, that consumption growth will work as a mechanism to expand further infrastructure investments, and equipment investment in the private sector. Of course, emerging markets do not typically possess the credit information system to overcome the credit risks involved in the retail segment. Financial institutions may be unable to internally collect that information and analyze it effectively. Organizations capable of bridging this gap will have an advantage in assisting financial

institutions analyze creditworthiness. Describing how this process functions to overcome challenges in conducting retail banking activities in emerging markets is a major topic this paper addresses below.

2.9 Asset Structure

So far we have focused a majority of the discussion on foreign subsidiary bank assets without discussing what those assets in detail. We now dig deeper by looking into the asset structure HSBC and Santander. After observing their overall asset structures, we take our analysis a step further to examine the nature of their loan structures from a geographic and a segmental perspective.

The asset structure for both banks shows unequivocally that loans are the largest type of asset. Figures 2-9.1 and 2-9.2 statistically demonstrate the importance of loans for both banks between 2006 and 2011. HSBC's loans totaled just over 868 billion dollars in 2006, and grew to over 940 billion by 2011, an increase of 8 percent. Throughout that period, loans constituted over 35 percent of assets. In fact, no other asset type ever reached half the levels of loans. True, the global financial crisis had an impact on HSBC's loan volume, but it recovered in 2010 and 2011.

Likewise, loans contributed the lion's share of assets for Santander as well. But, in Santander's case, loans comprised a far larger percentage of assets than HSBC. Starting out at 544 billion Euros in 2006, loans were 60 percent of assets for every year between 2006 and 2011. By 2011, loans topped 779 billion Euros, growing more than 43 percent in the process.

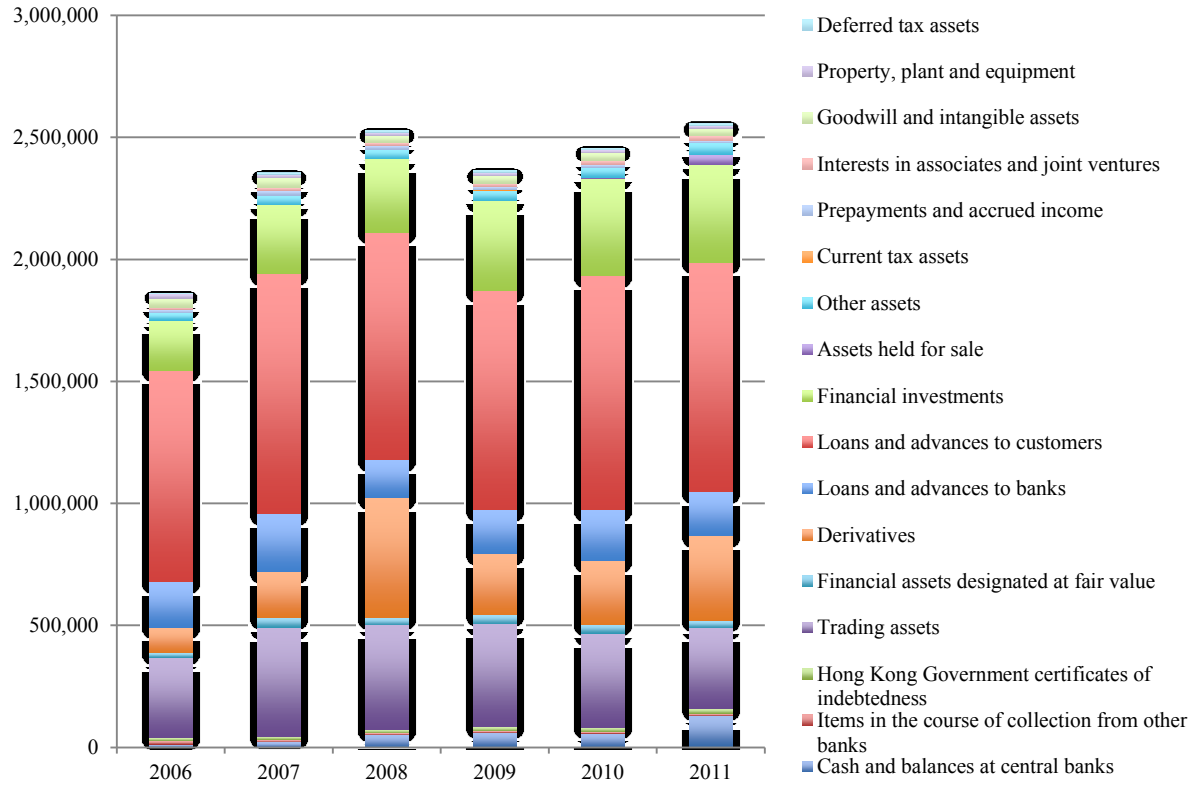
Next, we focus on the geographic nature of each banks' loan structure. Understanding where loans were allocated is crucial to our analysis, as we have reiterated our focus is on local currency claims to local residents. Figures 2-9.3 and 2-9.4 illustrate, by geographic location, where each bank originated the loans that comprise the majority of their assets. For HSBC we can see that European operations are quite meaningful, and surely operations in their home market account for a large share of European operations. Nonetheless, over half of loans were originated outside of Europe for the entire period. Granted, Hong Kong (a market HSBC has arguably more familiarity with) accounts for a

noteworthy amount of the non-European total. Still, operations in the Americas and other Asian-Pacific nations contribute noteworthy sums. HSBC loans are thus not concentrated solely in its home market.

The geographic distribution of Santander's loans is even wider. Loans in Spain contributed just 30 percent of the total in the first three years, and by the end of the period only 20 percent. Meanwhile, loans in the United Kingdom stood out as a crucial part of the total for the entire period. Other continental European operations also contributed somewhat, as did operations in the Americas. Perhaps most notably, loans in Brazil became much more important over the six years, growing an astonishing 460 percent.

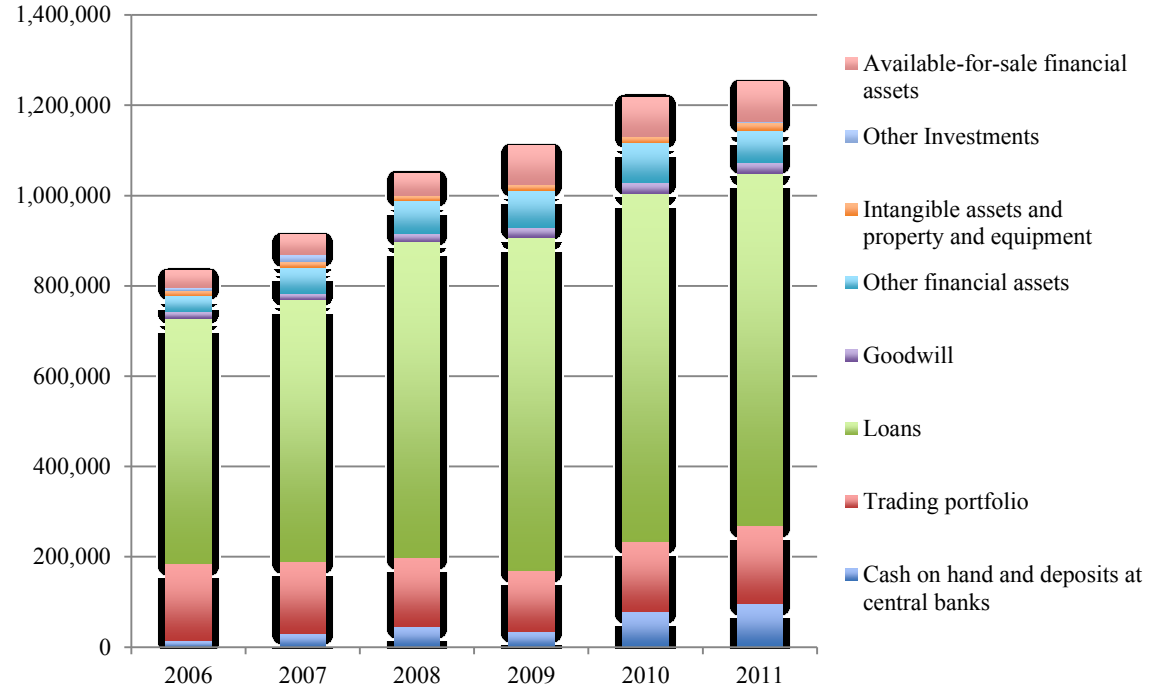
International loans are very important for both banks. While loans comprising the majority of assets may not have been the most unexpected of findings, the fact that a significant quantity of loans were originated in foreign markets signals that these two banks are indeed examples of institutions providing local currency credits to local residents.

Figure 2-9.1 Structure of HSBC's Assets 2006-2011



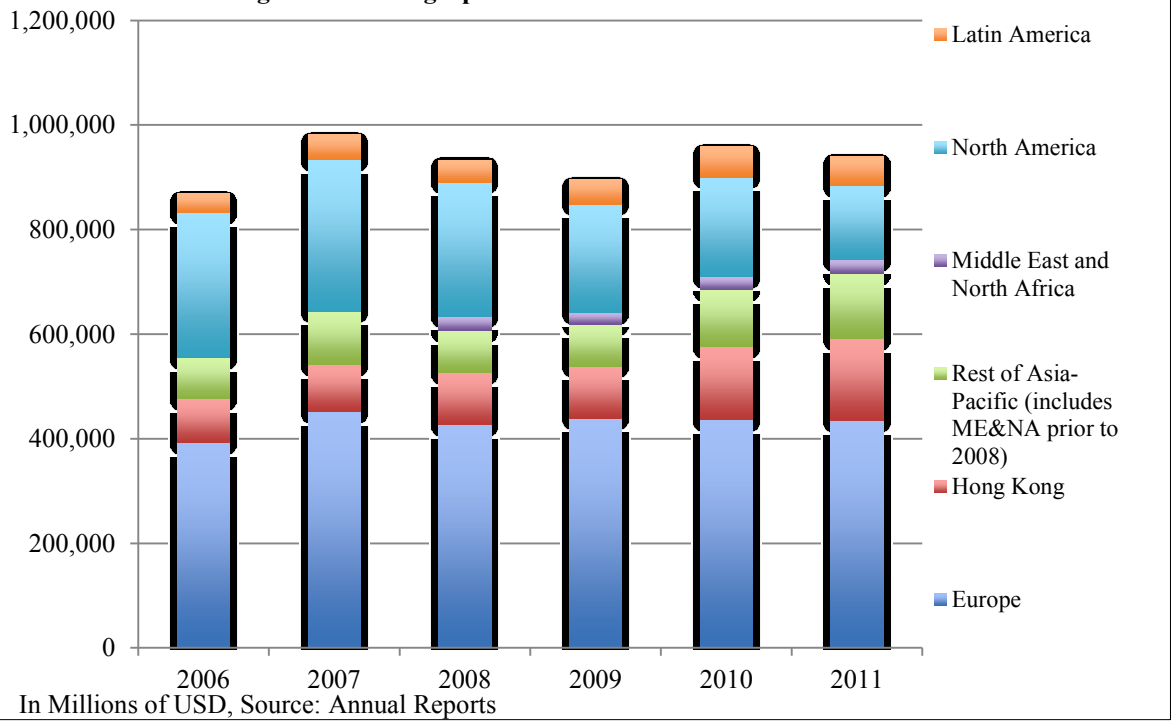
In Millions of USD, Source: Annual Reports

Figure 2-9.2 Structure of Santander's Assets 2006-2011



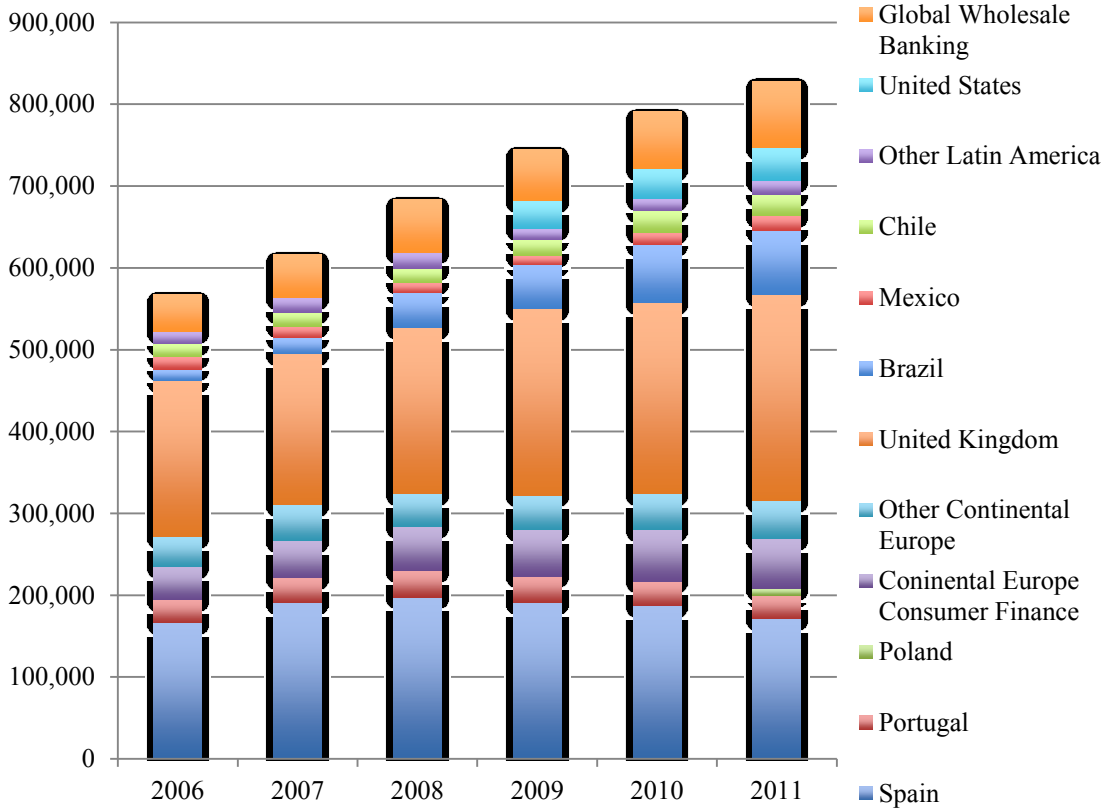
In Millions of Euros, Source: Annual Reports

Figure 2-9.3 Geographic Structure of HSBC's Loans 2006-2011



In Millions of USD, Source: Annual Reports

Figure 2-9.4 Geographic Structure of Santander's Loans 2006-2011

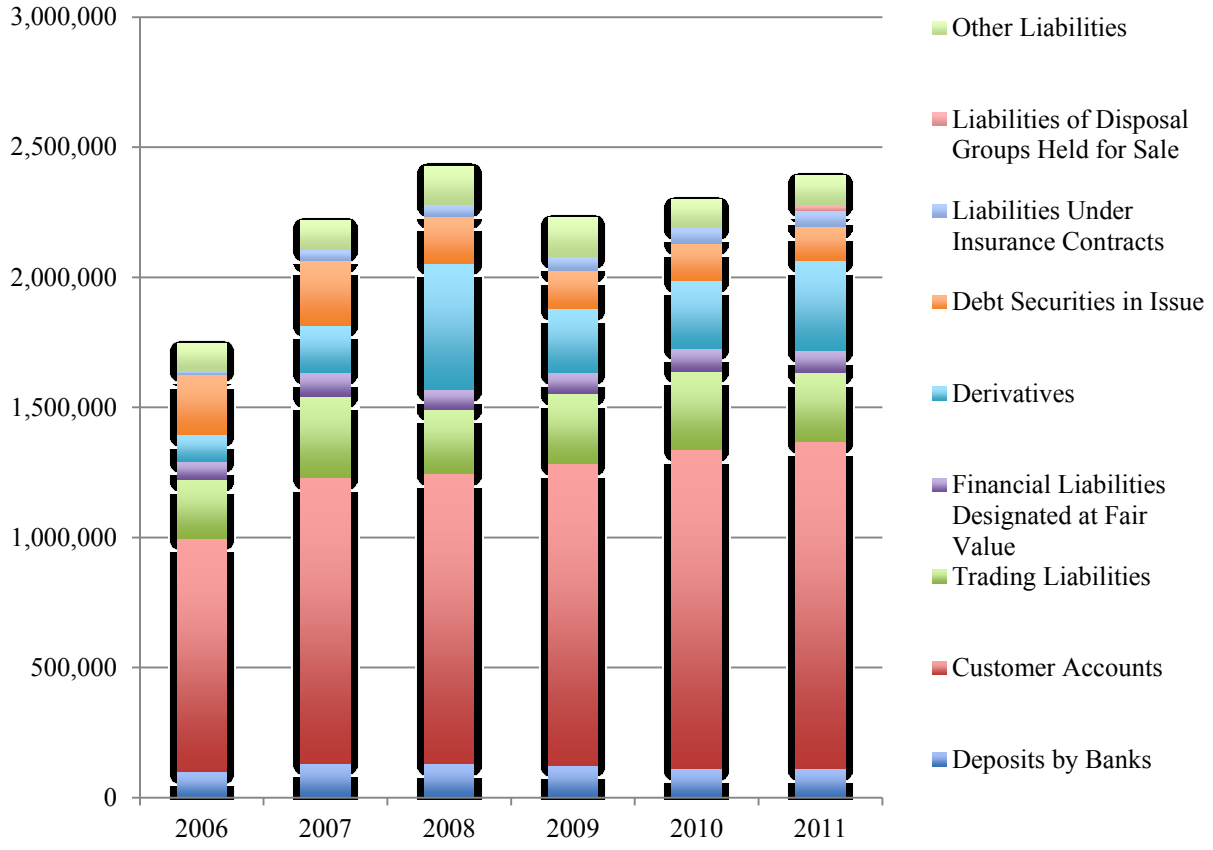


In Millions of Euros, Source: Annual Reports

2.10 Liability Structure

At this point, we shift from assets to liabilities. We analyze liability structures (Figures 2-10.5 and 2-10.6) to understand the role customer deposits play in that structure, and then (similar to loans) attempt to understand whether those deposits are of a local nature. Figures 2-10.7 and 2-10.8 demonstrate that for both banks deposits are indeed the largest type of liability. HSBC had collected over 896 billion dollars in deposits in 2006, which grew to over 1.2 trillion by 2011. Meaning, deposits grew by 40 percent over that period. Furthermore, deposits accounted for around half of all liabilities, demonstrating clearly that deposits are an irreplaceable pillar of HSBC's overall funding.

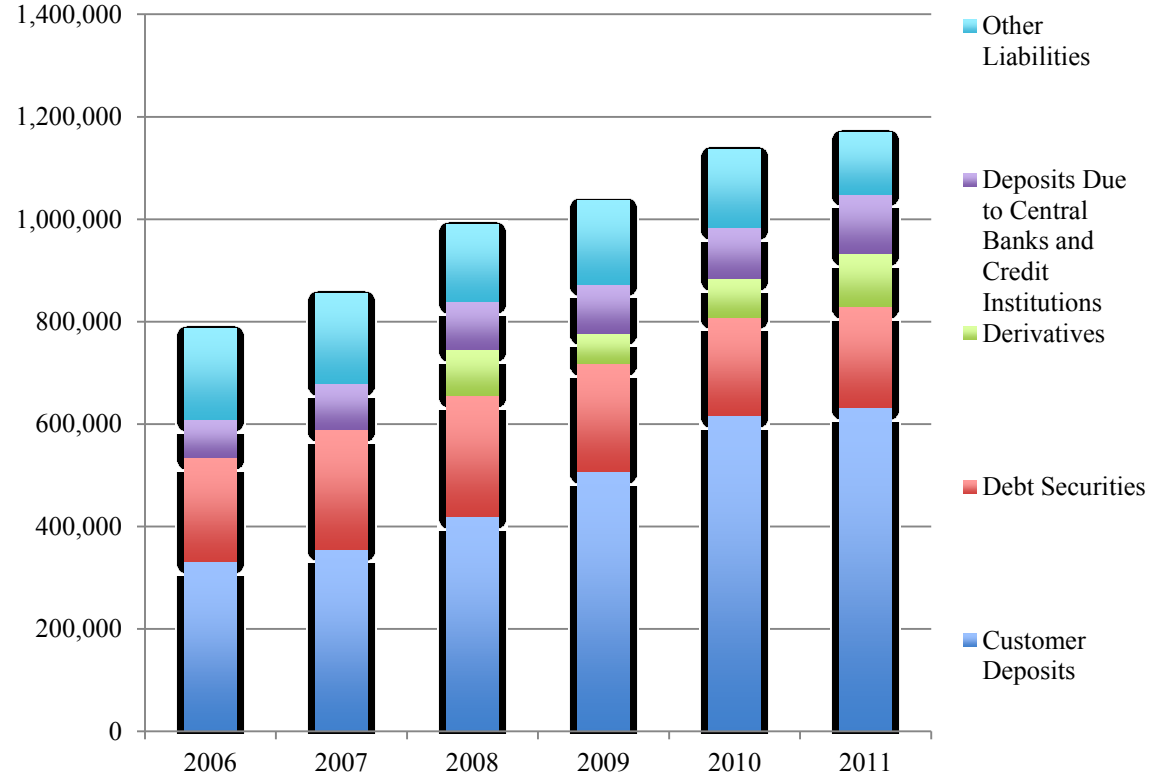
Figure 2-10.5 HSBC's Liability Structure 2006-2011



In Millions of dollars, Source: Annual Reports
NOTE: Customer accounts refers to all types of deposits collected by HSBC.

Similarly, deposits were the most significant liability type for Santander. In terms of total share, Santander's deposits contributed to a similar portion of liabilities at around half in 2011. Santander's total deposits grew by 91 percent over the six year period, nearly doubling. No other liability type comes close to deposits for Santander, echoing the importance of deposits for both global banks.

Figure 2-10.6 Santander's Liability Structure 2006-2011

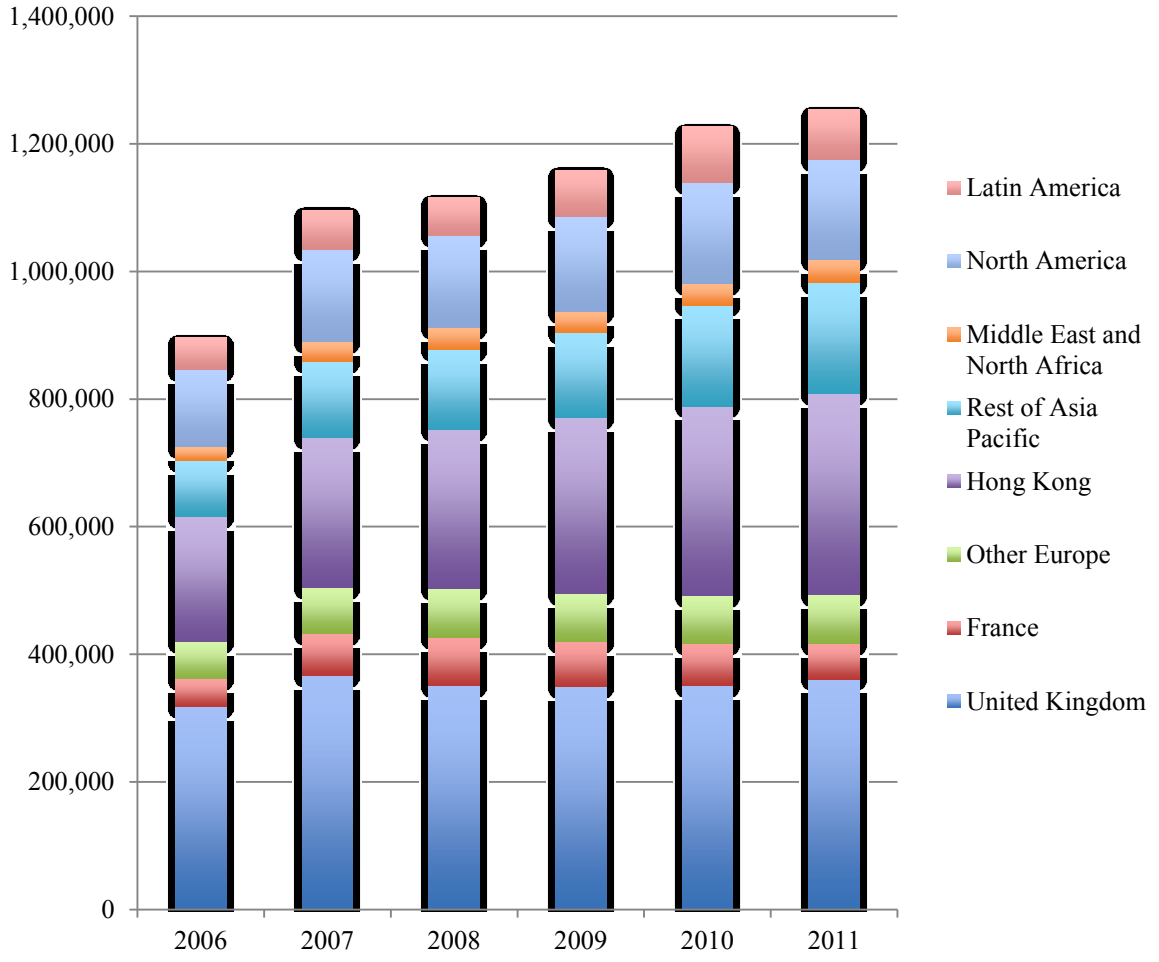


In Millions of Euros, Source: Annual Reports

Looking at the geographic structure of deposits reveals findings similar to those of loans above. Figures 2-10.7 and 2-10.8 demonstrate the international nature of both banks' deposit taking activities. Somewhat similar to loans, deposits in the United Kingdom and Hong Kong do constitute for a noteworthy share of HSBC's total deposits. Taken together those two markets account for about half of deposits. This means, other markets comprise around a half as well. Among the larger markets participating to HSBC's deposits, the Rest of Asia-Pacific was the most significant. In fact, that segment overtook North America in 2011 to become the largest outside of the UK and Hong Kong. After North America, Latin America is also noteworthy in overall size as the next largest segment. In fact, deposits in Latin America experienced rapid growth during these six years, expanding 154 percent, more than any other region. Other European markets, especially France, as well as the

Middle East and North Africa also provided markets from which HSBC could draw on for deposits.

Figure 2-10.7 Geographic Structure of HSBC's Deposits 2006-2011

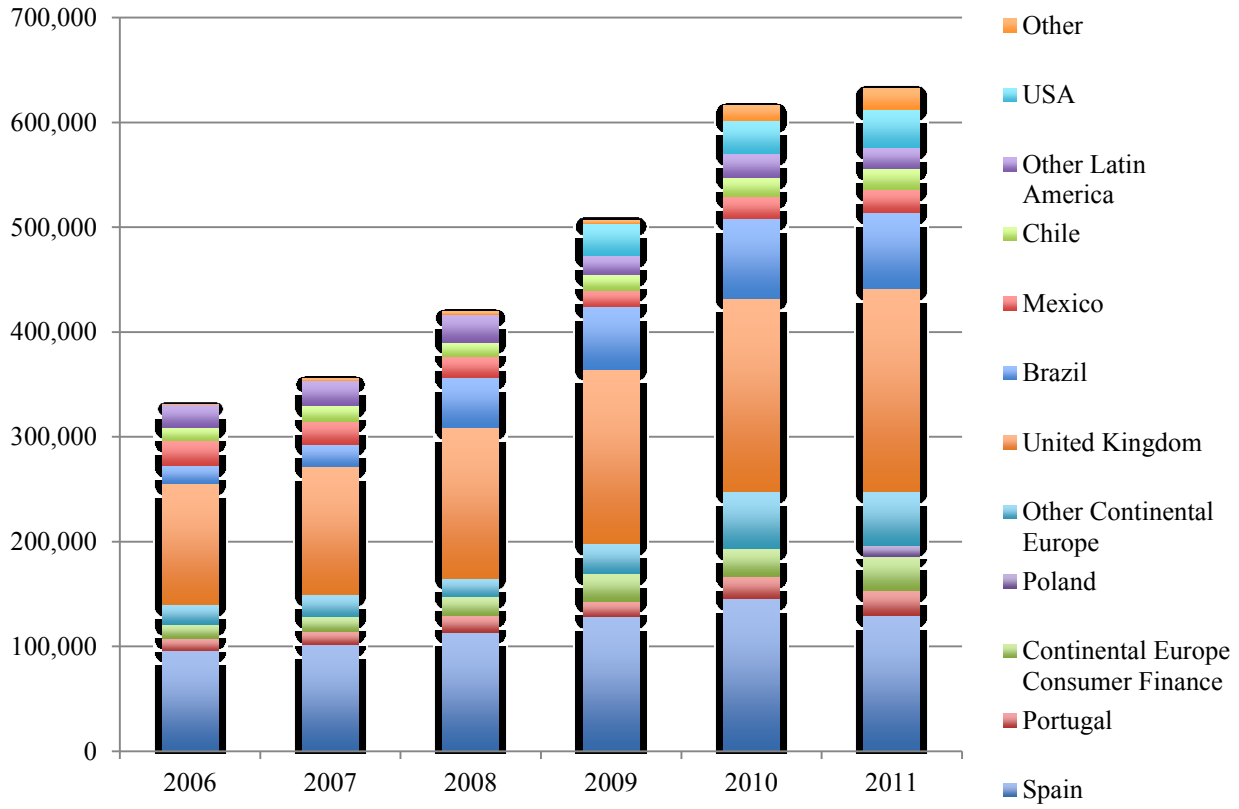


In Millions of USD, Source: Annual Reports

Santander's deposit base is equally, if not more, diversified. Spanish deposits are just over 20 percent of Santander's total at 129 billion Euros. The United Kingdom however, outpaces Spain with nearly 200 billion. Other noteworthy markets are the third largest Brazil, which actually grew by over 318 percent between 2006 and 2011, faster than any other market. The United States, Mexico, Chile, other Latin American countries and

other Continental European markets were also notable as markets with important levels of deposits.

Figure 2-10.8 Geographic Structure of Santander's Deposits 2006-2011



In Millions of Euros, Source: Annual Reports

2.11 The Rise of Retail Banking

We also draw on the literature to define retail banking. Smith and Walter (1997) describe retail as "that part of commercial banking concerned with the activities of individual customers, generally in large numbers" (p. 101). Howcroft & Lavis (1986) state that retail banking is "a financial service or group of services offered through an institution to personal customers" (p. 6). Clark et al. (2007) classified retail banking "as the range of products and services provided to consumers and small businesses" (p. 1).

This study defines retail banking as the segment of commercial banking that provides financial services to individuals and small and medium enterprises[10]. We include SMEs, along with individuals, because banks utilize the same credit scoring technologies to analyze both individual and SME borrowers (Akhavein, Frame, & White, 2001). Banks likely view these customers as at least somewhat similar – relatively opaque borrower types. Where necessary we indicate whether statistics exclude SMEs.

Retail banking is quickly becoming the most important segment in banking. Figure 2-11.1 demonstrates three ways retail is significant. First, revenues from retail banking now account for more than half (54 percent of $3.4 trillion dollars) of total bank revenue worldwide. That figure is actually more than 60 percent throughout the Americas, topping 70 percent in Latin America. Also, the figure is above 50 percent in both Eastern and Western Europe. While the figure is lower than 50 percent in Africa, the Middle East, and Asia, at more than 35 percent of income in all three cases, retail is still undeniably significant. Essentially, across the globe, retail's importance is nearly irrefutable.

Second, return on equity percentages in wholesale banking activities have dwindled, especially since the onset of the subprime crisis. Granted, the nature of wholesale banking's decline may be temporary; and, as firms and macroeconomic conditions rebound from the

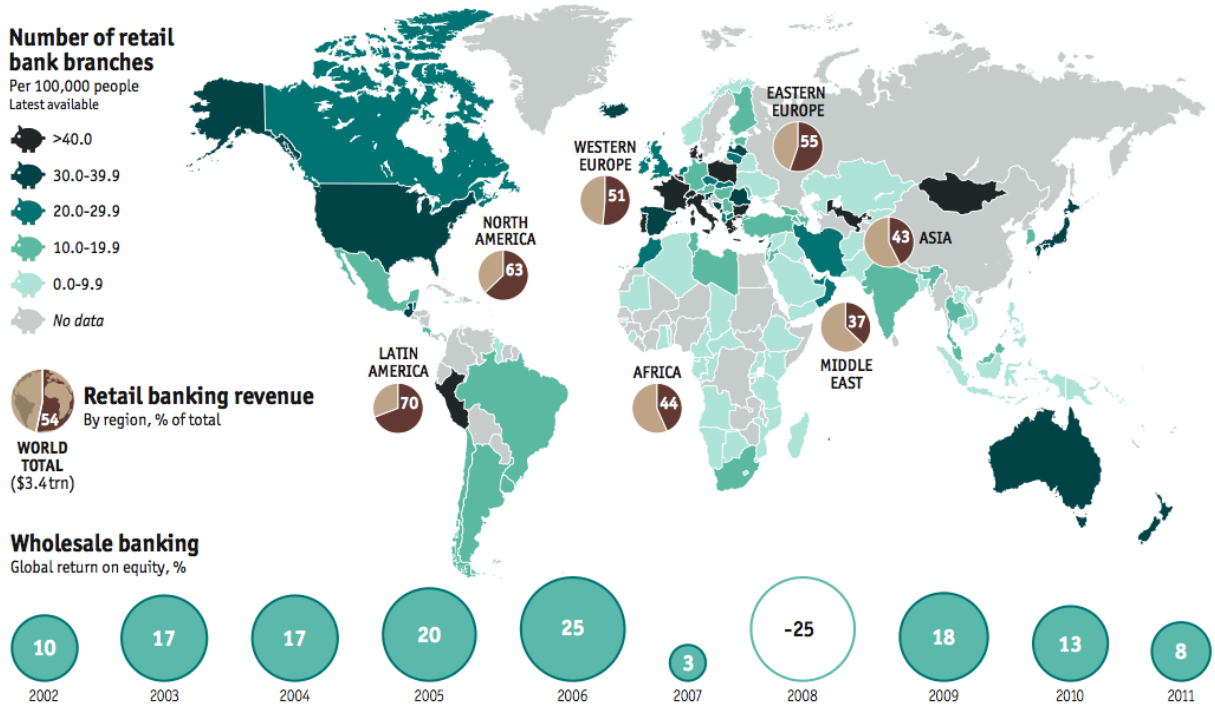
[10]Note that while the term commercial banking is used here, this does not equate to an exclusion of universal banks. This paper concentrates on retail banking activities whether part of a stand-alone commercial bank, or the commercial banking division within a universal bank. The term households may also be used when discussing retail. This discussion focuses on banks (deposit-taking institutions) because of their overall size and importance in the provision of retail financial services. Below we also discuss some other institution types as technology has recently allowed their entry.

crisis, this segment may indeed recover. Even so, the fact that retail banking acts as a crucial pillar, supporting bank income in the face of declines in economic activity, underpins retail's importance to financial stability. Without revenue from retail, a number of banks may be in even worse condition than the one in which they currently find themselves.

Third, judging from branch penetration, retail banking still has room to grow in some important markets. Developed countries of North America, Europe, and Japan have comparatively high penetration, at more than 30 branches per 100,000 people in most cases. A number of countries in Latin America, Africa, and Asia though, had far lower branch penetration. Therefore, if we take branch penetration as an initial indicator, retail banking has immense potential to expand in a number of emerging economies.

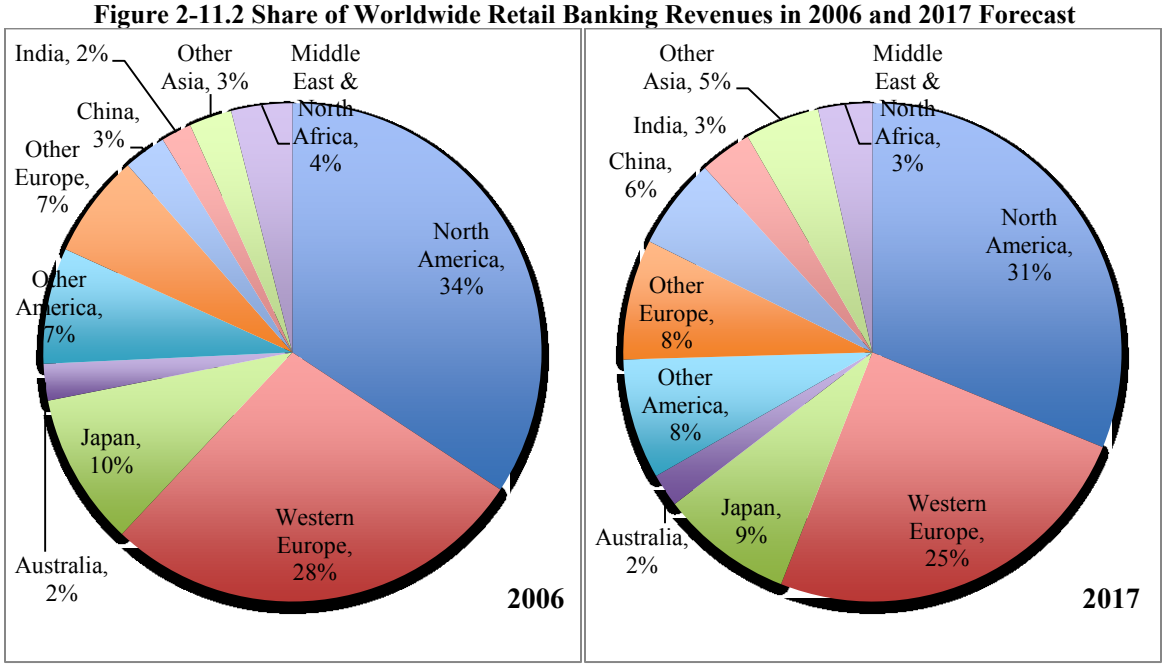
Taking a global perspective is further justifiable because, in addition to branch penetration, worldwide retail revenues are expected to grow in many markets, and especially in emerging markets. Figure 2-11.2 and table 2-11.1 illustrate at least two reasons why a worldwide understanding of retail banking is important. First, retail revenue is projected to grow by more than 25 percent for all regions and countries. In fact, most countries and regions are expected to growth by more than 30 percent by 2017. Second, while North America and Western Europe will continue to attribute to a large share of worldwide revenues, their share of the total will decline from 62 percent to 56 percent. So, as retail revenues continue to grow in developed countries, the growth will be remarkable in regions like Asia (especially China and India), Latin America, and Emerging Europe. Therefore, grasping global retail developments will be imperative to understanding global banking developments as a whole.

Figure 2-11.1 Retail's Importance As a Banking Segment Worldwide



Source: Rosenthal, 2012

Figure 2-11.2 Share of Worldwide Retail Banking Revenues in 2006 and 2017 Forecast



Source: Capgemini, European Financial Management & Marketing Association (EFMA), & ING. (2008)

Table 2-11.1 Worldwide Retail Banking Revenues in 2006 and 2017 Forecast

Country/Region	2006 Euro Billion	2017 Euro Billion	2006-2017 Growth (%)
North America	€ 433	€ 580	33.95%
Western Europe	€ 350	€ 460	31.43%
Japan	€ 125	€ 160	28.00%
Australia	€ 30	€ 40	33.33%
Other America	€ 95	€ 145	***52.63%***
Other Europe	€ 85	€ 145	***70.59%***
China	€ 35	€ 110	***214.29%***
India	€ 25	€ 63	***152.00%***
Other Asia	€ 35	€ 90	***157.14%***
Middle East & North Africa	€ 50	€ 65	30.00%
Total	€ 1,263	€ 1,858	47.11%

Source: Capgemini, European Financial Management & Marketing Association (EFMA), & ING. (2008)

2.12 Summary

This section has identified the most globalized banking institutions according to our criteria. While the reader may wonder why some specific institutions are not included in our analysis of global banks; we must reiterate that when viewing banking institutions' from the vantage point of local operations, there are surprisingly few banks with operations in a diverse number of regions. This section also demonstrated that foreign acquisitions were a crucial method of obtaining a foreign presence for all these global banks. While a clear pattern emerges, in the form of Latin American and Eastern European representation, HSBC, Santander, Citibank, and Unicredit have all also made acquisitions somewhat further afield. Emerging markets have become an important part of the foreign subsidiary umbrella for each global bank. When considering their motivation for foreign expansion, we should probably conclude that host country pull factors were significant. We also showed how the asset (loans) and liability (deposits) structures for HSBC and Santander are conducive to retail activities. The next section examines whether the retail segment has become an important part of global banking.

Chapter 3 Global Banks and the Retail Segment

Chapter 3 takes the analysis a step further to explore which segments of global banking are the most prominent. Taking a deeper look into the global banks, we statistically demonstrate the role international retail banking plays in their overall operations. We begin by looking into retail's share in loan and income structures, then analyze the geographic distribution of retail loans and income, compare global bank performance at home and abroad, and lastly offer reasons to explain why retail plays the role it does in global banking[11].

3.1 Retail Takes The Lion's Share

3.1.1 Loans

Retail loans accounted for significant portions of lending for each bank over the last ten years. Table 3-1.1 below outlines developments in retail loans as a percentage of total loans from the early 2000s until year-end 2011. Three important findings emerge from this data. First, the global banks increased retail lending during the first part of the decade. Admittedly, banks began the period at various levels, but all banks pushed retail lending to 40 percent of total lending by 2004. At 40 percent or more, retail comprised the largest loan type for all banks but Unicredit. Even in the case of Unicredit though, that number may be much closer to the numbers achieved by the other global banks[12].

Second, all banks devoted a third or more of total loans to retail over the entire period. While Citibank and Santander devoted much higher amounts than HSBC or Unicredit, a third of the loan portfolio is a noteworthy share. Plus, as pointed out with the case of Unicredit, this is likely to be much higher.

Third, the global financial crisis appears to have had an impact on retail lending at the global banks. Furthermore, the impact may be ongoing for Santander, HSBC, and

[11] Due to issues with the impact of foreign exchange rates on loan developments over time, we limit the discussion on geographic segments to the most recent statistics, year-end 2011.

[12] Data available from Unicredit does not separate the Central and Eastern European division into corporate, retail, or any other business segment. While it cannot be statistically demonstrated, we operate from the position that retail comprises a large share of lending and earnings below. Ghizzoni, F. (2010), Kornasieqicz, A. (2010), Unicredit Group. (2010), and Alekseev, M. (2010) each also agrees with this position.

Citibank as their levels continued to fall after 2009. Unicredit however, saw retail loans jump up in 2010 and 2011, approaching half of the loan portfolio.

Table 3-1.1 Global Bank Retail Loans as a Share of Total Loans 2001-2011

	Dec-2001	Dec-2002	Dec-2003	Dec-2004	Dec-2005	Dec-2006	Dec-2007	Dec-2008	Dec-2009	Dec-2010	Dec-2011
HSBC	39.5%	42.2%	56.3%	56.6%	55.9%	54.0%	50.1%	46.0%	47.1%	43.5%	41.1%
Santander	na	86.9%	88.9%	89.7%	92.9%	91.4%	90.6%	89.6%	90.7%	89.8%	87.9%
Citibank	71.0%	75.4%	79.5%	79.3%	73.3%	71.2%	71.1%	69.3%	71.7%	70.2%	65.5%
Unicredit	na	35.9%	38.5%	40.4%	38.9%	na	na	29.4%	31.0%	46.4%	45.4%

Source: Annual Reports and Financial Statements of Respective Bank

3.1.2 Income

Next, we turn towards determining what role retail played within overall earnings by investigating earnings by business segment. Below figures 3-1.1 through 3-1.4 compare retail banking's position. On aggregate, retail was the largest income segment for the global banks. Beginning with HSBC in figure 3-1.1, retail grew larger over the decade. In 2000, retail constituted fewer than 40 percent of the total. By 2005 though, retail had grown to nearly 60 percent. Other segments, such as commercial, investment, and corporate banking shrank drastically in those five years. Over the next six years retail regressed somewhat, accounting for just less than 50 percent in 2011, but was still by far the largest income segment of its global business.

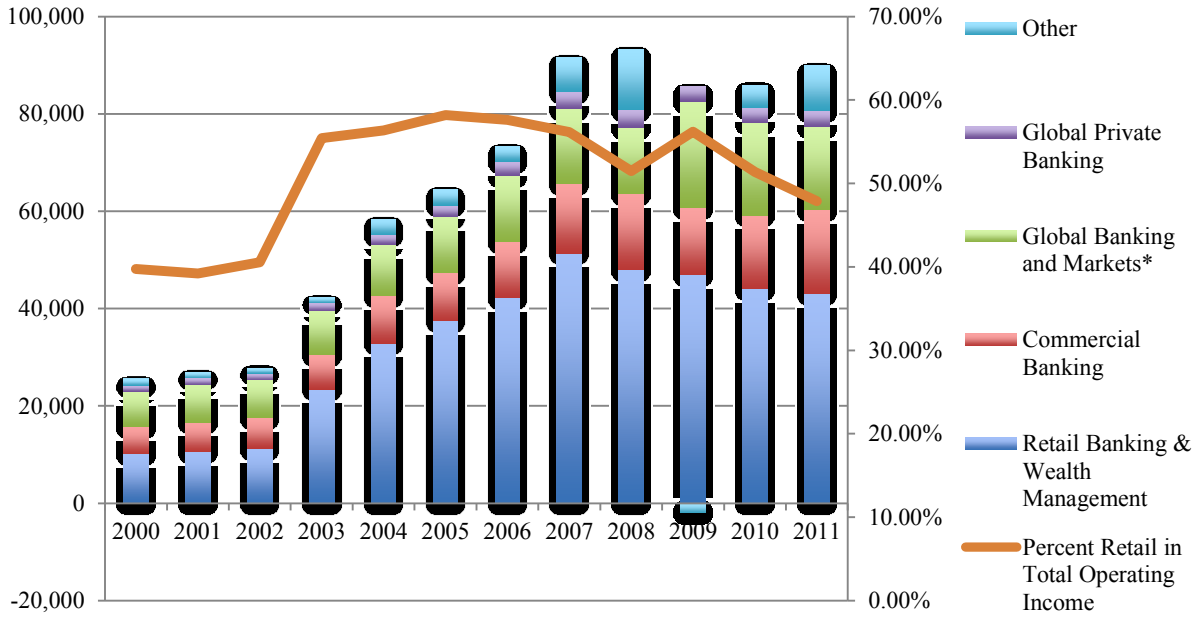
Santander saw retail grow to even higher heights than the previous two banks (figure 3-1.2). Already at 60 percent in 2000, Santander's retail income was high by comparison even at that time. Thereafter, retail grew to nearly 80 percent of income in 2005, slipping slightly to 75 percent in 2011. Suggesting, for Santander too, the 2008 crisis impacted retail earnings. Still, at 70 percent or more of income every year after 2001, Santander's retail segment is obviously its most important business segment.

Likewise, the majority of Citibank's income (figure 3-1.3) was from what they label as 'consumer banking', but we treat as retail banking. Actually, retail comprised more than half of income from early on, at 55 percent in 2003. On top of that, data from Citibank's 2008 annual report showed that figure went as high as 66 percent in 2007. The 2008 crisis

had an impact though, as retail dropped to 50.46 percent in 2011. Nonetheless, for Citibank too, retail was by far the largest segment of banking income.

Unicredit's retail segment increased to account for larger portions of income as well (figure 3-1.4). In 2003, retail banking comprised over 43 percent of income. That figure increased by 2011 to just over 50 percent of total income from their Italian, German, Polish, Austrian and 'other' retail segments. Unfortunately, Unicredit's data does not permit us to nail down a percent of Central and Eastern European income originated from retail. Other recent reports published by Unicredit suggest retail is a significant portion of total earnings within major Central and Eastern European subsidiaries[13]. In fact, the figure may be as high as 60 percent of the Central and Eastern European total, which means total retail income may also be over 60 percent for Unicredit.

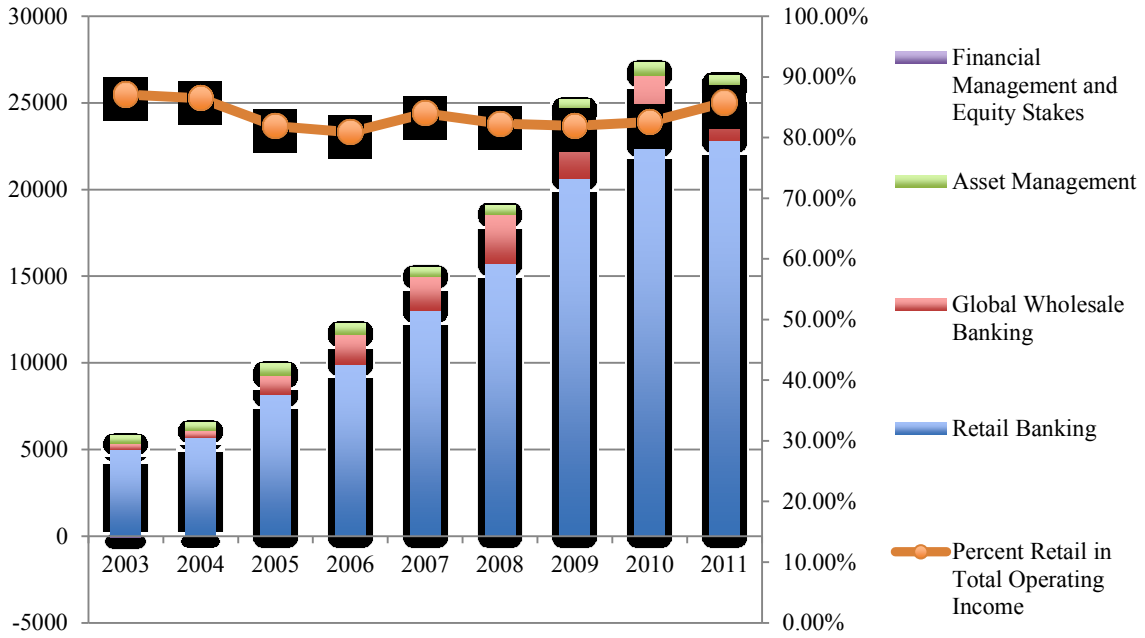
Figure 3-1.1 HSBC Operating Income by Business Segment at Year-End 2000-2011



In Millions of USD (left-axis) and percent (right-axis),
Source: HSBC Annual Reports, All Information from most recently available report, *Corporate, Investment Banking & Markets

[13] Ghizzoni, F. (2010), Kornasieqicz, A. (2010), Unicredit Group. (2010), Alekseev, M. (2010).

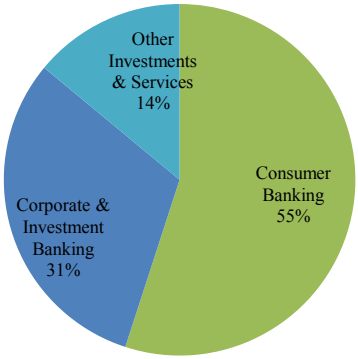
Figure 3-1.2 Santander Operating Income by Business Segment at Year-End 2003-2011



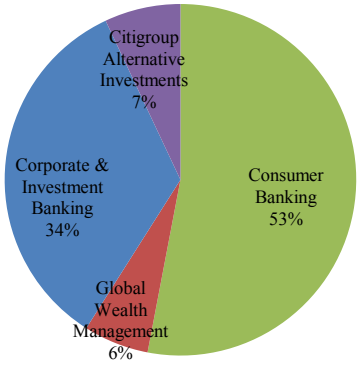
In Millions of Euros (left-axis) and percent (right-axis)
Source: Santander Annual Reports, All information from most recently available report, 'other' category only classified separately in 2000

Figure 3-1.3 Citibank Revenue by Business Segment at Year-End

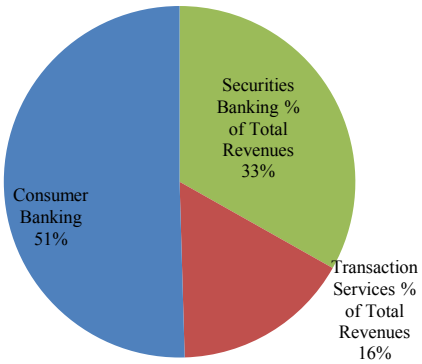
2003



2005

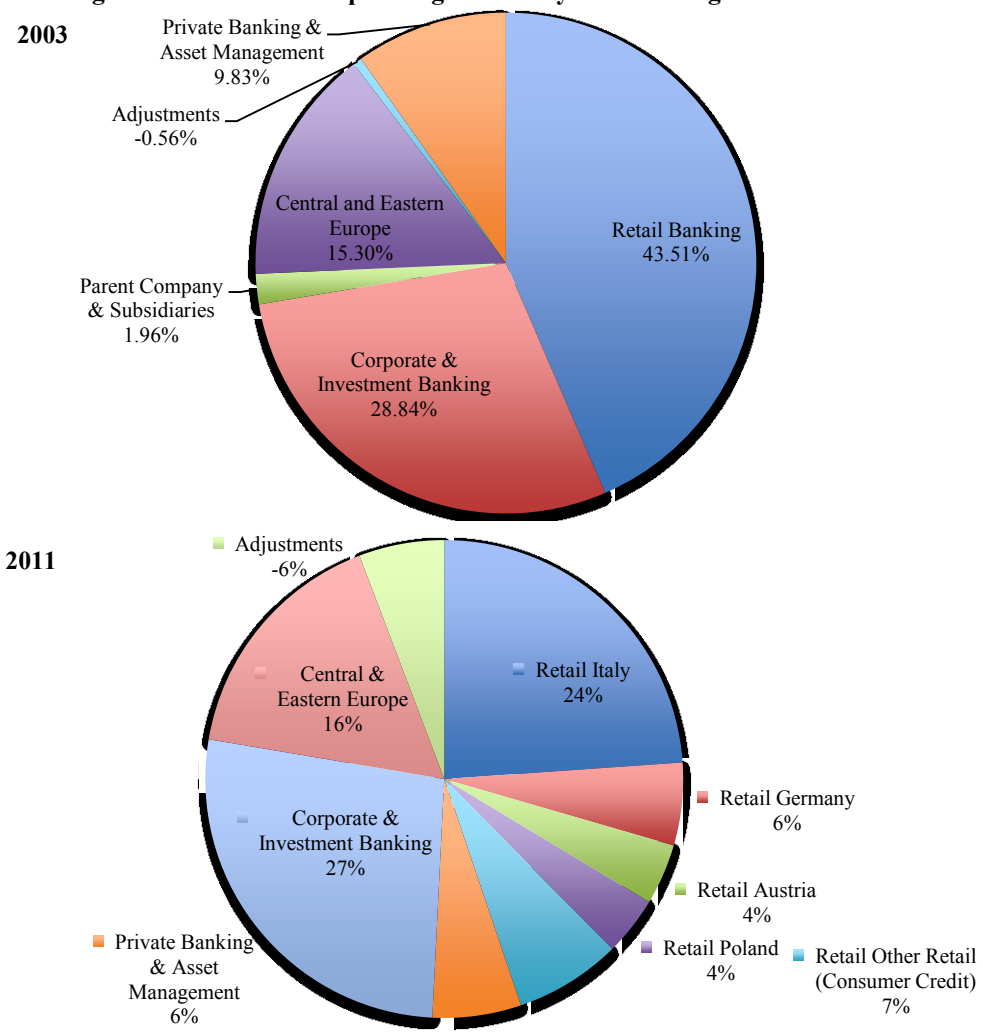


2011



Source: Citibank Annual Reports, All information from respective years' annual report

Figure 3-1.4 Unicredit Operating Income by Business Segment at Year-End



Source: Unicredit Annual Reports,
All Information from most recently available report

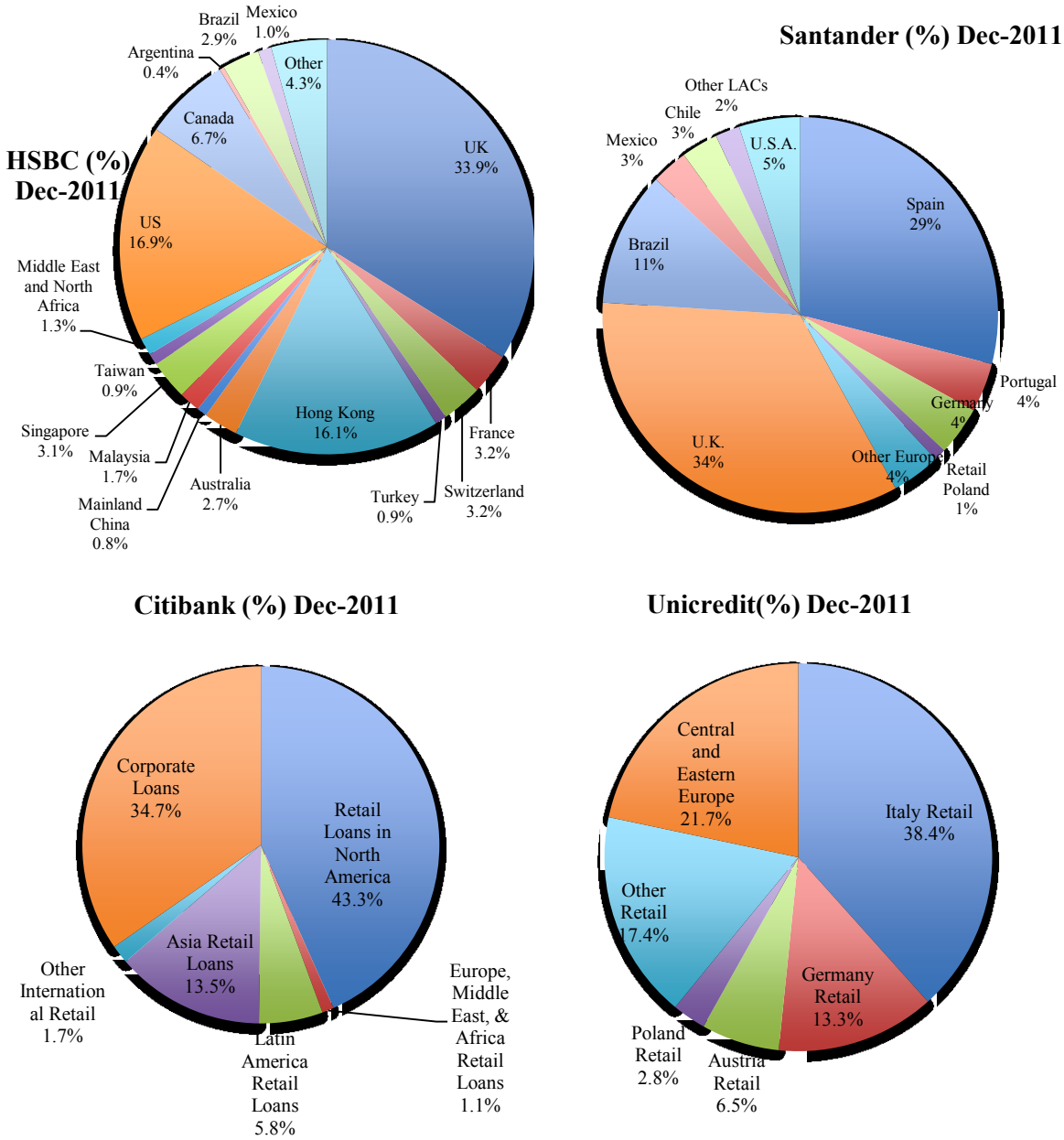
3.2 The Geographic Distribution of Global Bank's Retail Activities

3.2.1 Loans

Observing loan share by geographic segment establishes the level of diversification in retail lending. Figure 3-2.1 depicts total loans by region for HSBC and Santander at year-end 2011. Three important findings appear out of these statistics[14].

[14] Santander and Unicredit's statistics require some explanation. Santander does not segment retail loans by geographic location. However, since retail accounted for over 85 percent, and sometimes 90 percent, of loans we take these statistics to be an accurate reflection of overall geographic

Figure 3-2.1 Retail Loans by Geographic Distribution



Source: Annual Reports and Financial Statements of Respective Bank
Santander data includes some corporate entities. Since Santander's retail loans comprise a large share, we treat these statistics as an accurate depiction of retail loan geographic distribution. Unicredit data excludes internal loans. The Central and Eastern Europe segment includes retail and corporate lending. Unicredit did not publish a breakdown of this information. HSBC data are retail loans only.

distribution. Second, Unicredit does not breakdown Central and Eastern Europe statistics by business segment, so in their case, retail probably holds more weight within Unicredit's overall operations.

First, in three cases the home market was the largest for retail loans. Of course, this varies by institution, but for retail loans, the home market was the largest geographic location for HSBC, Citibank, and Unicredit. Santander's home market too was significant, but was slightly behind the U.K.

Nonetheless, the second, and perhaps more interesting finding is that in all cases foreign markets contributed for a sizeable share of loans. Santander led all banks with over 70 percent of loans in foreign markets. HSBC came a close second with just over 65 percent. Unicredit was probably somewhere just behind HSBC depending upon Central and Eastern Europe levels. Data for Citibank makes it somewhat difficult to compare, but international retail loans comprised just less than one quarter of all loans.

Third, emerging market retail lending accounts for a third or less of the total for all banks. At around one third though, emerging markets are a rather significant location for lending.

3.2.2 Income

Analyzing developments according to geographic location demonstrates where the majority of retail income originated. Income by geographic segment is represented in figures 5-2.2 through 5-2.6. HSBC is domiciled in the United Kingdom, so we consider that to be its home market. However, it does have a long history in Hong Kong, and so we might consider that to be a special case. Indeed, in 2002 Hong Kong and the U.K. contributed to just over 63 percent of total income, suggesting that most of its income originated in markets in which it is historically more familiar. Almost a decade later, Hong Kong and the U.K. did not even combine to form half of total income. In fact, by 2011, income was much more globally distributed, with roughly 50 percent of income coming from other international markets. In particular, Latin America, Brazil, the Middle East, North Africa, and Asia-pacific expanded in importance.

Similarly, earlier in the decade, more than half of Citibank's income was generated in its home market[15]. Thereafter emerging markets grew, by 2011 Asia and Latin America

[15] 2005 data stipulates that 57% of income originated in the "U.S.", while data for 2011 indicates 36.6% originated from "North America." The author treats both as Citibank's home market for two

combined to form 44.6 percent of income. In fact, when combined with Europe, the Middle East, and Africa, foreign markets totaled 63.4 percent of income in 2011. North America attributed just 37 percent in 2011, a drop of more than 20 percent of income in just six years.

Santander too drew most of its income from familiar markets as recently as 2005. Regrettably, data published by Santander for 2005 does not distinguish between continental European countries, so where exactly its home market of Spain fell in that year is difficult to discern from available statistics. Nonetheless, since some of its continental European expansion occurred after 2005, including its entry into Poland, we might accept that Spain constituted a large share of that year's continental European income. By 2011 the situation changed drastically with 51 percent of income originated in Latin America. In fact, Brazil became the largest overall contributor to income at 28 percent, while the rest of Latin America brought in another 23 percent. Spain on the other hand, only contributed 13 percent, and together with continental Europe just 25 percent, or less than half of its contribution six years earlier.

Likewise, Unicredit witnessed an expansion in income from international operations between the first part of the decade and the end of 2011. In 2004, operations in Unicredit's home market comprised the lion's share of income at 75 percent. Eastern Europe accounted for just 17 percent of income in that year. By 2011, retail in Germany, Austria, and Poland contributed 14 percent of income. Central and Eastern European operations contributed another 16 percent. Of which, the most noteworthy countries in 2011 were Turkey at 21.5 percent, Russia 15.3 percent, Croatia 12.6 percent, Czech Republic 8.4 percent, and Ukraine with 5.6 percent of the Central and Eastern Europe total. Ultimately, a minimum of 30 percent of Unicredit's income comes from abroad, the majority of which is from retail banking. As figure 3-2.6 (domestic share of retail income) indicates below, Unicredit has had a lower percentage of income from abroad than the other three banks in the past.

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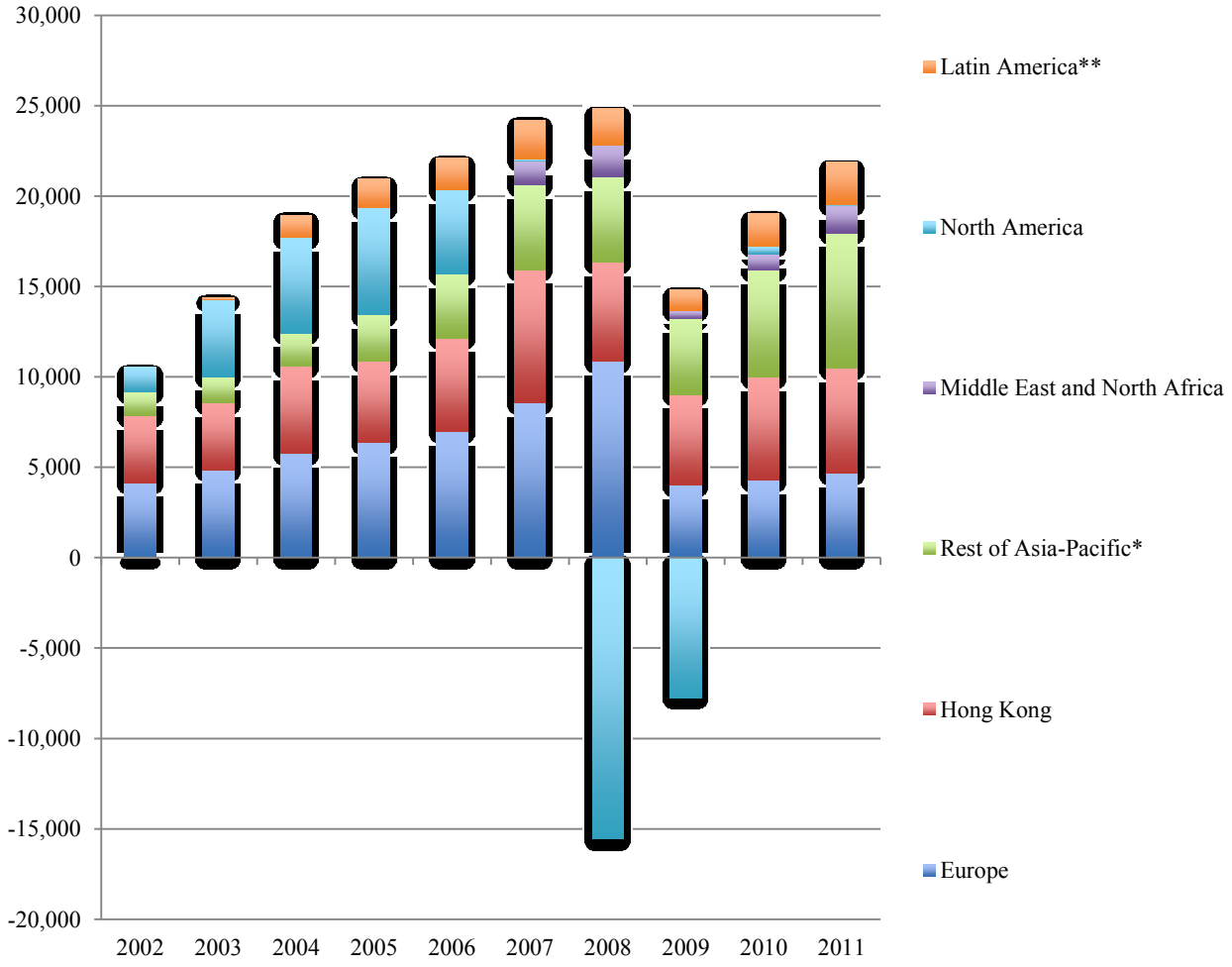
reasons. First, Mexico is included in statistics for Latin America in all cases. Second, even within the wider classification of North America, it is expected that the United States comprises a much larger share than Canada.

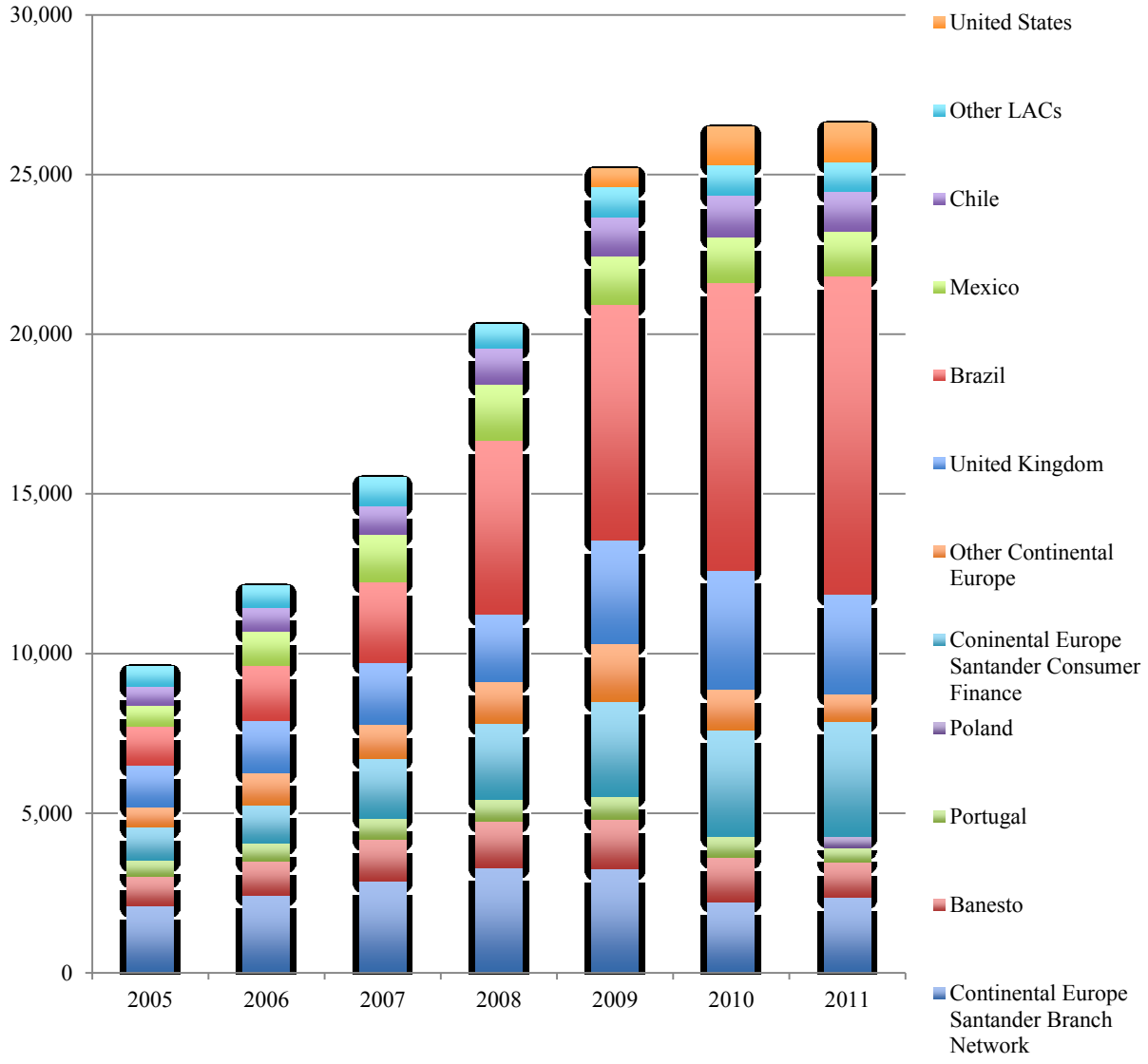
Regardless, similar to the other three banks, the share of Unicredit's home market earnings in overall retail banking earnings shrank over the 2000s.

Figure 3-2.2 HSBC Total Profit/Loss by Geographic Segment at Year-End 2002-2011



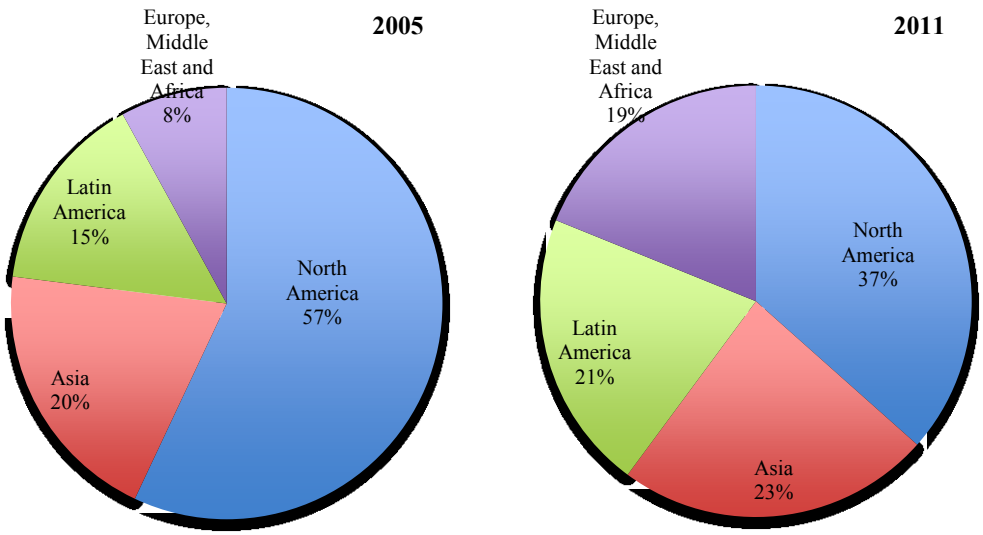
In Millions of USD, Source: HSBC Annual Reports, all data from most recently available information, *Includes Middle East until 2006, **Titled "South America" until 2003

Figure 3-2.3 Santander Operating Income by Geographic Segment at Year-End 2005-2011



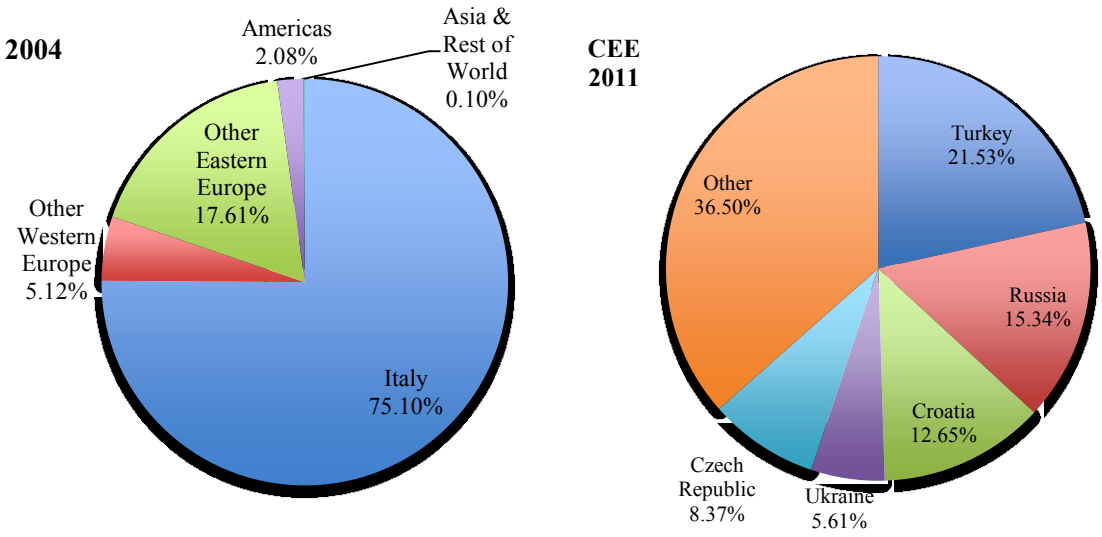
In millions of Euros, Source: Santander Annual Reports, all data from most recently available information.
Spain differentiated from Continental Europe from 2009.

Figure 3-2.4 Citibank Revenue by Geographic Segment at Year-End



Source: Citibank Annual Reports, all information from respective years' annual report

Figure 3-2.5 Unicredit Operating Income by Geographic Segment



Source: Unicredit Annual Reports, all data from most recently available information, data for geographic distribution only available from 2004. Includes Central & Eastern European (CEE) Countries.

Figure 3-2.5 Continued

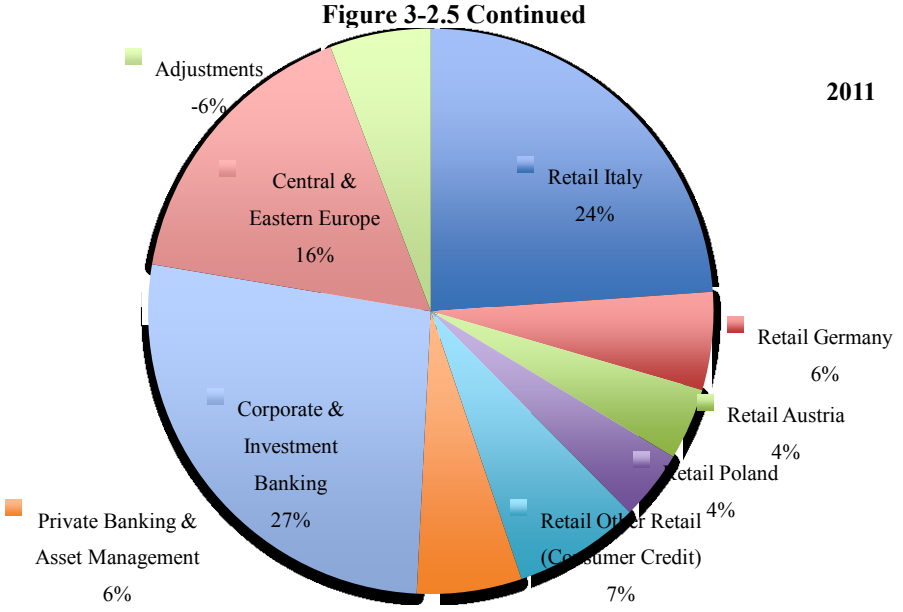
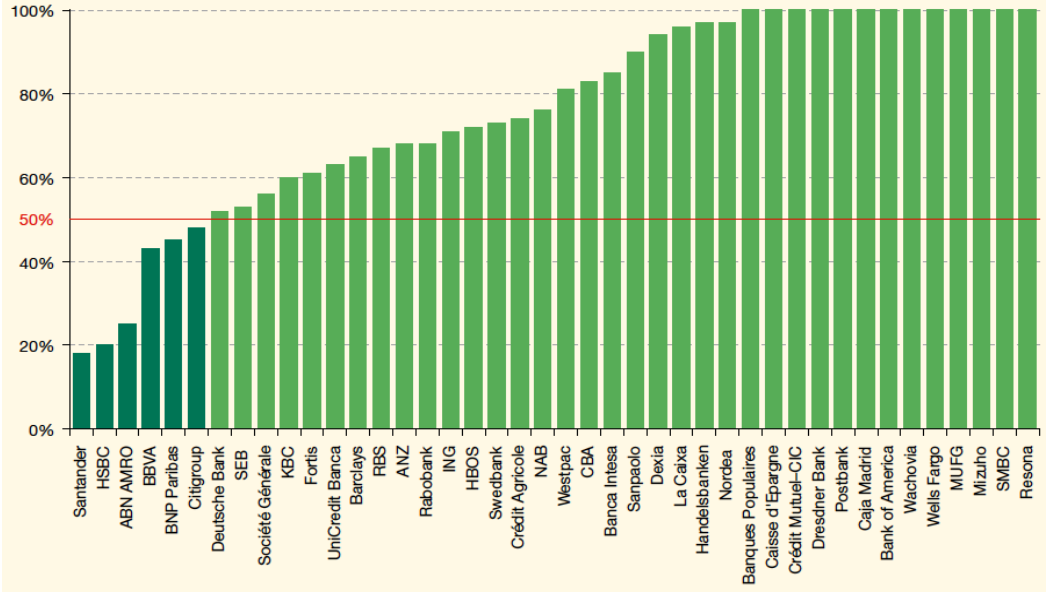


Figure 3-2.6 Domestic Revenue as a Percentage of Total Retail Banking Net Revenues, 2002-2006



Source: Capgemini, European Financial Management & Marketing Association (EFMA), & ING. (2008)

3.3 Comparing Foreign Owned Subsidiary Performance

Next, we examine bank performance from two vantage points. First, utilize statistics on cost-to-income for each global bank to understand whether efficiency improvements have taken place. Second, return-on-assets (ROA) statistics presented below allow for income performance comparisons at home and abroad, as well as in comparison to other financial institutions operating in the same markets.

3.3.1 Cost-to-Income Efficiency

Cost-to-income ratio is a vital measure for assessing bank efficiency. As mentioned, one of the reasons global banks went abroad was likely to exploit superior operating efficiencies. We compare cost-to-income ratio developments in the following three ways. First, we observe overall banking and retail segment cost-to-income ratios for global banks to determine what, if any, improvements they made. Then, we compare their foreign subsidiary cost-to-income ratios by country to establish whether efficiencies improved abroad.

Global banks were able to improve cost-to-income ratios noticeably prior to the global financial crisis. Table 3-3.1 divides the first part of this analysis into overall banking and retail banking cost-to-income ratios to enhance our understanding of developments. The global banks fall into two groups: *improvers*, HSBC and Santander, and *stagnators*, Unicredit and Citibank. HSBC and Santander clearly showed the best improvement in cost-to-income. In fact, Santander was the only bank to reduce cost-to-income ratios from 2000 to 2007, and *again* to 2011, in both overall and retail cost-to-income. Making Santander's developments even more striking was that in 2000, they actually had the highest overall cost-to-income ratio at 56.1 percent. HSBC also made notable improvements prior to 2007. Actually, their 12.7 percent improvement from 63 percent in 2000 to 50.3 percent in 2007 was the highest of any bank in retail. Overall banking improved to just around half that mark. Thus, the *improvers* were not only successful in lowering cost-to-income, they were also fairly successful in lowering retail banking cost-to-income.

Table 3-3.1 Global Bank Cost-to-Income Ratios at Year-End

Bank	2000	2002	2005	2007	2008	2011	2000-2007 Change*	2007-2011 Change
Overall Cost-to-income								
HSBC	55.3%	56.2%	51.2%	49.4%	60.1%	57.5%	-5.9%	8.1%
Santander	56.1%	52.3%	52.8%	45.5%	44.6%	44.9%	-10.6%	-0.6%
Citibank**	51.3%	52.3%	54.0%	76.2%	134.2%	65.0%	24.9%	-11.2%
Unicredit	na	54.6%	54.8%	54.8%	62.1%	61.4%	0.2%	6.6%
Retail Segment Cost-To-Income								
HSBC	63.0%	62.0%	48.7%	50.3%	76.4%	63.2%	-12.7%	12.9%
Santander***	54.2%	52.0%	52.3%	42.9%	43.2%	42.8%	-11.3%	-0.1%
Citibank	42.3%	43.6%	48.3%	58.6%	87.9%	58.1%	16.3%	-0.5%
Unicredit****	na	64.4%	62.6%	64.1%	67.0%	64.4%	-0.3%	0.3%

Source: Respective Bank's Annual Reports
*Unicredit change from 2002 as prior data unavailable.
**Citibank cost-to-income represented by ratio of Total operating expenses divided by Total revenues, net of interest expense.
***2000 Data is average of *Retail Banking in Spain* and *Retail Banking Abroad* per Annual Report 2000. 2002 Data taken as average of all *European retail banking* and *retail banking in Latin America* per Annual Report 2003.
****2011 data does not include Central Eastern European countries, which was 46.8% for all activities.

The *stagnators*, on the other hand, were unable to demonstrate the same level of progress. Unicredit had some of the highest cost-to-income ratios at both the beginning and end of the period. Moreover, neither ratio type improved over its 2002 level, meaning Unicredit made few improvements. Ratios in retail banking did show some *slight* signs of improvement early in the 2000s, but worsened by the end of the period. As another *stagnator*, Citibank too was unable to enhance its efficiency by the end of the period. However, Citibank's situation was somewhat different given the fact that it had the best ratios at the beginning of the period. Particularly in retail banking, Citibank had more than a 10 percent advantage over the other global banks. Citibank also had the highest ratios at the time of the global financial crisis, indicating the crisis probably struck them particularly hard. Improvements since 2008 signal Citibank may be on the road back to ratios achieved in earlier years.

Global banks transferred banking efficiencies, improving overall cost-to-income ratios in a number of foreign subsidiaries. Table 3-3.2 offers statistics for the global banks' subsidiaries. The *improvers* from above, HSBC and Santander, showed they were

especially capable of lowering cost-to-income ratios at foreign subsidiaries, and in some cases quite early. Santander's cost-to-income improvements were extraordinary, especially because they managed to lower ratios at subsidiaries in both developed and emerging countries. In fact, Santander achieved significant reductions (roughly 20 percent or more) in the cases of Argentina, Brazil, Mexico, the United Kingdom, and the United States. The only country where it did not achieve close to a 20 percent reduction was Chile, where it admittedly already had a fairly low ratio. Nonetheless, Santander was still able to lower its Chilean subsidiary's ratio by more than 10 percent. Interesting too, was that Santander significantly lowered post-acquisition cost-to-income ratios in both the U.K. and the U.S., countries usually thought to have more mature and efficient banking industries.

Table 3-3.2 Cost-to-Income Ratios at Global Bank's Foreign Subsidiaries at Year-End

HSBC						
	2002	2005	2007	2008	2009	2011
Country	C/I (%)	C/I (%)	C/I (%)	C/I (%)	C/I (%)	C/I (%)
Argentina	na	na	na	96.06%	73.90%	60.53%
Brazil	na	77.54%**	64.09%***	63.13%†	56.90%	56.11%
Canada	na	55.98%	52.15%***	51.30%†	49.58%	50.82%
France	64.31%*	70.93%*	63.43%***	64.32%	48.49%	90.57%
Hong Kong	38.25%	39.90%	33.66%***	41.42%†	37.59%	46.09%
Malaysia	52.85%	52.24%	na	45.32%†	43.21%‡	40.87%
Mexico	na	64.47%	65.75%***	62.71%†	64.30%	71.90%
United States	79.51%	50.94%	49.50%	75.57%	75.57%‡	77.74%

Santander				
	Dec-2001	Dec-2006	Dec-2008	Dec-2011
Country	C/I (%)	C/I (%)	C/I (%)	C/I (%)
Argentina	67.12%	64.36%***	58.10%	47.38%
Brazil	59.20%	67.08%***	42.3%‡	35.58%
Chile	44.50%	44.60%	38.00%	32.63%
Mexico	78.32%*	57.26%	46.07%‡	44.18%
U.K.	na	65.99%	44.71%	38.48%
U.S.	61.95%	68.45%	na	34.22%

UniCredit				
	Dec-2001	Dec-2006	Dec-2008	Dec-2011
Country	C/I (%)	C/I (%)	C/I (%)	C/I (%)
Austria	na	43.02%	49.87%	58.59%
Bulgaria	46.03%	39.28%***	42.40%	33.07%
Croatia	na	59.68*	59.92%	42.24%
Germany	na	62.08%	88.53%	58.31%
Hungary	na	na	51.43%	46.42%
Poland	50.62%	53.17%***	53.66%	42.24%
Serbia	na	na	42.40%	30.69%
Turkey	na	na	53.55%	40.69%

Citibank				
	Dec-2001	Dec-2006	Dec-2008	Dec-2011
Country	C/I (%)	C/I (%)	C/I (%)	C/I (%)
Brazil	na	85.62%***	na	67.21%
Mexico	na	87.29%*	50.30%	51.50%
Poland	58.74%	67.80*	62.30%	61.42%
Russia	89.00%	66.53%***	72.00%	na
South Korea	na	96.11%	na	52.59%

Source: *The Banker*, Top 1,000 World Banks, Various Issues
*2000; **2003; ***2005; † 2006; ‡2007

HSBC also achieved meaningful improvements to cost-to-income at foreign subsidiaries. Subsidiaries where the ratio dropped more than 20 percent were Argentina and Brazil. Subsidiaries in both the United States and France also saw large drops, but later rose in years following the crisis. Also notable were Malaysia and Canada, which dropped around 12 and 5 percent respectively. HSBC's improvements might not have been quite as extraordinary as Santander, but they nevertheless demonstrated an ability to improve efficiencies in a number of cases.

Citibank lowered ratios substantially in Brazil, Mexico, Russia, and South Korea. In Poland though, it was unable to do the same, seeing cost-to-income actually rise between 2001 and 2011. Compared to HSBC or Santander, Citibank's 2011 ratios were somewhat higher in markets where all three banks operate, such as Brazil and Mexico. Therefore, Citibank's ability to transfer efficiencies to foreign subsidiaries may not have been as strong as HSBC and Santander.

Unicredit was clearly successful in achieving better efficiencies in Bulgaria, Croatia, Poland, Serbia, and Turkey. However, those improvements came somewhat late for Croatia,

Serbia, and Turkey. The other two, Bulgaria and Poland, were the two earliest countries into which they expanded though, suggesting a correlation between time spent in the host market and cost-to-income improvement. Given that a number of Unicredit's foreign subsidiaries were acquired much later, the improvements from 2008 to 2011 in Croatia, Hungary, Serbia, and Turkey, suggest they are currently in the midst of transferring efficiencies to those markets.

3.3.2 Return on Assets Comparison

Next, we look at ROA for global banks in home and host markets. This comparison allows us to make important comparisons on how much higher (or lower) bank performance was at home as opposed to in foreign subsidiaries. Table 3-3.3 below shows each bank's ROA figures for 2006 and 2010[16]. Three meaningful observations can be made from these data. First, for the most part, global banks had better ROA performance in foreign subsidiaries than in home markets. While it is true that this development became more protracted after the 2008 financial crisis, in many cases host-market ROA was significantly higher before the crisis as well. Second, the best performance occurred mainly in emerging markets. Even after the crisis, global banks managed to earn relatively impressive returns in faster growing economies. Third, in many emerging markets, global banks ranked quite high in terms of ROA performance. Thus, the global banks were outperforming host-market domestic banks in most cases, indicating they were relatively successful in their operations.

[16] Cases when foreign subsidiary ROA outperformed home-market ROA shaded in blue.

Table 3-3.3 Global Bank Return On Assets in Home and Major Host Markets

	Dec-2006		Dec-2010	
	ROA (%)	Rank	ROA (%)	Rank
Santander				
Spain	1.05%	16th	0.99%	2nd
Argentina	1.43%	7th	6.23%	1st
Brazil	1.49%	9th	2.67%	5th
Chile	2.32%	1st	2.53%	2nd
Mexico	3.35%	6th	2.41%	2nd
Poland	na	na	2.55%	1st
Portugal	1.63%	2nd	1.13%	1st
Puerto Rico	na	na	0.93%	1st
U.K.	0.22%	28th	0.70%	9th
U.S.	0.72%	185th	1.14%	70th
HSBC				
U.K.	1.19%	13th	0.78%	6th
Argentina	na	na	3.52%	6th
Brazil	2.38%	8th	1.46%	13th
Canada	1.60%	1st	0.98%	5th
China	na	na	0.49%	103rd
Egypt	na	na	2.73%	2nd
France	0.97%	3rd	0.24%	8th
Hong Kong	1.65%	5th	1.43%	5th
Indonesia	na	na	2.87%	6th
Malaysia	na	na	1.64%	7th
Mexico	2.58%	6th	0.55%	9th
Panama	na	na	1.08%	5th
Switzerland	1.44%	12th	0.97%	7th
United States	0.90%	176th	-0.20%	160th
Citibank				
U.S.	1.57%	114th	0.64%	117th
Brazil	1.86%	14th	2.46%	8th
China	na	na	0.91%	88th
Japan	na	na	0.50%	12th
Mexico	4.75%	2nd	2.40%	3rd
Poland	2.31%	6th	2.51%	2nd
Russia	0.84%	33rd	4.64%	3rd
South Korea	0.92%	9th	0.77%	7th
Venezuela	na	na	1.80%	6th
Unicredit				
Italy	1.00%	22nd	0.27%	20th
Austria	2.12%	2nd	0.59%	8th
Bosnia Herzegovina	na	na	1.03%	1st
Bulgaria	3.26%	2nd	1.63%	2nd
Croatia	1.74%	3rd	1.62%	2nd
Czech Rep.	na	na	1.29%	5th
Germany	0.32%	53rd	0.51%	7th
Hungary	na	na	1.51%	2nd
Ireland	na	na	0.43%	2nd
Luxembourg	na	na	1.08%	1st
Poland	3.26%	3rd	2.31%	4th
Romania	na	na	0.98%	3rd
Russia	na	na	2.21%	14th
Serbia	na	na	2.39%	2nd
Turkey	na	na	3.05%	5th
Ukraine	na	na	0.40%	4th

Source: *The Banker*, Top 1,000 World Banks, July 2007 and 2011

3.4 Improving Cost Structures

This chapter has demonstrated that, for the most part, global banks were successful in expanding overall income levels while also improving their cost-to-income ratios. Thus, banks were successful in, comparative to income, keeping costs under control during most of the 2000s. This section looks into HSBC and Santander's cost structures in order to understand whether any meaningful changes took place.

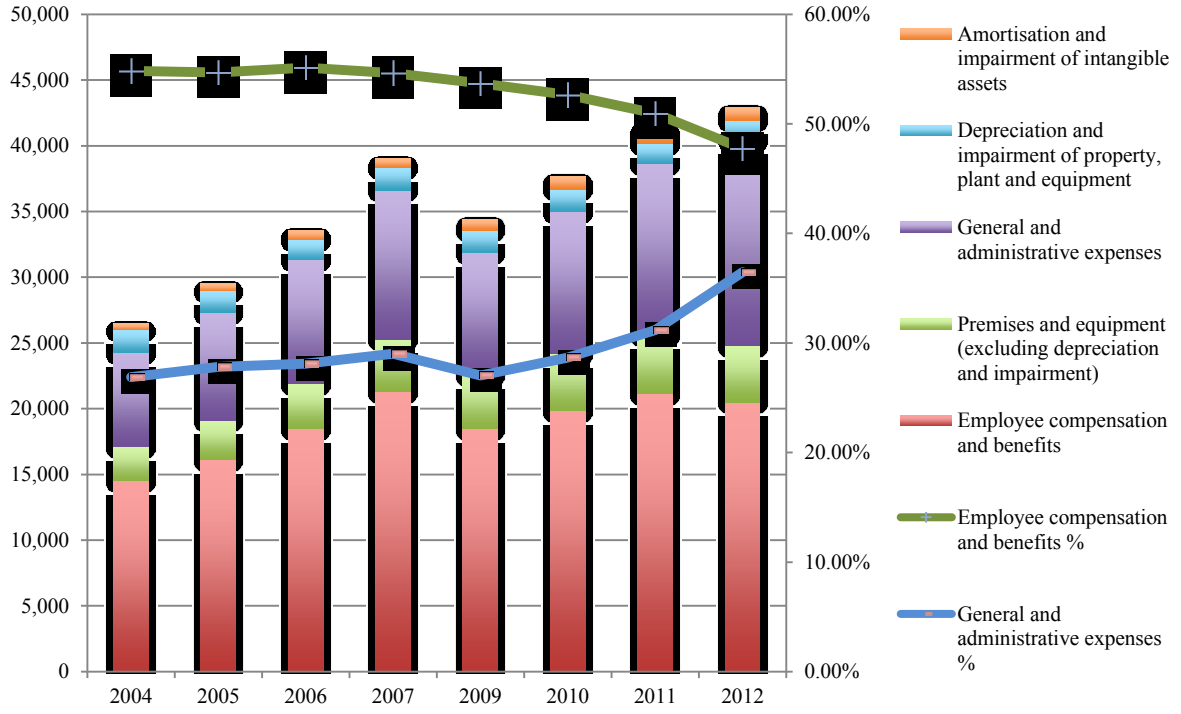
Figures 3-4.1 and 3-4.2 illustrate, for both HSBC and Santander, cost structures experienced an important shift after 2004. Costs related to employee compensation fell for both banks. True, the total dollar amounts increased. Yet, when expressed as a percent of total operating expenses (blue line in both figures), wages and other compensation paid to employees was less in 2012 than in 2004. HSBC saw 'employee compensation and benefits' fall from almost 55 percent of total operating expenses to 47 percent. Santander's 'personnel' costs dropped from 56 percent in 2004 to 51 percent in 2012. Certainly these changes could hardly be referred to as dramatic declines, but given the fact that loans, liabilities and income were all expanding; it does suggest both banks were making a concerted effort to lower employee related costs.

At the same time, other types of operating expense grew. For HSBC, 'general and administrative expenses' grew from almost 27 percent of the total to almost 37 percent, while for Santander 'other administrative expenses' increased from 32 percent to almost 38 percent of total expenses. Therefore, administrative expenses grew for both banks. In fact, when taken as a percent of growth figure from 2004 to 2012, administrative expenses grew faster than any other type of expense, expanding 120 percent and 210 percent for HSBC and Santander respectively.

If both banks refrained from hiring employees in an attempt to lower costs but simultaneously expanded total operating income then we should expect to see higher output per employee. Indeed, figures 3-4.3 and 3-4.4 explain that was exactly the case for both banks between 2000 and 2012. Over those twelve years, both banks dramatically increased the amount of operating income produced by each employee by more than 100 percent.

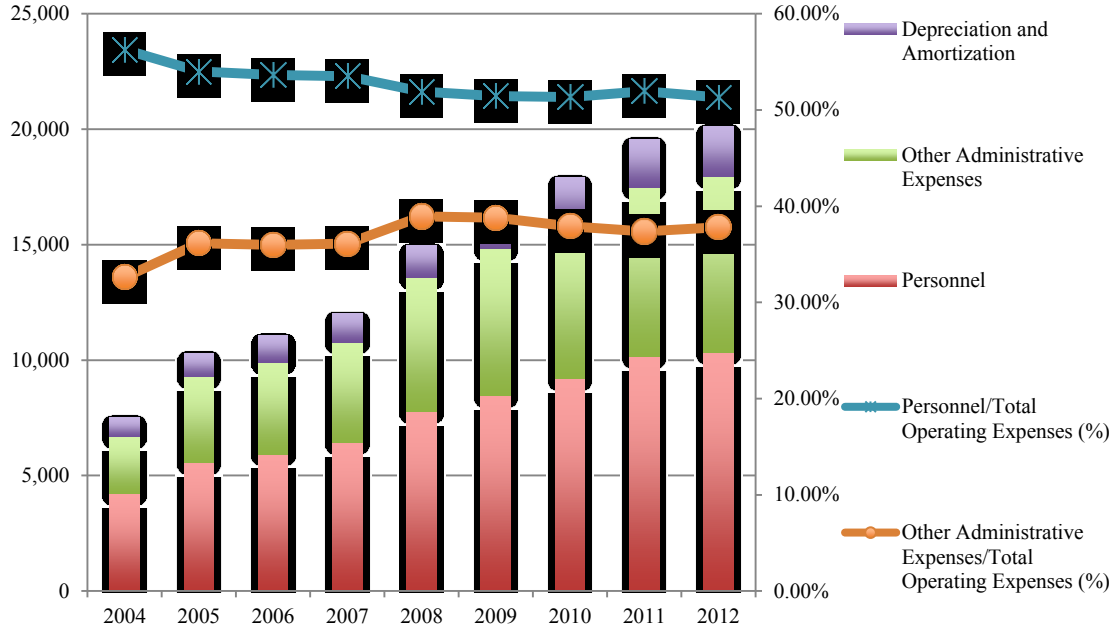
True, overall employee numbers swelled, from 128 thousand to 186 thousand for Santander and from 161 thousand to 260 thousand for HSBC. Nonetheless, income expanded over the same period. Thus, we take total operating income divided by total number of employees (green line in both figures) as an indicator of income generated per employee. In 2000, one HSBC employee generated 0.15 million US dollars in income, but by 2012 that had climbed to 0.32, or a jump of 108 percent. At Santander, one employee generated around 0.1 million Euros in 2000, but by 2012 contributed over 0.23 million Euros, or a jump of 131 percent.

Figures 3-4.1 HSBC's Total Operating Expenses, 2004-2012



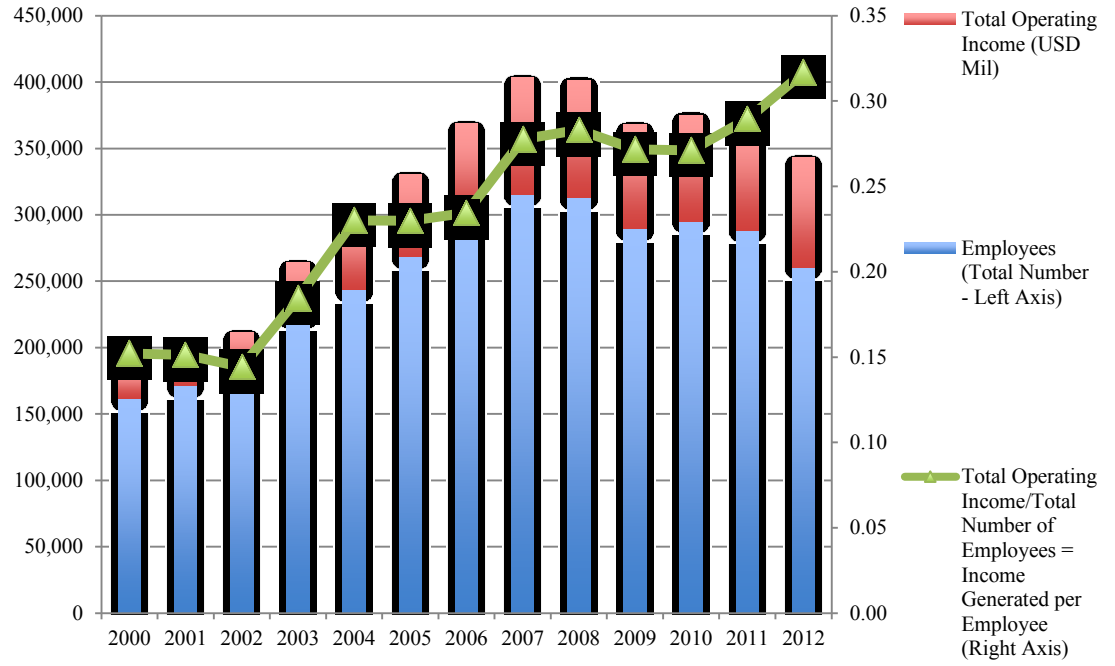
In Millions of USD (Left Axis) and Percent (Right Axis)
Source: Annual Reports

Figures 3-4.2 Santander's Total Operating Expenses, 2004-2012



In Millions of Euros (Left Axis) and Percent (Right Axis)
Source: Annual Reports

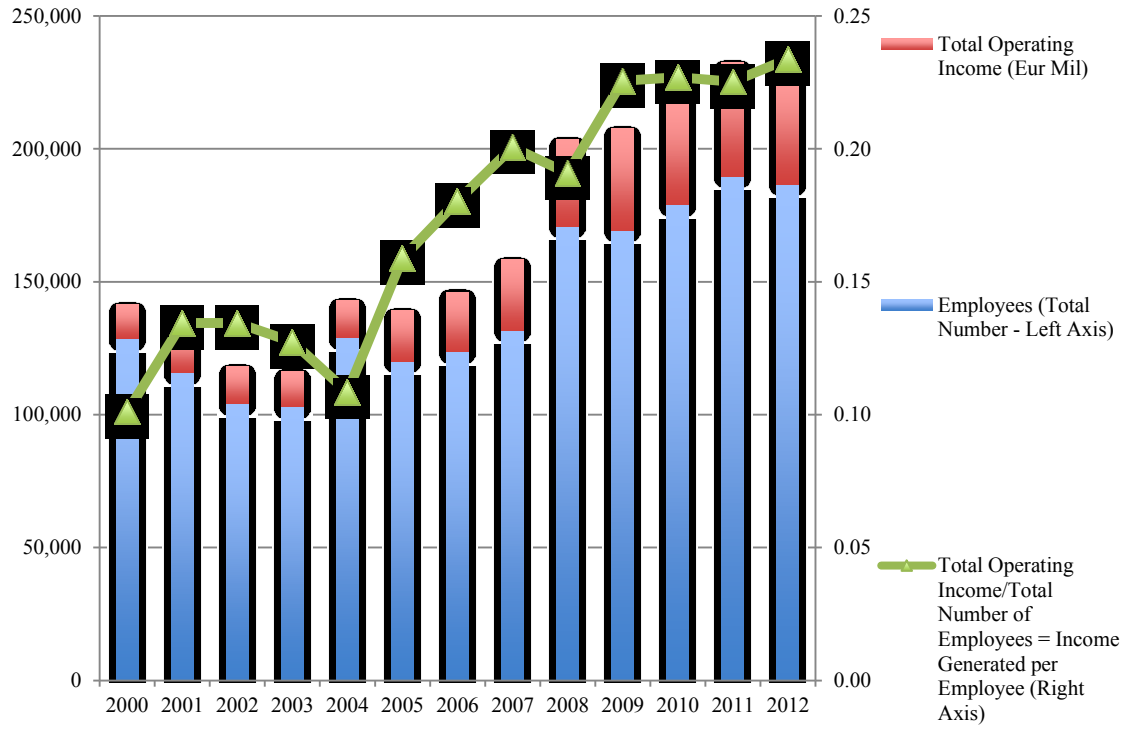
Figure 3-4.3 Income Generated per HSBC Employee 2000-2012



Left Axis -- Operating Income (USD Mil) and Employees, Right Axis
Income Generated per Employee (USD Mil), Source: Annual Reports

The evidence is thus strong that both banks achieved better overall performance by reducing wage expenses. As noted above the share of total operating expenses allocated to 'administrative expenses' surely rose in order to compensate for comparatively fewer employees. Given the huge improvements in income generated by employee ratio, we think investments that made employee operations more efficient were likely the key to producing these results. In particular, we suppose the early 2000s was a period that produced key changes within cost structures for both banks as signs were already emerging then. Santander's employee numbers were shrinking while HSBC's rate of income produced per employee stagnated in the very early 2000s. From around 2004 though, both banks experienced drastic transformation in the amount of income generated per employee, therefore discovering what occurred in administrative expenses at that time is probably of particular importance.

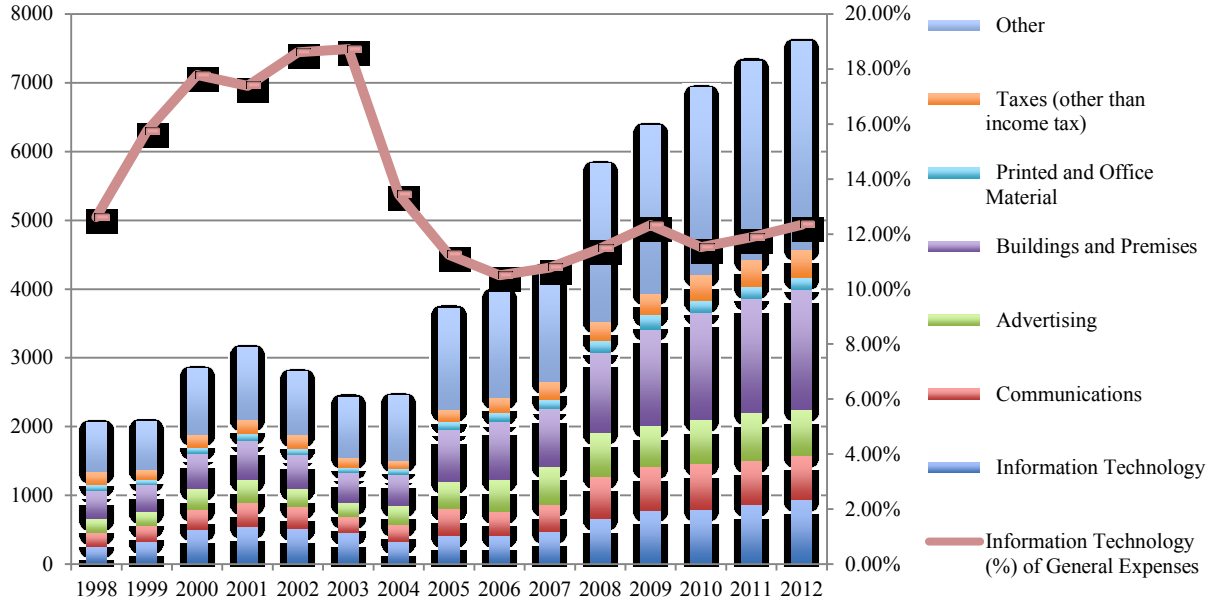
Figure 3-4.4 Income Generated per Santander Employee 2000-2012



Left Axis -- Operating Income (Euro Mil) and Employees, Right Axis Income Generated per Employee (Euro Mil), Source: Annual Reports

Information technology investments have played a vital role within administrative expenses. Santander provides insight in the form of a breakdown of administrative expenses. Figure 3-4.5 lays out statistics from all of Santander's non-personnel operating expenses from 1998 through 2012. One glimpse of this graph immediately imposes the realization that information and technology costs as a percentage of the total experienced a dramatic climb in the early 2000s. Admittedly, information and technology saw a huge decline from 2004 to 2006. Nevertheless, since 2006 it has experienced a gradual rise.

Figures 3-4.5 Breakdown of Santander Non-Personnel Operating Expenses, 1998-2012



In Millions of Euros (Left Axis) and Percent (Right Axis)
Source: Annual Reports

In real terms too, total amounts spent on information technology grew by comparatively high margins. Between 1998 and 2012 expenses related to buildings and premises saw the largest climb at 330 percent. Information and technology though came second in importance with 260 percent growth during that period. Given, the frequent nature of Santander's acquisitions we might expect to see buildings and premises also climb to high levels given the costs related to incorporating new institutions under the parent banks' umbrella. Nonetheless, one thing is for sure, the role of information and

technology certainly brought on a new meaning for Santander, especially in the early 2000s. Furthermore, since the early 2000s are the precise years cost-to-income ratios were declining, and employee costs also began falling, we might conclude these two banks were implementing equipment in order to automate processes, eliminating the need for human beings in certain positions. Technology investments, in short, appear to answer the questions of what happened that allowed both banks to improve performance.

HSBC does not provide the same detailed information as Santander, but evidence pointing to increased technology expenditures exists. The 'One HSBC' program, as described by HSBC directors, has aimed to improve performance through technological implementation. In fact, from 2003 through 2008 lowered the number of worldwide banking systems it uses from 120 to 47 in order to improve efficiency (Harvey & Newman, 2008). Furthermore, In India in 2002 HSBC established "HSBC Global Technology (GLT) as part of the HSBC Group" with the aim of providing "timely and cost efficient quality technology solutions and support to the HSBC Group", and "following the successful establishment of GLT in India, HSBC expanded and established a Global Technology Centre in China and another in Brazil" (Farhoomand & Huang, 2009, p. 825). Staff costs, as a result, "fell by US$30 million, driven by a reduction in full time equivalent headcount of 868 as back office processing functions transferred to HSBC's Group Services Centres in India and mainland China" (HSBC Annual Report, 2002, p. 62). In addition, according to regulatory filings, information technology costs pushed HSBC's administrative expenses upward in most years during the 2000s.

In essence, both banks aggressively expanded investments in technology with the aim of improving performance. For these two banks in particular, we already observed improvements in their cost-to-income rations, which leads us to conclude that technology led directly to automating processes and the ability to lower employee numbers without sacrificing overall income. Nevertheless, as we will see below, in addition to improving efficiencies, the implementation of technology also produced another advantage for banks in the provision of retail banking services on a global level.

3.5 Retail Banking Services

Individuals often require very different types of retail services. We have used "the provision of financial services to individuals" as a working definition for the retail segment of banking, but now go a step further by uncovering what services each of our two global banks offers within the retail segment. In addition, we make an effort to demonstrate the main products provided in various host markets.

HSBC's divides the provision of individual financial services into two groups. HSBC describes the first as 'retail banking and wealth management' and the second as 'global private banking'. The latter includes investment management and trustee solutions for very high net worth individuals and their families. Some product examples are multicurrency deposits, account services, specialist lending, advisory services, and estate planning. The former contains perhaps the more easily identifiable types of retail financial service, although in some cases these products too are geared towards upper-income individuals. Within this division, HSBC offers deposits, loans, financial advisory, broking, life insurance, investment services and asset management to more than 54 million retail customers worldwide (HSBC Annual Report, 2012). Examples of products specific to the retail portion of this division include current and savings accounts, mortgages, personal loans, credit cards, debit cards, and local and international payment services. Products offered within wealth management services are comprised of insurance and investment products, global asset management and financial planning services.

Table 3-5.1 examines HSBC's product offerings by geographic location. Mortgages are an important product type in Europe, Hong Kong, and other Asian countries. Wealth management, insurance products, and other investments are offered in all of the markets where HSBC operates, signaling perhaps that HSBC's target is the somewhat wealthier individual. Lastly, HSBC seems committed to offering credit cards in Asia.

Interestingly, Santander's product offerings differ from HSBC. Products Santander makes available seem directed towards more middle-class, or emerging-middle class, individuals. Table 3-5.2 sheds light on a number of Santander products offered in Santander's various divisions. The consumer finance division specializes in automotive

financing, and also offers personal loans for durable goods, and credit cards. In Spain and the U.K., mortgages are a very important product type, followed by credit cards and loans to small and medium enterprises. In Brazil, auto-financing and credit cards are major products, and Santander actually accounts for 13 percent of total credit card market share in that country (Santander Annual Report, 2012). SMEs and mortgages are important to a somewhat lesser extent. In Mexico, consumer credit and credit cards serve as the main products. Though, SMEs, mortgages, and automotive insurance are also offered. In the United States, again automotive financing is key, as are credit cards and mortgages to a smaller degree. On the liability side, Santander is almost completely funded by retail deposit (time and demand) taking activities, which serve as the backbone of its operations (Santander Annual Report, 2012).

Table 3-5.1 Examples of HSBC's Retail Segment Products

Division	Main Products	Other Products
Europe	Mortgages	Wealth Management, Life Insurance
Hong Kong	Mortgages, Credit Cards	Wealth Management Investment Funds, Life Insurance
Rest of Asia Pacific	Mortgages	Credit Cards
Middle East & North Africa	Insurance Products, Foreign Exchange	
North America	Investments in Global Markets	
Latin America	Wealth Management and Insurance	

Source: HSBC Annual Reports

Table 3-5.2 Examples of Santander's Retail Segment Products

Division	Main Products	Other Products
Santander Consumer Finance (Continental Europe)	Automotive Financing and Loans	Personal Loans, Durable Goods Loans, Credit Cards, Mortgages
Spain	Mortgages, Credit Cards	SMEs

U.K.	Mortgages	Credit Cards, SMEs
Brazil	Automotive Financing and Loans, Credit Cards	SMEs, Mortgages
Mexico	Consumer Credit, Credit Cards	SMEs, Mortgages, Auto-Insurance Products
U.S.A.	Automotive Financing and Loans, Credit Cards	Mortgage

Source: Santander Annual Reports

What might be taken from this subsection is a strategic difference between the two bank types. HSBC appears to be more focused on managing and protecting the wealth of more affluent customers. While that does not always mean customers are of very high net worth, it at least indicates their lowest target-market would be upper-middle income individuals. On the other hand, Santander's tendencies toward financing durable consumption, credit cards and other consumer credit, signals to a stronger relationship with the emerging middle class.

3.6 Reasons for Retail's Rise

This section offers some reasons retail has become a vital part of global banking. We draw four reasons from the literature and propose another possible explanation of our own. First, a larger negotiation capacity gap exists between financial institutions and individuals than between financial institutions and corporations. Corporations are not only much larger than individuals in scale; they are also more adept to negotiation. When negotiating the terms of a loan, we should expect corporations to be able to achieve more favorable terms for themselves than individuals. Especially because "[t]he small size of individual clients does not typically allow them to negotiate rates" (Urdapilleta & Stephanou, 2009, p. 19). Therefore, interest rates on loans to individuals are relatively higher than those to corporations, providing banks a valuable incentive to focus on retail – higher returns.

Second, as Bertola, Disney, and Grant (2006) pointed out, the "sharp increase in lending to households over the past decade"…"was spurred by financial liberalization" (p. 94). Interest rate liberalization opened the margin within which banks operate when

extending loans. Rigid interest rate regulation often priced individuals outside the upper interest rate band because, generally, individual borrowers are more opaque, and thus riskier than corporations. So, even if banks had been eager to extend loans to individuals, they would have been unable because regulations prohibited them from adjusting interest rates to levels that would compensate them for higher risks. When authorities in developed nations liberalized interest rates in the 1980s, banks could adjust rates according to assessments on individual risk levels. Moreover, as banks in those countries extended loans to individuals, they likely also amassed vital know-how and experience in retail banking activities, which some banks have presumably utilized internationally in years since.

Third, Berger (2007) suggested a *concierge effect* exists for non-financial corporations when expanding into foreign markets. The concierge effect occurs when non-financial corporations operate internationally in a country (or countries) where home country banks also operate, but the non-financial corporation actually prefers procuring financial services from locally-owned banking institutions. The reason non-financial multinational corporations prefer locally-owned banks is because they act as a sort-of *concierge*, providing information on the host market foreign-owned banks may not be able to provide. Therefore, if making loans to home country corporations' foreign-owned subsidiaries abroad is not a dependable segment; global banks could be substituting for that void with retail banking activities in host markets.

Fourth, as the 2008 *World Retail Banking Report* suggested, in a number of cases, home market governments have attempted to restrict domestic growth via acquisition by banks with large retail divisions. As a result, global banks view home market expansion as severely constrained. Instead, they view international expansion as a better option, and because, in many cases, those banks had large retail divisions at home; they transfer those operations and strategies abroad. Furthermore, competition from non-bank financial providers is reducing bank profits in home markets, creating yet another factor to push banks to find new opportunities.

Lastly, limits to financial accessibility and expertise make the benefits of banking services greater for individuals than for corporations. Corporations have alternative means

of accessing finance. Unlike corporations, individuals for the most part cannot procure funding via equity markets, bond issuance, commercial paper, or other forms of direct finance. Furthermore, many individuals have limited financial expertise. When managing assets, deposit insurance provides individuals with a relatively secure method of storing savings. Individuals who place savings into equity or bond investments receive no such guarantee. Outside of deposits, banks can also offer asset management expertise that many individuals simply do not have. Essentially, banks are crucial providers of financial services to individuals because banks are one of their only options. The gap between the utility of banking services from the perspective of corporations as opposed to individuals may continue to widen if technology improves banking services for retail customers.

3.7 Summary

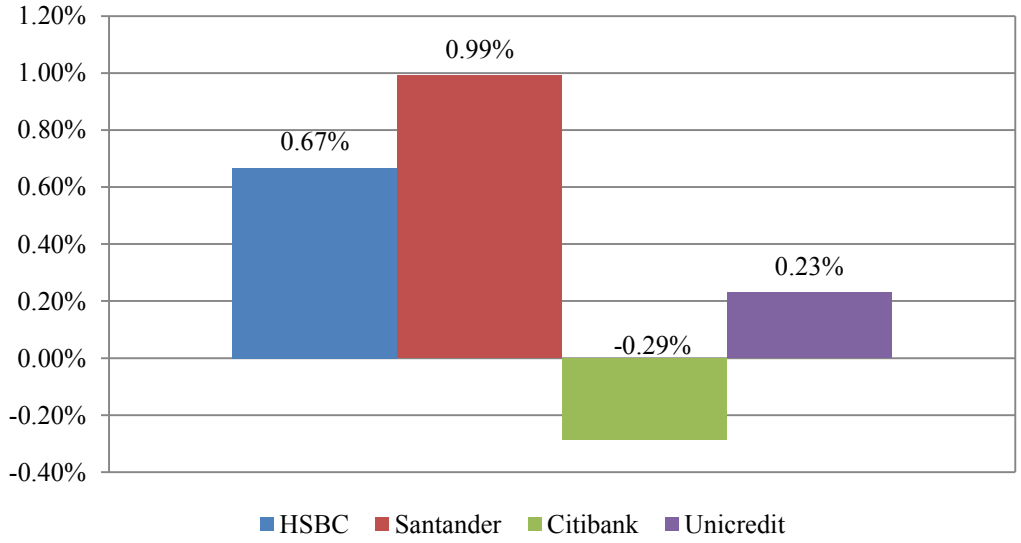
Not only is retail banking a part of global banking activities, it is the most important business segment for global banks operating on a wide, global scale. Moreover, global banks have been able to – although some more than others – geographically diversify income via the extension of financial services in both emerging and developed markets. Thus, contrary to Smith and Walter (1997), we propose banks can be successful in global retail banking operations, and geographic diversity is an important element of that success. In fact, this paper proposes that the academic literature needs to take a sharply positive stance on the internalization of retail banking and financial services. In the preceding discussion, we have provided evidence to show those developments are well underway. Below we take the next step to lay the reasons why that change is able to occur, and show that on balance globalization of retail banking is a positive development for the institutions and for host nations.

Emerging markets, in particular, offered global banks the opportunity to realize impressive returns for two reasons. First, as we saw from ROA rankings, in a number of cases, the global banks outperformed other banks operating in the same markets. Second, global banks made overall banking and retail banking efficiency improvements, and transferred those efficiencies to host markets. Amongst the global banks however, differing degrees of success are certainly observable. As figure 3-7.1 demonstrates, the average ROA

for each global bank between 2007 and 2011 is a reflection of their geographical diversification. Suggesting that on a global scale, success in retail banking is a function of diversity.

An important question does remain however. Given that retail customers have relatively high informational asymmetries, uncovering how global banks obtained adequate information to extend those financial services is crucial. Especially considering global banks were simultaneously expanding retail operations in numerous *foreign markets*; essentially, places where they would have been at a comparative informational disadvantage vis-à-vis locally-owned institutions. This is the question we answer in the next section.

Figure 3-7.1 Global Bank Average Return-On-Assets 2007-2011 (%)



Source: *The Banker*, Top 1,000 World Banks, Various Issues
ROA statistics averaged from home-market values in *The Banker's* Top 1,000 World Banks each year from 2007 through 2011. The author has confirmed, in each case, those values represent the global banks' total global returns over total global assets.

Chapter 4 The Increasing Importance of Globalized Credit Information Services for Global Banks

The globalization of retail banking has been gaining steam for the last two decades. In 2008, the financial crisis had a negative impact on banking to say the least, but the retail segment seems to be segment that has proven relatively stable during the post-crisis years, and as a result, is becoming one of the most important segments in banking (Rosenthal, 2012). Contributing to this development have been banks from developed countries acquiring banks in developing countries. Acquiring local banks in various countries has allowed a handful of banks to essentially transfer their retail operations to multiple regions. Whereas corporate customers have traditionally been thought of as comparatively more observable; informational asymmetries in the retail segment are much higher because of the relatively opaque nature of individuals and small and medium enterprises. While foreign acquisitions may have provided banks with some information on established customers, a fundamental issue relates to the expansion of retail. Essentially, how banks foreign banks obtain information on retail customers while operating in host countries is a pertinent question.

This paper looks into the issue of how banks overcome informational limitations in an globalized banking environment. An inquiry of this nature is particularly important in the post-crisis environment because loans to uncreditworthy individuals played such a crucial role in development of the subprime crisis. If practices that led to the subprime crisis were transferred to host countries via various banks' international expansion, credit bubbles similar to the subprime crisis could currently be festering in developing countries. Therefore, we must understand how foreign banks tackle informational challenges when operating in various foreign retail banking markets.

Pagano and Jappelli (1993), showed credit bureaus form "where each lender is confronted by large numbers of customers on which it has no previous information" (p. 1714). So in situations where the options for information are essentially zero, financial intermediaries may choose to utilize third-party information as they have little or no

alternative. Furthermore, Hunt (2005) noted "when there is a high volume of applications for loans of modest size, lenders cannot afford to invest a lot of resources evaluating each loan application" (p. 5). Therefore, the use of third-party information seems to occur in banking segments involving large numbers of modest-sized customers and high volumes. Or in other words, when making credit decisions on customers in the retail segment, banks may be particularly inclined to use outside information.

Indeed, findings by Brown and Zehnder (2010) confirmed "information sharing may be high in the consumer credit market despite strong competition, because due to borrower mobility, etc. this market segment is subject to substantial information asymmetries" (p.271). Under such circumstances, they conclude, adverse selection likely drives information sharing. Therefore, we might accept that "[c]redit bureaus mitigate adverse selection and moral hazard problems by providing timely information about the characteristics and behavior of borrowers" (Hunt, 2005, p. 4).

Other literature has highlighted the practice of information sharing in various countries. Jappelli and Pagano (2002) showed that in "many countries lenders communicate data concerning their customers' creditworthiness to one another or can access databases that help them assess credit applicants", and many times "lenders agree to exchange of information spontaneously, via information brokers such as credit bureaus" (p. 2039). Tsai, Chang, and Hsiao (2011) demonstrated banks are more likely to expand into countries where credit information companies, such as credit bureaus, exist. "The main argument is that banks are attracted to countries with better credit reporting systems, because the information costs are lower when a credit reporting agency exists and the costs fall further when better quality of information is shared within the credit system", which is important because "banks prefer expanding to countries where their information costs are lower" (p. 602).

Rothemund and Gerhardt (2011) pointed out that information service providers have already begun a globalization process of their own. They note that a number credit bureaus already operate via European subsidiaries. Though, in many cases information sharing was voluntary, and although huge quantities of data were held on individuals and SMEs, data on

larger businesses was relatively unavailable. Rothemund and Gerhardt (2011) indicate a majority of information users are banking institutions. This suggests a correlation between the ISP globalization and global banks expanding their retail banking segments internationally.

In an interesting study by Avery, Brevoort, and Canner (2010), the authors showed, "credit scores do not have a disparate impact across race, ethnicity, or gender" (p. 26). Meaning the collection of information can be completed on almost any group of people in any place. While that may seem obvious, it does carry the important implication that information collection methods could be easily transferred to foreign markets. They actually point out why this should be necessary for some American credit bureaus. Their study found that because most immigrants (by virtue of immigrating) had relatively short credit histories, and as a result, poorer credit scores. Their suggestion is therefore to promote "the gathering of information on the credit histories of recent immigrants from their native countries. This information can supplement the information provided in U.S. credit bureau records and may more accurately and completely reflect the credit histories of these individuals" (Avery, Brevoort, & Canner, 2010, pp. 26-28). Essentially, this study demonstrates information service providers have incentive to expand globally by collecting information and data, in addition to providing other services in those markets.

Information sourced from third parties is extremely important to consumer credit and retail banking markets. As we have alluded to above, a number of global banks operate in foreign retail banking markets throughout the world. Previous literature showed credit bureaus operate in a number of countries, and foreign banks usually prefer to venture into countries where credit bureaus exist. The literature also showed credit bureaus have incentives to venture abroad *even if* local credit bureaus already exist. This paper begins its analysis from that premise. Our goal is to first uncover whether as Avery, Brevoort and Canner (2010) indicated, ISP and credit bureaus are indeed expanding globally, and then to investigate whether they are playing a role in that process. An investigation of this type is necessary to demonstrate whether international ISP expansion could be serving as a global

information platform to support global banks in reducing challenges posed by informational asymmetries in foreign markets.

This paper's examination seeks to make three contributions to the literature. First, we seek to show how and where ISP have expanded globally. Second, we seek to shed light on the bank-ISP relationship, and show what services ISP provide to banks. Third, we seek to understand what impact ISP have on host markets, demonstrating whether changes are occurring in those countries.

In order to conduct our analysis we utilize recent governmental inquiries into information on large data companies to determine who the main players are. Then, we employ data and statistics directly from ISP annual reports and websites. In addition, we look into major shareholder information through statistics from the Securities and Exchange Commission.

4.1 Information Service Providers

Deciding which ISP to examine is not an easy task primarily due to the plethora of terms for entities that provide information-related services. We draw on two sources to gather which providers have the largest presence in information provision. The first of which is the United States Congressman Edward Markey's recent inquiry into major data brokers[17]. Secondly, upon comparing some of the aforementioned information service providers, we appropriately add two providers to the analysis. TransUnion and Dun and Bradstreet were not part of Markey's examination, but as illustrated in figure 4-1.1, we can see they are important players in the provision of information services. Using this group ensures not only that our analysis covers six of the largest providers of consumer credit information, it also confirms we examine providers operating on a relatively wide international scale[18]. Since this paper's focus is to link global banking developments with

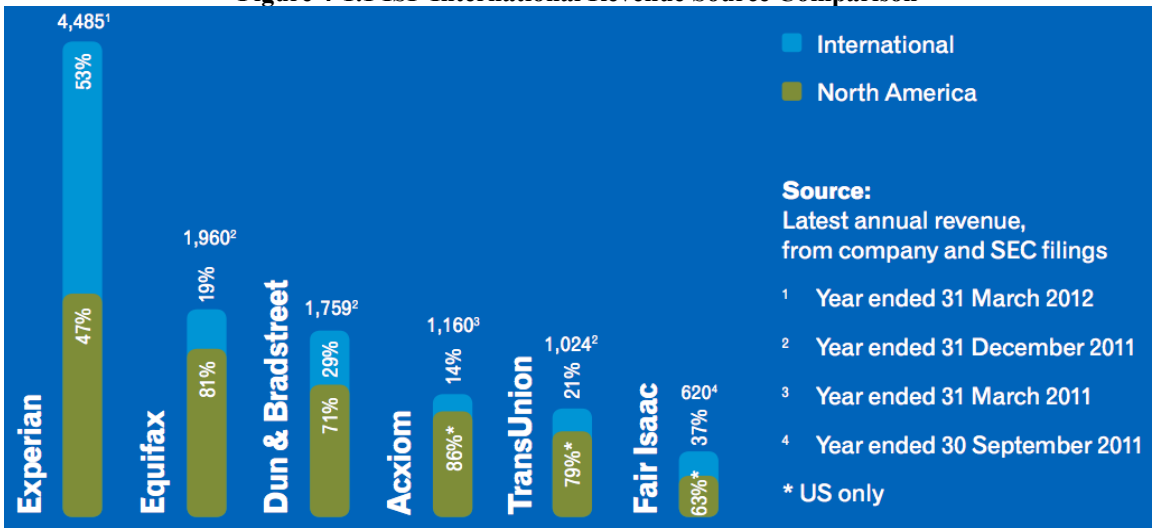
[17] Markey (2012) identified "nine major data brokerage companies asking how they collect, assemble and sell consumer information to third parties". Among those nine major data brokerage companies, five had limited or no international presence, or did not offer services related to consumer information or for other credit allocation or financial means. We eliminate those entities from this analysis, and initially take four companies from Markey (2012).

[18] International revenues (those derived outside of North America) account for more than 10 percent of revenue in each ISP.

the means by which banks overcome retail's high informational asymmetries, we limit the discussion to the six ISP in figure 4-1.1.

Experian is the largest in terms of both revenue (at $4,485 million USD in 2012), and also in terms of diversification (more than half of revenue derived from outside the North America). That may be due, in part, to the fact that Experian is the only company in this group headquartered outside the U.S. Still, as we will see below, Experian's international presence is extremely wide. Of the remaining five companies, each earned more than ten percent of revenue outside of North America. After Experian, FICO (also sometimes referred to as Fair Isaac)[19] produced the second highest percentage outside of North America at thirty-seven percent of income. Next, and Dun & Bradstreet and TransUnion both earned between twenty and thirty percent from international operations, at 29 and 21 percent respectively. Equifax and Acxiom were somewhat lower at 19 and 14 percent each. Essentially, all six companies have a presence in multiple countries. Next, we examine the specific countries where they operate, and the methods utilized in expansion.

Figure 4-1.1 ISP International Revenue Source Comparison



Source: Experian Annual Report 2012, Millions of United States Dollars

[19] Per its 2012 annual report, Fair Isaac officially changed its name to FICO in the same year.

4.2 Globalization Process of Information Service Providers

For each ISP we review in this paper, there has been a variety of international expansion. Almost all of the ISP employed a mixture of acquisition, joint-venture, and Greenfield approaches when venturing abroad. We have put together a list of countries where each ISP operates in Table 4-2.1. This table demonstrates each ISP has a presence in at least ten countries.

Table 4-2.1 Main ISP Operating Countries

ISP	Main Operating Countries	Number of Countries
Experian	Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, India, Indonesia, Italy, Japan, Malaysia, Mexico, Monaco, Morocco, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Taiwan, Turkey, US, Vietnam	41
Equifax	Argentina, Brazil, Canada, Chile, Costa Rica, Ecuador, El Salvador, Honduras, India, Ireland, Paraguay, Peru, Portugal, Russia, Spain, UK, Uruguay	17
Dun & Bradstreet	Canada, Australia, New Zealand, Japan, China, India, United Kingdom, The Netherlands, Belgium, as well as countries in Latin America	10
Acxiom	Australia, Brazil, China, France, Germany, Hong Kong, New Zealand, Poland, Singapore, United Kingdom	10
TransUnion	Botswana, Brazil, Canada, Chile, China, Colombia, Costa Rica, Croatia, Dominican Republic, El Salvador, Guatemala, Honduras, Hong Kong, Kenya, India, Malawi, Malaysia, Mexico, Mozambique, Namibia, Nicaragua, Philippines, Russia, Rwanda, Singapore, South Africa, Swaziland, Tanzania, Thailand, Trinidad & Tobago, Uganda, Vietnam, Zambia, Zimbabwe	34
FICO (Fair Isaac)	Australia, Brazil, Canada, China, Germany, Hong Kong, India, Italy, Japan, Malaysia, Russia, Singapore, South Korea, Spain, Thailand, Taiwan, Turkey, UK	18

Source: Annual Reports and Websites of Each ISP

Experian operates in the largest number at forty-one different countries where they have a physical presence. Ranging from throughout the Americas to Europe, spanning from Asia to Africa; Experian has a truly wide geographic range. TransUnion is present in the second highest number of countries at thirty-four. Of which, ten countries were in Latin

America and twelve countries in sub-Saharan Africa, so TransUnion may have a focus on those two regions.

Next, FICO and Equifax are present in eighteen and seventeen countries respectively. FICO's reach does not seem to display any strong geographic characteristic. Though, of the eighteen countries eight countries were in Asia. Equifax, on the other hand, displays a specific focus in Latin America as ten of the countries where they operate fall in that region. Acxiom and Dun and Bradstreet are both present in ten countries each. Like Experian above, Acxiom is present in an array of countries, spanning from Europe to Latin America to Asia and Oceania. Similarly, Dun and Bradstreet has a presence in a number of regions, including Asia, Europe, and Latin America.

Next we turn to the idea of how ISP ventured abroad. As alluded to above, a number of banks that have expanded globally in recent years have done so by acquiring locally operating institutions. In much the same way, ISP have in numerous cases acquired local ISP, or other information-related entities, and incorporated them into their overall operations. Though, examples of joint ventures and strategic partnerships are also identifiable. Table 4-2.2 lays out some of the major acquisitions, joint ventures, and partnerships each has made.

Table 4-2.2 Major Global Acquisitions, Joint Ventures, and Partnerships

ISP	Acquisition, Joint-Venture, or Partnership	Country	Year
Acxiom	Southwark	United Kingdom	1986
	Claritas	The Netherlands	2003
	Consodata	France	2004
	ChinaLOOP	China	2004
	GoDigital	Brazil	2010
	Partnership with China Post Group	China	2010
	XYZ	Australia	2010
ISP	Acquisition, Joint-Venture, or Partnership	Country	Year
Dun & Bradstreet	Data House	Italy	2002
	Italservice Bologna, Datanet, & RDS	Italy	2003
	n2 Check Limited	United Kingdom	2007
	Huaxia/D&B China (Joint Venture)	China	2007
	Tokyo Shoko Research/D&B Japan (Joint Venture)	Japan	2007
	Beijing D&B HuiCong Market Research Co. Ltd. (Joint Venture)	China	2008
	D&B Australia	Australia	2010
	MicroMarketing	China	2011
ISP	Acquisition, Joint-Venture, or Partnership	Country	Year
Equifax	Organizacion Veraz	Argentina	1994
	Unnisa & Segurança ao Crédito e Informações (SCI)	Brazil	1998
	ASNEF	Spain	1998

	Credit Bureau of Vancouver	Canada	1998
	Infocorp	Peru	1998
	CCI Group Plc	United Kingdom	1998
	Equifax Card Solutions Limited (Joint Venture)	United Kingdom	1999
	Procard & Propago	Chile	2000
	SEK S.r.l. and AIF Gruppo Securitas S.r.l.	Italy	2000
	Check-A-Cheque Ltd & Card Solutions Limited (Joint Venture)	United Kingdom	2000
	Information Services	Uruguay	2001
	National Australia Bank – Card Solutions (Joint Venture)	Australia	2001
	Global Payments Credit Services (Joint Venture)	Russia	2008
	ECIS	India	2009
	Boa Vista Serviços (Joint Venture)	Brazil	2011
ISP	Acquisition, Joint-Venture, or Partnership	Country	Year
TransUnion	Puerto Rico Transunion*	Puerto Rico	1985
	Buro de Credito (25% stake)	Mexico	1996
	Transunion Hong Kong	Hong Kong	1998
	Databusiness	Chile	2010
	Crivo Sistemas em Informatica	Brazil	2012
	Credit Reference Bureau Limited	Kenya	2012
	Thailand National Credit Bureau (12.25% stake)	Thailand	na**
	Credit Information Bureau Limited (CIBIL - 27.5% stake)	India	2011
ISP	Acquisition, Joint-Venture, or Partnership	Country	Year
Experian	CreditInform	Norway	2000
	Informarketing	Brazil	2006
	Sinotrust (Joint Venture)	China	2006
	Serasa	Brazil	2007
	Hitwise	Australia	2007
	KreditInform	South Africa	2008
	Sinotrust (Complete Acquisition)	China	2009
	CCB (Joint Venture)	Japan	2009
	DP Information Group (Joint Venture)	Singapore	2009
	Mighty Net	United States	2010
	Medical Present Value	United States	2012
	Computec	Colombia	2012
ISP	Acquisition, Joint-Venture, or Partnership	Country	Year
FICO	FICO/INFORMA (joint venture with two German firms — Strübel Group and Schober Group)	Germany	1996
	Partnership with Fujitsu FIP	Japan	2000
	Partnership with CallCredit	United Kingdom	2001
	Partnership with Turkey's Credit Bureau, Kredit Kayit Bürosu	Turkey	2001
	Partnership with The Japan Research Institute	Japan	2002
	London Bridge Software Holdings	United Kingdom	2004
	Partnership with Irish Credit Bureau	Ireland	2006
	Partnership with SCHUFA	Germany	2007
	Dash Optimization	United Kingdom	2008
	Partnership with Saksoft	India	2011
	Partnership with iSphere	Philippines	2011
	Partnership with Outbox	Poland	2012
	Adeptra	United Kingdom	2012

Source: ISP Annual Reports and Websites

NOTE: All entries represent acquisitions unless specifically noted as a 'partnership' or 'joint-venture'. We use the more recent FICO. Not all of the countries from previous table may be present. We consider those cases to be Greenfield operations.

*Actual name of target unavailable.

**Year unavailable from TransUnion, though according to the National Credit Bureau of Thailand, the partnership began at the end of 2000.

Upon comparing the means by which ISP expanded, we can point to a significant difference between each. The two ISP with the fewest number of acquisitions were Acxiom and FICO. In fact, in FICO's case most were not acquisitions but partnerships. The other four companies had far more acquisitions, and two in particular had more than ten. Equifax acquired fifteen international corporations and Experian acquired twelve. The other two ISP, TransUnion and Dun and Bradstreet, both made eight foreign acquisitions. As we will see below, this difference among ISP foments itself in the type of services each provides. Experian, Equifax, Dun and Bradstreet and TransUnion typically provide consumer credit information. Whereas, FICO provides software and credit scoring capabilities, and Acxiom has provided information management and data storing abilities. Therefore, information collection may be more conducive to acquisition in the sense that information can be purchased through acquisition, whereas data management and other services can be conducted via other means. Most recently though, the services each ISP provides are overlapping, and therefore we examine services next.

4.3 ISP Services

Next we take an in-depth look at services provided by ISP. Specifically, we visit each ISP's annual reports for a description of major services, and to understand the role each service plays within their overall revenue structure. Table 4-3.1 clearly demonstrates that each ISP offers a variety of services. Consumer credit information provision is extremely important for a number of ISP. But, other services are also important and deserve mentioning. In fact, in most cases, services such as the management and storage of information and information self-verification services for consumers are crucial. Which, are indicators that the provision of information is not the sole service available to banks operating on a global level. Services provided by ISP demonstrate banks have consumer credit information, which would allow them to begin relationships with new customers, and they can also access information management and storage services in order to properly *preserve* relationships with customers. We now examine each ISP individually.

Table 4-3.1 ISP Main Service Segments and Breakdown of Total Revenue

ISP (Year of Most Recently Available Information)	Main Service Segments With Description	As Percent of Total Revenue
Experian (2012)	**Credit Services** -- provides information to organizations to help them manage the risks associated with extending credit and preventing fraud. **Decision Analytics** -- applies expert consulting, analytical tools and software to help organizations make accurate and relevant decisions at each stage of their relationships with customers. **Marketing Services** -- helps organizations to target and engage their customers through sophisticated marketing strategies and to build profitable and lasting relationships. **Interactive** -- enables consumers to monitor the accuracy of their credit report online, to check their credit score and protect themselves against identity theft.	Credit Services 47% Decision Analytics 11% Marketing Services 21% Interactive 21%
Equifax (2011)	**U.S. Consumer Information Solutions** -- includes products such as consumer credit reporting and scoring, mortgage settlement services, identity management, fraud detection and modeling services which facilitate and automate a variety of consumer credit-oriented decisions. **International** -- Consists of Latin America, Europe and Canada consumer products, which are similar to the aforementioned consumer information solutions offered in the US and the Commercial Solutions and Personal Solutions described below. **TALX Workforce Solutions** -- consists of verification services and employer services. Verification services refers to employment and income and verification. Employer services refer to offering information to employers about employees and potential new hires. **North America Personal Solutions** -- refers to the sale of credit monitoring, debt management and identity theft protection products. **North America Commercial Solutions** -- sale of business information, credit scores and portfolio analytics which enable financial, marketing decisions.	U.S. Consumer Information Solutions 40% International 25% TALX Workforce Solutions 21% North America Personal Solutions 9% North America Commercial Solutions 5%
Dun & Bradstreet (2011)	**Risk Management Solutions** --primarily the provision of information for making decisions about new credit applications. Though, scoring and integrated software solutions for automated decision-making and portfolio management are also included. **Sales and Marketing Solutions** -- marketing lists, labels and customized data files for use in marketing activities, including decision-making and customer information management solutions. **Internet Solutions** -- provides products for online sales and marketing purposes as well as business research and advice.	Risk Management Solutions 63% Sales and Marketing Solutions 30% Internet Solutions 7%
Acxiom (2012)	**Marketing and Data Services** -- refining data for decision making purposes. Includes data sourcing; data activation via analytics, integration and enhancement; building and managing of customer marketing databases; partner integration; and other business applications. **IT Infrastructure Management** -- mainframe, server hosting and cloud computing services. **Other Services** -- execution of email campaigns; risk business - providing solutions that combine proprietary, public and third-party information, analytics and advanced technology to assist clients in evaluating, predicting and managing risk and improving operational effectiveness.	Marketing and Data Services 68% IT Infrastructure Management 26% Other Services 6%

TransUnion (2012)	**U.S. Information Services** -- provides consumer reports, credit scores, verification services, analytical services and decision-making technology to businesses in the United States. **International** -- provides services similar to above segment outside the United States, in addition to automotive information and commercial data. **Interactive** -- provides services to consumers, including credit reports, scores and credit and identity monitoring services, primarily through the internet.	U.S. Information Services 63% International 21% Interactive 16%
FICO (2012)	**Applications** -- Services which apply analytics, data and decision management software for the purpose of preventing fraud, customer management (automates risk-based decisions), and marketing. **Scores** -- Scoring solutions which measure individuals' credit risk. Scores allow prescreening of candidates for solicitation, evaluation of applicants for new credit and review of existing accounts. **Tools** -- Segment composed of software tools that clients can use to create their own custom applications.	Applications 63% Scores 26% Tools 11%

Source: Annual Reports and Websites of Each ISP

Almost half of Experian's revenue was generated through credit information services. Though, marketing services, which help banks further by offering strategic advice in how to approach customer acquisition, is another important segment. Additionally, we can see that offering individual consumers services for managing, and verifying information on themselves is an important segment as well.

For Equifax, information solutions in the U.S. account for forty percent of venue, signaling that is still their most important segment. Similar products and services provided in Latin America, Europe and Canada comprise a quarter of revenue. Like Experian, Equifax's 'personal solutions' offers consumers the opportunity to verify and confirm whether information is correct. Equifax also provides important services for confirming consumers' employment, and providing potential employers with information on potential employees.

Information for making credit decisions comprises over sixty percent of revenue for Dun and Bradstreet and TransUnion. Similar to Experian, Dun and Bradstreet offers important sales and marketing services. While for TransUnion, international revenues added over twenty percent of revenue, signaling foreign markets are a significant part operations. TransUnion also offers consumers the important chance to confirm information about themselves via their website. This means consumers can verify their own information at multiple ISP.

With respect to the other two ISP, we can see how some types of services are overlapping. Almost seventy percent of Acxiom's revenues are derived from marketing and data services. What that essentially consists of is the management of data in order to assist corporations when making decisions. At the same time, IT infrastructure accounts for over a quarter of Acxiom's revenues. Thus, the difference between Acxiom and some of the other ISP is that Acxiom provide services for managing information, whereas the aforementioned ISP provided the initial information itself. Furthermore, IT infrastructure management provides the hardware companies need to manage all of the information they may have, or may procure.

FICO's credit scores have made it a widely known provider. However, as table 4-3.1 shows, the majority of FICO's revenues are derived from its applications division, which is more focused on software for managing customers and decisions. Scores do account for around a quarter of revenue, but that is far from the share the fame of FICO scores would lead many to expect.

This section has confirmed, in addition to credit information, ISP provide other critical services. Consumers have the opportunity to verify and confirm any information banks might reference when making a credit decision concerning them. This development is significant because consumers have a strong incentive to amend their information to preserve credibility. That incentive makes information more reliable. Moreover, we saw ISP provide services for managing customers, data, information and decisions. Those services are of considerable significance because may provide the essential tools banks require to operate in foreign markets. Simple information provision alone would be insufficient for banks to make credit decisions. Instead, ISP offer banks advice in how to handle information. In order to strengthen our understanding how ISP services may be supporting the globalization of retail banking, we examine how financial services providers and ISP are connected next.

4.4 Connections With Global Banks

We use two approaches to show how banks and ISP are connected. First, we examine what role financial service providers have for ISP as a customer type. Second, we show whether ISP ownership structures display any evidence of direct control by banks.

Table 4-4.1 shows which customer types are the most important for each ISP by industry. The first finding we can point to is financial service providers are a main client for each ISP. In fact, each ISP lists financial services providers as one of the most important client types, and the most important in most cases. Three ISP – Experian, Equifax, FICO – identified financial services as the largest contributors to revenue. FICO attributed the largest percent of revenue to financial services at eighty percent. Experian had thirty-two and Equifax twenty-six percent from financial services, representing the largest type of customer for both. For the other three ISP, concrete data on revenue by customer type were unavailable. Nonetheless, each explicitly states financial services are vital.

In addition, in reviewing qualitative information from each ISP, we can point to three examples of other connections with banking institutions. First, in certain cases, there are direct examples of executives of large banking institutions becoming executives at ISP[20]. Second, in some cases ISP explicitly discuss services they provide to specific financial institutions. Experian and FICO provide the most information by way of this example, and banks subscribing to services include HSBC, Citibank, and Santander[21]. Third, in still other cases, ISP explicitly mention banking customers. Experian mentions HSBC, Citibank, and Santander by name. Acxiom mentions HSBC, Citibank, and joint services they provide with TransUnion (indicating that at times, ISP may actually be working in cooperation, and not solely in competition). FICO describes providing services to a number of specific institutions such as HSBC, Citibank, Santander, BBVA, Unicredit, and Equifax.

[20] Examples include: HSBC and Citibank executives going to Experian, TransUnion, and Acxiom.
[21] Services include fraud protection and identification, worldwide data integration services, credit scoring facilities, credit decision making software, marketing database tools, employment verification, data warehousing and management, customer management systems, and credit capacity indices to judge how much debt customers can safely take on.

Table 4-4.1 Main Customer's by Industry

ISP (Year of Most Recently Available Information)	Main Client Industries	As Percent of Total Revenue
Experian (2012)	Financial Services, Telecommunications, Utilities, Insurance, Automotive, Healthcare, Public Sector, Retail, Media	Financial Services -- 32% Direct-to-Consumer -- 21% Retail -- 14% Automotive -- 5% Telecommunications and Utilities -- 5% Public Sector -- 3% Other -- 16%
Equifax (2011)	Financial services, mortgage, retail, telecommunications, utilities, automotive, brokerage, healthcare and insurance	Financial Services -- 26% Mortgages -- 15% Consumer -- 11% Employers -- 10% Telecommunications -- 7% Commercial -- 7% Retail -- 5% Auto -- 4% Other -- 15%
Dun & Bradstreet (2011)	Banks and other financial institutions, manufacturers, wholesalers, retailers, government agencies, insurance companies and telecommunication companies	na
Acxiom (2012)	Financial services, insurance, information services, direct marketing, retail, consumer packaged goods, technology, automotive, healthcare, travel and communications industries	na
TransUnion (2012)	Financial services, insurance, healthcare automotive, retail and communications.	Mostly Financial Services
FICO (2012)	Banking, insurance, retail and healthcare	Banking and Insurance -- 80%

Source: Annual Reports and Websites of Each ISP

The second way we look into the relationship is by examining the ownership structure of ISP. This demonstrates whether banks could be using ISP as sort of child-company-information gatherers. Table 4-4.2 though illustrates why this is actually not the case. In fact, the majority of ISP shareholders appear to be investment and asset management firms, private equity firms, retirement funds, and other institutional investment agencies. The one exception to this may be TransUnion in the sense that it was a family-owned institution until recently. Which means, no ISP is majority controlled by a

banking institution. On top of that, there is zero evidence of a direct connection with banks operating on the widest global scale[22].

Table 4-4.2 Major ISP Shareholders at Latest Possible Date

ISP	Shareholders	Percent Held	Business Type
Experian (as of March, 2012)	Legal & General Group	3.97%	Financial Services (Insurance, Retirement Savings & Funds)
	Artisan Partners Limited Partnership	4.98%	Investment & Asset Management
	BlackRock	5.57%	Investment & Asset Management
Equifax (as of March, 2013)	The Vanguard Group	6.40%	Investment & Asset Management
	Fidelity Management and Research	6.14%	Financial Services (Mutual Funds, Retirement Savings, & Trading)
	BlackRock	5.31%	Investment & Asset Management
	Directors and Executives (21 persons)	3.41%	Executives
Transunion (as of February, 2012)	Madison Dearborn Capital Partners	50.90%	Private Equity Investment
	Pritzker Family & Trustees	46.40%	Individuals
	Directors and Executives (17 persons)	2.00%	Executives
Dun & Bradstreet (as of February, 2013)	The Vanguard Group	7.71%	Investment & Asset Management
	Massachusetts Financial Services Company	7.05%	Asset Management
	Artisan Partners Holdings	6.78%	Investment & Asset Management
	BlackRock	6.24%	Investment & Asset Management
	Longview Partners	5.98%	Asset Management
	Directors and Executives (15 persons)	2.35%	Executives
Acxiom (as of June, 2012)	BlackRock	9.50%	Investment & Asset Management
	Fidelity Management and Research	8.40%	Financial Services (Mutual Funds, Retirement Savings, & Trading)
	The Guardian Life Insurance Company of America	11.90%	Financial Services (Insurance, Retirement Savings, & Mutual Funds, Brokerage)
	Waddell & Reed Financial	9.50%	Asset Management & Financial Planning
	The Vanguard Group	5.30%	Investment & Asset Management
	Directors and Executives (17 persons)	1.50%	Executives
FICO (Fair Isaac, (as of November, 2012)	Eaton Vance Management	13.20%	Investment & Asset Management
	BlackRock	7.60%	Investment & Asset Management
	Ariel Investments	7.60%	Mutual Funds Manager
	Royce & Associates	7.10%	Portfolio & Asset Management
	Vanguard Group	5.50%	Investment & Asset Management
	Directors and Executives (19 persons)	4.10%	Executives

Source: SEC Filings, & Experian 2012 Annual Report

[22] For example, HSBC, Citibank, Unicredit or Santander.

4.5 Summary

This chapter has provided evidence to support the major conclusion we make in this paper. In addition to financial institutions, information service providers globalized extensively during the last two decades. We also demonstrated that financial institutions are a major customer of those information providers. Foreign expansion of ISP probably serves as an information platform to support global banks in reducing challenges posed by informational asymmetries in foreign markets.

Another finding highlighted in this chapter is that ISP provide more than credit information. ISP also offer services which act as tools for financial institutions when they make decisions about individuals. From data analytics to scoring criteria, and all the way to data management and organization, ISP offer financial institutions increased opportunity to outsource many of the tasks associated with information production.

Lastly, we showed that there is no strong evidence to suggest global banks hold direct ownership in ISP. On aggregate, this fact signals a trend whereby financial institutions could be becoming less important as information producers. If such a scenario is indeed the case over the long-term, there may be a need for regulatory authorities to monitor ISP activities because as a structural component to the financial system, some group must have a vested interest in the quality of information being used by global banks. Furthermore, how that information is stored, organized, and transferred should also be a matter of critical importance to authorities throughout the globe.

Chapter 5 Information Technology and Global Banking

Broadly speaking, technology usually refers to a scientific advancement, which permits the application of practical knowledge to a particular field or endeavor. Exceptional technological transformation has occurred over the last two decades in a number of industries. The impact technology is having on those industries is profound. In fact, in a number of cases, technology is completely reorganizing the foundation of certain industries. To take some examples, between 1999 and 2009, total music sales in the United States fell by over half (Goldman, 2010). Newspaper circulation is dropping in the United States due to competitive pressure from online news sources, and as a result, many newspapers are struggling to survive (Ahrens, 2009; Stynes, 2012). Film sales have plunged to almost zero because of the widespread popularity of digital cameras, taking down industry giants (Economist, 2012, January). Even cinema admissions have dropped remarkably; measured by total cinema ticket admissions in the United States, tickets sold in 2011 were fewer than in 1995 (Cieply, 2012). Alternative options, made possible by the Internet and other technologies, have had a deep impact. While legal issues remain relevant, the result is similar in many industries; consumers have many more options when choosing how, when, and where to access products and services.

Essentially, no industry is immune to the potentially colossal impact technology imposes. Customer dissatisfaction and overall frustration for the financial services industry are at an all-time high. In fact, through September 2011, some 650,000 individual customers in the United States moved deposits out of large retail banks and into credit unions or small community banks, having been "spurred by the ill-feeling towards the financial industry over the economic crisis" (Avery, 2011, p. 78). Thus, an already vulnerable banking industry could be even more dramatically affected by technology's impact.

This chapter observes technology's impact on the retail banking segment through the lens of developments in non-financial industries. We begin by demonstrating how technology is shaping the evolution of customer-bank interactions and competition from a

standpoint similar to the aforementioned industries. In a number of cases, some technological innovation has allowed consumers to access the product or service in a new way. Furthermore, that same technology lowered barriers to entry for competitor organizations (providing the same product or service). For example, in the case of music, the Internet increased consumer access to software for downloading music from the Internet. Consumers access the same product by connecting with software developers (the new competitors), eliminating the need to physically purchase music in a retail store. This chapter also offers an explanation of the connection between technology's impact and retail becoming so important as a banking segment. Lastly, we consider whether technology will diminish the role intermediaries fulfill in financial markets.

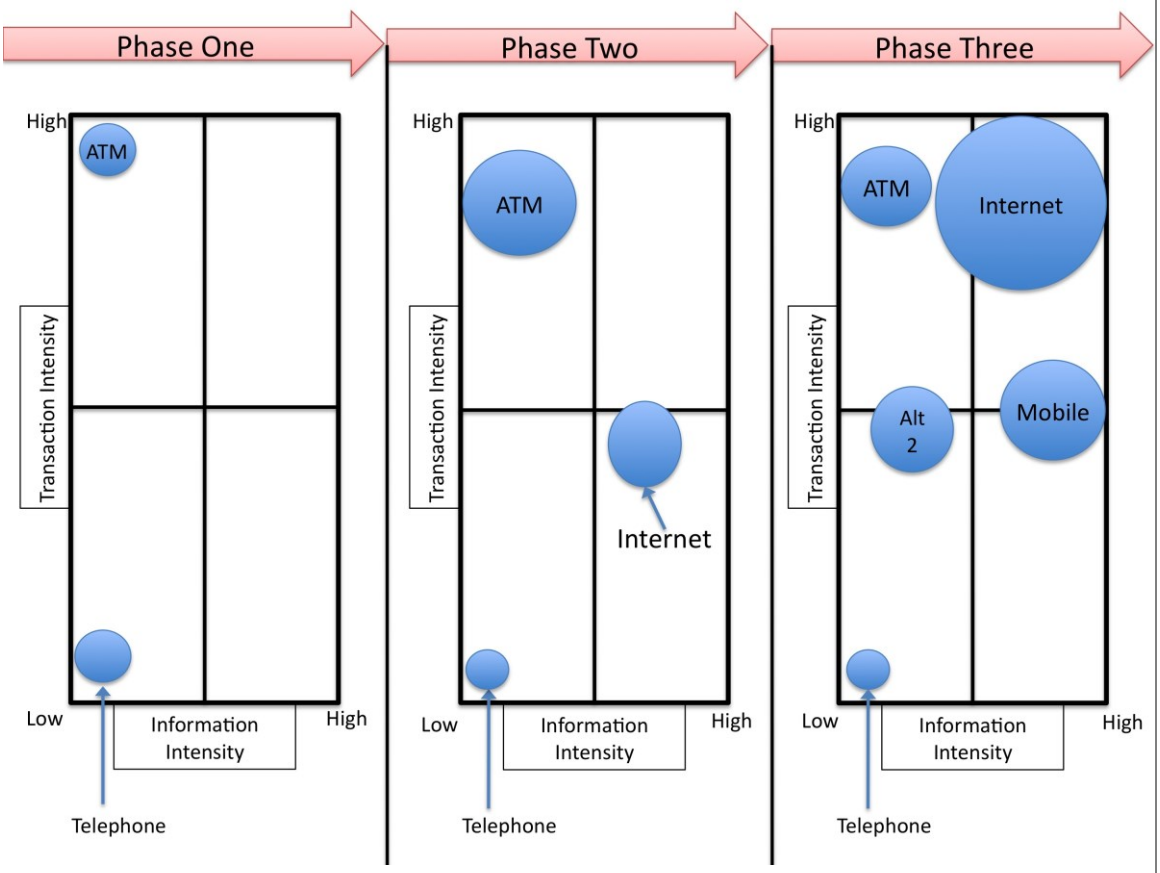
5.1 Changing Bank Channels

Bank channels refer to the methods by which banks and customers connect with each other. The bank branch is perhaps the most traditional and iconic channel, and many large retail banks have established extensive branch networks. In fact, branches are crucial to banks in creating sales opportunities, and to customers as a secure and reliable means of connecting with the bank (Avery, 2011; Frame & White, 2009).

Nevertheless, non-branch channels are continuously becoming more important. This section discusses the evolution of banking channels, though we omit branches from the discussion as they are the oldest and most well-known channel. Drawing on work by Brown, Cox, Griffiths, Sanger, and Weston (2008), we split this portion of our analysis into three phases of bank channel evolution (figure 5-1.1)[23]. Each phase corresponds roughly to the following time periods: phase one took place prior to the mid-1990s; phase two spanned from the mid-1990s to the early-2000s; phase three stretches from the mid-2000s through the present.

[23]Please note we categorize each bank channel type into the phase in which it was initially adopted.

Figure 5-1.1 Retail Banking Channel Evolution



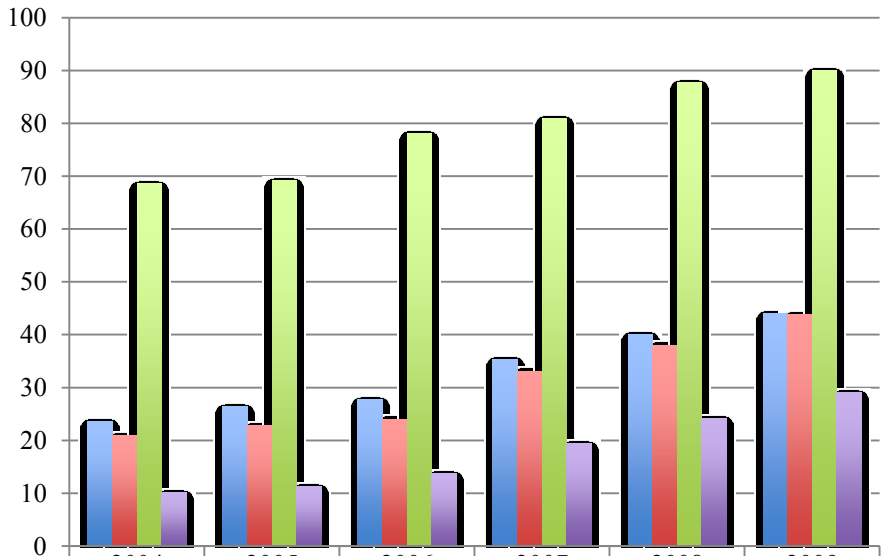
Source: Author's Illustration Based on Brown et al., 2008

5.1.1 Phase One

Two notable non-branch channels emerged during the first phase of evolution. The success each has achieved though, has been polar opposite. Automated teller machines (ATMs) and telephone banking both entered amid hopes for widespread adoption and reduced dependency on branches. ATMs are computer-like devices that allow bank customers to conduct transactions via the machine's interface, rather than speaking with a human bank teller. Reducing the need for direct contact between customers and tellers, ATMs allow banks to lower transaction costs by reducing branch staff. Introduced in the mid-1970s by a handful of early-movers, ATM adoption experienced some initial resistance, but by the early 1990s had become a dominant feature in banking (Violano & Van Collie, 1992). Rising from fewer than 4 billion transactions in 1986 to almost 10 billion by 1995,

ATMs became widely popular in the United States during the 1990s (Morisi, 1996). Today, ATMs are available throughout the world. Statistics in figure 5-1.2 show bank customers can access ATMs in numerous countries, at varying stages of development. ATMs are unquestionably more widely available in high-income countries. Yet, ATM growth more than doubled in both upper middle and middle-income countries, and worldwide growth was higher than 80 percent between 2004 and 2009, signaling widespread adoption of the ATM. Essentially, ATMs are an invaluable banking channel.

Figure 5-1.2 ATMs per 100,000 Adults 2004-2009



	2004	2005	2006	2007	2008	2009
World	24	26	28	35	40	44
Upper middle income	21	23	24	33	38	44
High income	69	69	78	81	88	90
Middle income	10	11	14	19	24	29

Source: World Bank Databank

On the other hand, telephone banking has had much more limited success. Banking via the telephone allows customers to discuss banking matters directly with a bank representative working in a call-center. Not having to visit a branch was thought to be the factor that would push customers to use this channel. Over the telephone, bank representatives equipped with customer information could help banks sell more products to customers. From the banks' perspective this also lessened the need for some branches, especially in semirural and rural areas. Both sides, as it seemed, would thus have theoretically benefited from telephone banking. Initially, investments in call center technology resulted in increased efficiency as calls handled per employee increased (McKinsey Global Institute, 2002). Over time though, telephone banking did not prove to be as important as banks hoped. That is not to say however, that telephone banking has been completely abandoned. To the contrary, banks still offer phone-based services, albeit for a fee in many cases. Basically, "[c]all centers are good for basic transactions, but they are unable to cope with more complex products" (Gemes, Konik, & Moss, 2007, p. 3).

There are at least three reasons telephone banking has been a relatively unsuccessful bank channel. First, setting up call centers and employing representatives to staff those centers proved to be costly. Even if banks could replace some branch staff with call center hires, the benefits were not as significant as expected. Because establishing the call centers required significant equipment investments, some estimates had put the cost per one transaction over the telephone at more than 60 percent higher than at the ATM (Furst et al., 1998). Second, many customers were not satisfied with wait times required to speak to a representative. Frustrated customers terminated calls, and visited the branch anyways (Gemes, Konik, & Moss, 2007). Third, in a number of cases banks did not equip the call centers with proper tools for accessing customer information, greatly limiting the number of services banks could offer over the telephone (Gandy & Chapman, 1997). Thus, while the telephone is not necessarily a dead channel, it has not been as popular as ATMs.

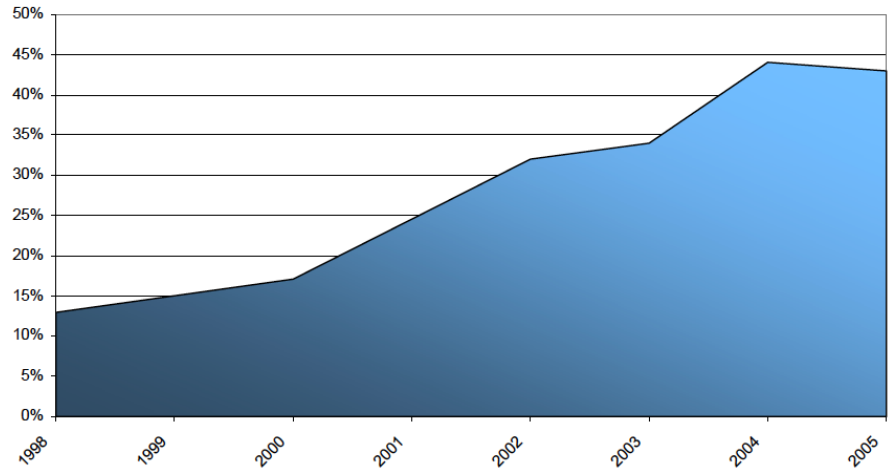
Banks learned a valuable lesson in phase one. Completely automated bank channels, the ATM as opposed to the telephone or branch, are more conducive to *controlling* costs. Even though phase one was an important lesson in automation, ATMs and telephone

banking are relatively low in terms of information intensity. Banks would have to wait until phase two for a chance to increase information gathering through complete automation.

5.1.2 Phase Two

Perhaps one of the most important developments in retail banking channel evolution occurred during the second phase. Internet banking (sometimes referred to as online banking) allows customers to access account information from any computer connected to the Internet. Banks design, develop, and build websites with robust security features for customers to log onto using a preset username and password at any time and from virtually any location they choose. Internet banking is for customers a potentially convenient means of managing finances. However, given the sometimes unsecure nature of the Internet, cautious attitudes towards this channel were initially not hard to find. Over time though, those attitudes have changed considerably. The 2012 *World Retail Banking Report* discovered, after the bank branch, the Internet is the most important banking channel in all regions of the world, and in some cases customers actually *prefer it over the branch* (Capgemini & EFMA, 2012). In addition, by offering the Internet as a channel, banks may indeed be able to lower costs per transaction. Furst et al. (1998) estimated the average cost-per-transaction at an ATM to be roughly $0.27, whereas for Internet transactions it was just $0.01. Thus, the benefits for both sides are evidently considerable.

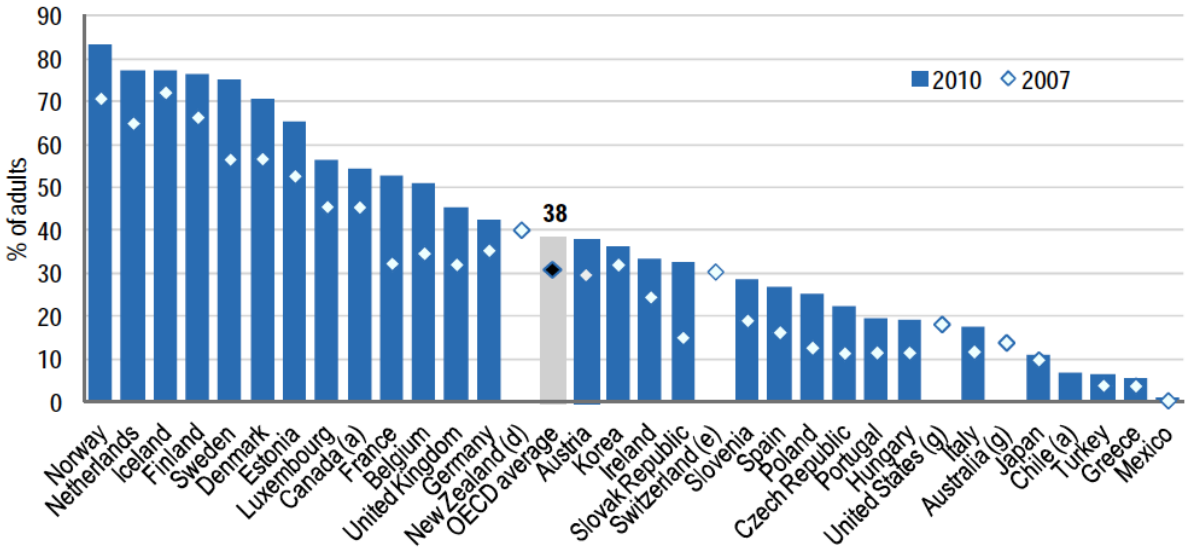
Figure 5-1.3 Percentage of American Internet Users Who Bank Online



Source: Fox & Beier, 2006

Rates of Internet banking usage endorse this notion. Like ATMs, Internet banking required an initial assimilation-period before widespread adoption took place. Eventually, though, by the early 2000s, Internet banking adoption trends began to reflect the mutual benefits banks and customers gain from Internet banking (figure 5-1.3). Furthermore, the Internet banking trend is taking place globally. Figure 5-1.4 shows Internet adoption statistics for a number of countries, all of which have experienced growing usage. Most developed countries reached higher Internet banking adoption rates earlier than developing countries. But, if countries from figure 5-1.4 like Poland, [South] Korea, Chile or Turkey are any indication, much higher rates of Internet banking adoption in developing countries are only a few years away. Actually, as of 2012, *worldwide* Internet banking penetration (as percent of total Internet users) was already around 30 percent (Rosenthal, 2012).

Figure 5-1.4 Percentage of Individuals (Adults) Using the Internet to Access Banking Services



Source: OECD, 2011
Figure 7-1.4 notes: a. 2009; b. 2008; c. 2007; d.2006; e. 2005; f. 2004; g. 2003

As the literature pointed out[24], however, investments in Internet banking may not translate into lower overall costs because transactions per customer will likely rise, forcing

[24] Prasad & Harker (1997), Furst, Lang, & Noelle (1998), Lapavitsas & Dos Santos (2008), see pages 24-25 above.

banks to make further investments. Thus, we might expect banks gain another advantage from implementing technologically intensive automated channels such as Internet banking.

Reviewing terms and conditions of use shows Internet banking imparts upon banks the authority to access and collect customer's personal information. Indeed, with "so much of retail banking moving online, data in vast quantities is collected automatically with every click" (Smart, 2012, p. 28). When customers access their account via the banks' website, they grant the bank permission to acquire general information such as frequency of use, time of use, and general location. Moreover, by placing special files on their computers, banks can collect even more detailed information about customers. In fact, many banks stipulate explicitly in their Internet banking terms and conditions that they collect customer's personal information through the use of cookies (special files that record data and communicate that data back to the developer's servers). Table 5-1.1 illustrates those capabilities for global banks analyzed in previous chapters. Banks then utilize that information when making later decisions concerning products or services to offer customers, as well as when determining borrower creditworthiness. Therefore, a crucial by-product of Internet banking is the added benefit of higher information collection intensity it provides to banks. Certainly, cost concerns may have been main factors during initial implementation, but as we will see again in the next phase; information collection is the reason banks continue investing in channel automation.

Table 5-1.1 Internet Banking Information Gathering Capabilities

Bank	Information Capabilities
Citibank*	Citibank's privacy statement states that Citibank (and the companies it works with) uses cookies to collect information on customers. Citibank collects information about customer's responses to Citibank emails, time and duration on Citibank's website, and pages viewed while connected to Citibank's website.
Santander (Sovereign Bank in The United States)**	Santander uses cookies to personalize online banking services and to collect site visitation statistics.
Santander (Abbey Bank in United Kingdom)***	Cookies enables Santander to tailor content to customers, prevent fraudulent activity, track how customers reach the website, and offer promotions.

HSBC****	HSBC uses cookies for privacy purposes, and to allow customers to "find and compare mortgages and use secure online application forms." HSBC also uses 'analytics' cookies to make adjustments to internet banking services. HSBC also uses cookies to tailor website content to suit user interests. For example, HSBC displays promotional messages about products and services customers may be interested in.
Unicredit*****	UniCredit exchanges cookies with users' computers to acquire certain personal data, which enables users to be identified. Data collected includes IP addresses, time of visit, user's operating system and other statistical information.

Sources:
* Information taken from Citibank's website: https://online.citibank.com
** Information taken from Santander's Sovereign Bank's website: http://www.sovereignbank.com
*** Information taken from Santander's Abbey Bank's website: https://www.santander.co.uk/
**** Information taken from HSBC's website: http://www.hsbc.co.uk
***** Information taken from Unicredit's website: https://www.unicreditgroup.eu

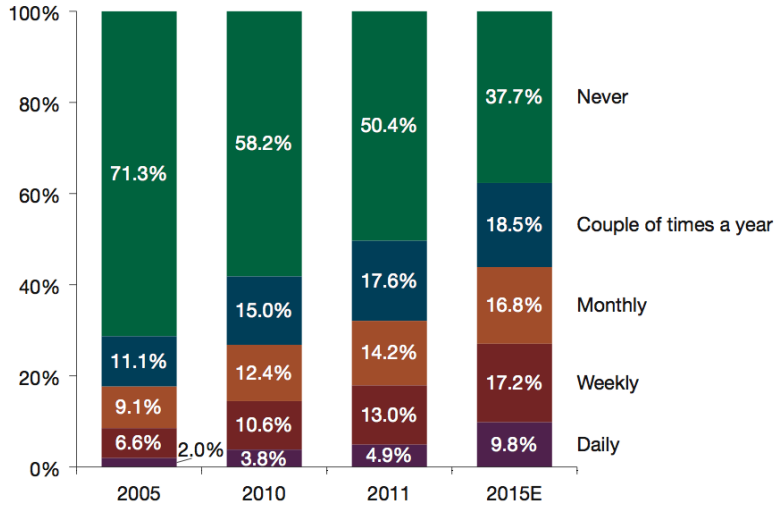
5.1.3 Phase Three

Phase three consists of one major new channel type and two alternative types, derived from other banking channels. The rapid diffusion of Smartphones, and portable computing tablets, has brought a new channel to the forefront: mobile banking[25]. Mobile banking permits customers to access account information for balance inquiries, fund transfers, or to make payments via a mobile phone or computing tablet. Granted, mobile banking adoption is not yet as widespread as Internet banking. However, it possesses immense potential to surpass Internet banking, and perhaps branches, to become the most important channel in retail banking. Statistics from the 2012 *World Retail Banking Report* (figure 5-1.5) suggest retail banking customers are growing more accustomed to banking via mobile devices[26]. The report shows that more than 70 percent of global retail banking customers had never even used mobile banking in 2005. By 2011 though, that figure had changed drastically, as almost 50 percent of global retail banking customers had begun using mobile banking, and more than 30 percent used it once a month. By 2015, estimates suggest over 60 percent of global retail banking customers will use mobile banking. There are at least three reasons to think these estimates on mobile banking will materialize.

[25] We distinguish between 'mobile banking' and 'Internet banking' by defining mobile banking as a connection between a customer and a bank that occurs via a handheld mobile device, which makes use of an application interface specifically offered by the bank. Internet banking occurs virtually over any connection to the Internet where an Internet browser is used to connect directly to the banks' website. Thus, theoretically, customers could conduct Internet banking on a mobile device via the Internet browser, rather than the mobile banking application.
[26] Statistics for 2015 are estimates.

First, mobile banking has an all-encompassing potential to reach huge numbers of individuals. Worldwide proliferation of the Smartphone has placed in the hands of millions a device both highly mobile and extremely sophisticated. That device's constant connectivity allows customers and banks to connect from quite literally any place at any time. Figures 5-1.6 and 5-1.7 illustrate how important the Smartphone has become in the past few years[27]. Smartphones numbered fewer than 100 million worldwide in 2005, but more than tripled to reach 300 million in just five years to 2010. By 2013, that figure is expected to more than double again to just under 700 million. Further, growing numbers of computer tablets provide yet another mobile device type for banks and customers to interact using the same technology. Also, when considering where penetration has taken place, distribution has been relatively widespread. Contrary to the Internet banking gap between developed and developing countries, Smartphone penetration is climbing in developing countries (figure 5-1.7). Thus, mobile banking will likely provide citizens in both developing and developed countries an irreplaceable means of connecting with financial service providers.

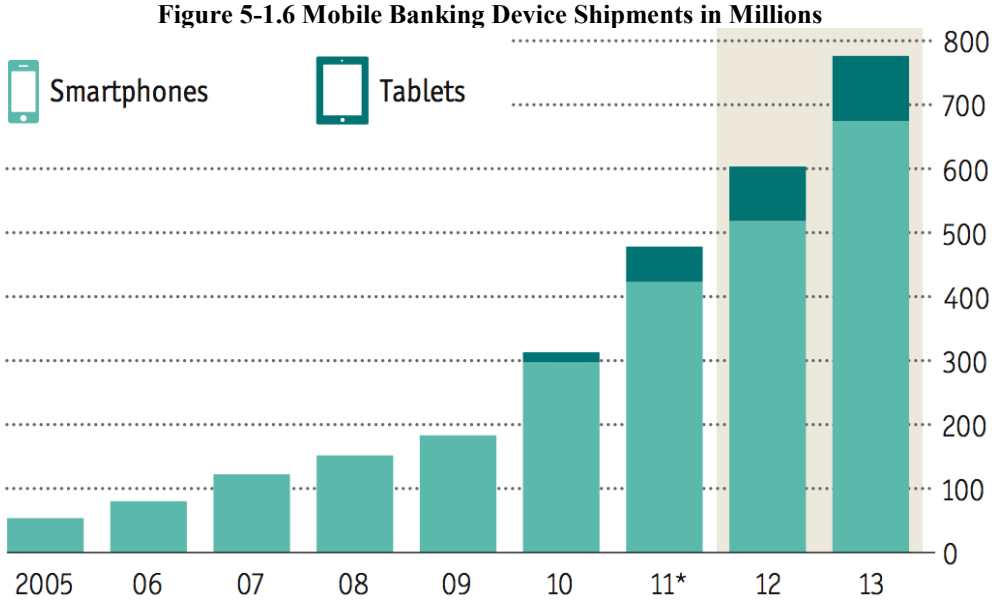
Figure 5-1.5 Global Mobile Banking Usage Statistics 2005-2015



Percent of Users;
Source: Capgemini & EFMA, 2012

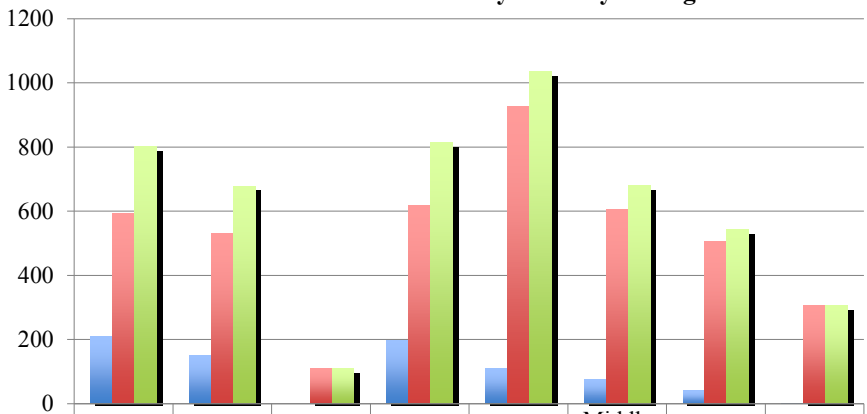
[27]In figure 5-1.6, 2012 and 2013 data are forecasts. 2011 data based on preliminary figures. In figure 5-1.7, Smartphone statistics include both phones with smart features and those with advanced operating systems.

Figure 5-1.6 Mobile Banking Device Shipments in Millions



Source: Rosenthal, 2012

Figure 5-1.7 Installed Mobile Phone Base in Millions by Country or Region in 2010



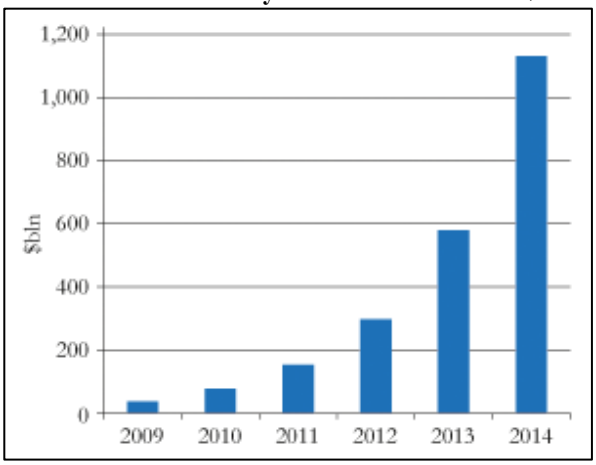
	China	India	Japan	Rest of Asia	Europe	Middle East & North Africa	Latin America	North America
Basic	209	149	0	198	110	76	40	1
Smartphone	591	529	110	616	926	604	505	305
Total	800	678	110	813	1036	680	544	307

Source: Manyika et al., 2011

Second, the portability of Smartphones and mobile devices also makes mobile banking a versatile tool for making payments. Instead of relying on cash, customers can make payments directly from their phone by simply pushing a few buttons. At the moment,

this aspect of mobile banking is somewhat fragmented; service providers include both banks and payment-only providers. Nonetheless, demand for mobile payment facilities is expanding rapidly in total dollar amounts worldwide (figure 5-1.8). Features provided via mobile payments include direct money messaging exchange between Smartphone users, digital wallets where customers can enter credit card details into their phone, direct merchant payments, and even price comparison capabilities (Cooper, 2012). The convenience of having these features available on a device many bank customers already carry anyways is a distinguishing advantage over Internet banking due to the comparative immobility of personal computers. Furthermore, given that banks are more knowledgeable about financial services than payment-only service providers, mobile payments present banks a massive opportunity to strengthen their position in the provision of retail financial services (Avery, 2012).

Figure 5-1.8 Estimated Global Mobile Payment Transactions in $USD Billion 2009-2014



Source: Avery, 2012

Third, and perhaps most importantly, mobile banking permits banks to obtain much deeper personal information on customers than previous channels. Similar to Internet banking, when bank customers use mobile banking applications, they simultaneously grant their bank permission to gather information. The Smartphone is particularly adept at

collecting huge amounts of information, and sharing that information with the application's developers (Beck, 2012). Therefore, banks can extract very detailed information directly from the customer's Smartphone (tables 5-1.2 through 5-1.5)[28]. Essentially that information equips banks with an enormously useful weapon when offering customers products and services, and also when evaluating customers' creditworthiness. Before mobile banking, banks may have never had access to such information; or at the very least, it would have been very costly to obtain. For this reason especially, mobile banking will only grow in importance as a bank channel.

Table 5-1.2 Citibank Mobile Banking Information Permissions

Citibank	
Capability	Explanation
Android Application	
Directly Call Phone Numbers	Allows the application to call phone numbers without the user's intervention.
Take Pictures and Videos	Allows the application to take pictures and videos with the camera. This permission allows the application to use the camera at any time without user confirmation.
Location Identification (Both Approximate and Precise)	Allows the application to obtain both the user's approximate and precise (using GPS) location.
Full Network Access	Allows the application to create network sockets and use custom network protocols. The browser and other applications provide means to send data to the Internet, so this permission is not required to send data to the Internet.
Read User's Contacts	Allows the application to read data about user contacts stored on the device, including the frequency with which the user has called, emailed, or communicated in other ways with specific individuals. This permission allows the application to save the user's contact data. Allows the application to read data about the user's contacts stored on the device, including the frequency with which the user has called, emailed, or communicated in other ways with specific individuals.
Read Phone Status and Identity	Allows the application to access the phone features of the device. This permission allows the application to determine the phone number and device IDs, whether a call is active, and the remote number connected by a call.
Modify or Delete USB Storage or SD Card Contents	Allows the application to write to the USB storage or the SD card.

[28]In almost all cases bank customers must agree to terms and conditions of use before using the mobile banking application. User agreements stipulate, although sometimes vaguely, the information banks can collect from customer's Smartphones. We provide relative details on mobile banking user agreements for the global banks.

Find Accounts on the Device	Allows the application to get the list of accounts known by the device. This may include any accounts created by applications the user has installed. Allows the application to get the list of accounts known by the phone.
View Network Connections	Allows the application to view information about network connections such as which networks exist and are connected.
Receive Data From Internet	Allows the application to accept cloud to device messages sent by the application's service.
Test Access to Protected Storage	Allows the application to test permission for USB or SD card storage that will be available on future devices.
Read Call Log	Allows the application to read the device's call log, including data about incoming and outgoing calls. This permission allows the application to save the user's call log data.
iPhone Application	
Information Collection	The User agrees to allow Citibank to collect, transmit, store, and use technical, location and login or other personal data and related information, including **but not limited to** technical information about the user's device, system and application software, and peripherals, and information regarding the user's location.

Source: Application Terms and Conditions from Citibank's Website and directly from application providers.
Application providers refers to Google Play and Apple's iTunes, which are major providers of applications on mobile devices. Citibank offers similar applications for banking customers in India, Singapore, Thailand, The Philippines, Czech Republic, Hungary, Turkey, Romania, Brazil, Russia, South Korea, Argentina, Spain and others

Table 5-1.3 HSBC Bank Mobile Banking Information Permissions

HSBC (Global Application)	
Capability	Explanation
Precise and Approximate Location Information (via both GPS and network-based facilities)	Allows the application to get your precise location using the Global Positioning System (GPS) or network location sources such as cell towers and Wi-Fi. These location services must be turned on and available to your device for the application to use them. Application may use this to determine where you are. Allows the application to get your approximate location. This location is derived by location services using network location sources such as cell towers and Wi-Fi. These location services must be turned on and available to your device for the application to use them. Applications may use this to determine approximately where the user is.
Ability to Access Phone's Network	Allows the application to create and use the network to send data.
Phone Status and Identity Information	Allows the application to access the phone features of the device. This permission allows the application to determine the phone number and device IDs, whether a call is active, and the remote number connected by a call.
Network Connection Information	Allows the app to view information about network connections such as which networks exist and are connected.

Source: Source: Application Terms and Conditions from HSBC's Website and directly from application providers.
Application providers refers to Google Play and Apple's iTunes, which are major providers of applications on mobile devices. Thus, HSBC collects customer's personal information on both iPhone and Android.

Table 5-1.4 Unicredit Mobile Banking Information Permissions

Unicredit (Italy)	
Capability	Explanation
Take Pictures and Videos	Allows the application to take pictures and videos with the camera at any time without user confirmation.
Precise Location Identification	Allows the application to obtain precise user location using the Global Positioning System (GPS) or network location sources such as cell towers and Wi-Fi. Application may use this to determine where the user is.
Ability to Access Phone's Network	Allows the application to create and use the network to send data.
Read Phone Status and Identity	Allows application to access the device's phone features. This permission allows the application to determine the phone number and device IDs, whether a call is active, and the remote number connected by a call.
Find Accounts on Device	Allows the application to obtain a list of all accounts known by the phone. This may include accounts created by installed applications.
Receive Data from Internet	Allows application to accept cloud to device messages sent by the application's service.

Source: Application Terms and Conditions from Unicredit's Website and directly from application providers. Application providers refers to Google Play and Apple's iTunes, which are major providers of applications on mobile devices. Thus, Unicredit collects customer's personal information on both iPhone and Android. Unicredit also offers similar applications for banking customers in Russia, Bulgaria, Austria, Romania, Croatia, Slovenia, Czech Republic, Serbia, Germany and others.

Table 5-1.5 Santander Mobile Banking Information Permissions

Santander (Spain application)	
Capability	Explanation
Precise and Approximate Location Identification	Allows the application to obtain precise user location using Global Positioning System (GPS) or network location sources such as cell towers and Wi-Fi. This allows the application to determine where the user is. The application may also determine approximate location.
Full Network Access	Allows the application to create network sockets and use custom network protocols. The browser and other applications provide means to send data to the internet, so this permission is not required to send data to the internet.
Ability to Access and View Phone's Networks (including WI-FI)	The application is able to access the device's phone features. This permission allows the application to determine the phone number and device IDs, whether a call is active, and the remote number connected. The application can also view information about network and Wi-Fi connections such as which networks exist and are connected.
Application is Allowed to Modify or Delete USB or SD Card Contents	Allows the application to directly write information to the phones' memory card.

Source: Application Terms and Conditions from Santander's Website and directly from application providers Application providers refers to Google Play and Apple's iTunes, which are major providers of applications on mobile devices. Thus, Santander collects customer's personal information on both iPhone and Android. Santander offers similar applications for banking customers in Argentina, Brazil, Mexico, United States, United Kingdom, among other countries.

Two alternative formats that piggyback on existing technologies have also emerged as important channels, and deserve mentioning. Presented as Alt2 in figure 5-1.1, these alternative formats fulfill a more supplementary role. Here, we divide the two types according to the technology from which they are derived. First, there are at least two ways the Internet is enhancing interactions between banks and customers: email and live video chat. Email has long gone hand-in-hand with Internet use, and banks are increasingly using email in tandem with Internet banking. In particular, email is convenient for customers because they can communicate when and where they choose, and as indicated above, some banks are gathering customer information through email correspondence. Also, a number of banks are also using live video technology as a way to communicate with customers. Video chat software, such as Skype, makes it possible for bank representatives to interact with customers virtually. Banking over video chat could be a potential substitute to telephone banking since many customers feel more comfortable discussing their finances with someone they can actually see (Brown, et al., 2008). Second, mobile phones also allow banks and customers to interact via SMS texting features[29]. In the event a banking question arises, mobile phone connectivity lets customers conveniently reach bank representatives with a simple text from a Smartphone.

In essence, the lasting effects of channel evolution are twofold. First, automation offers customers increased convenience and banks the opportunity to lower costs per transaction. However, as we have discussed, increased transactions per customer mean costs are unlikely the only concern for banks. Therefore, the second feature of channel evolution is the by-product of higher information collection intensity. Automating information collection is a main reason retail banking has risen in importance because information is making what used to be a comparatively opaque customer type, individuals and SMEs, relatively less risky.

[29]SMS refers to 'short message service', or text messages with a character limit sent to mobile phone numbers and not an email address.

5.2 The Evolution of Competition for Retail Financial Services

Technology is also changing the nature of competition in retail financial services by lowering barriers to market entry for new banks, creating opportunities for new service providers, and providing enhanced tools for all financial services providers to grow.

5.2.1 Lowering Barriers to Bank Entry

Extraordinary changes in banking channels also allow banks to exist in non-traditional forms and still connect with customers. More than just non-traditional, a number of banking institutions now exist only virtually. Internet-only banks, as the primary example, have absolutely no physical presence through which to connect with customers. Lacking branch networks, internet-only banks connect with customers through their websites, though in some cases telephone or mobile banking channels are also available. Remarkably, Internet-only banks extend financial services without ever having a face-to-face interaction with customers. Officially registered as banks, these institutions have at least two distinct advantages when competing with more traditional brick-and-mortar institutions.

The first advantage Internet-only banks have is the ability to evade hefty costs related to branch networks. With the website being the main form of contact, Internet-only banks can take advantage of relatively low start-up and running costs. Those cost savings consequently afford Internet-only banks room to compete with larger, more established, financial institutions because they can offer better interest rates on deposits and loans. In fact, DeYoung (2005) found evidence demonstrating Internet-only banks indeed offered lower interest rates on loans and higher rates on deposits than banks with branch networks (p. 937).

The second significant advantage Internet-only banks possess is flexibility. Because most Internet only banks are relatively new institutions, the start-up process is less convoluted. Unlike established banking institutions, which must devise large-scale strategies to align new technologies with old systems, Internet-only banks need not be concerned with integration. “New banks may find it cheaper to install Internet banking

technology in a package with other computer facilities compared to older banks who must add Internet banking to legacy computer system[s]" (Sullivan & Wang, 2005, p. 23). Flexibility is thus another reason Internet-only banks can provide relatively cheaper services.

Also, since Internet-only banks are classified as deposit taking institutions, depositors are protected by deposit insurance. In the United States, the FDIC insures deposits in a number of Internet-only banks[30]. Thus, even though Internet-only customers sacrifice the branch, and thus the ability to physically visit the bank, because of deposit insurance, they need not completely sacrifice security.

However, a significant, if obvious, disadvantage also faces Internet-only banks. Without a physical presence, Internet-only banks are unable to capture customers unwilling to sacrifice the branch as a bank channel. Furthermore, the lack of physical presence will probably translate into lower visibility, especially to individuals less familiar with the Internet. Despite soaring numbers of Internet-only banks entering the industry in the late 1990s, their ability to capture market share has been far from impressive (Wang, 2006). On the other hand though, in the United States, many brick-and-mortar banks have substantially lowered branch growth since 2005 (Avery, 2011). Suggesting, the costly nature of branches, and the entry of Internet-only banks may be having an impact on larger retail banks. Either way, a path with comparatively fewer barriers to entry does exist for new bank entrants. Given the popularity of Internet banking as a banking channel, competition from Internet-only banks will probably intensify, especially if younger customers decreasingly require branches as a contact channel.

5.2.2 New Retail Financial Service Provider Types

Technological advancements have also invited increased competition from new types of non-bank service providers. These retail financial service providers take advantage of technology's networking capability to completely bypass the need for financial intermediaries altogether. A few non-bank service providers are actually already connecting

[30]FDIC (Federal Deposit Insurance Corporation). An example of an internet-only bank insured by the FDIC is the 'Bank of Internet USA'.

lenders with borrowers. Primarily by using the Internet, crowdlending and peer-to-peer lending (also known as person-to-person lending, referred to as P2P below) are two types of disintermediated retail financial services, already making those connections. Crowdlending combines savers into groups whom eventually finance borrowers collectively, limiting any one individual's exposure to losses. P2P lending is somewhat more straightforward, as it usually connects one saver with one borrower. Notable crowdlending and P2P non-bank retail service providers include Zopa, Prosper, and Lending Club. Compared to financial intermediation, savers and borrowers wield more power over deciding to (from) whom to lend (borrow) money. Critically, because no intermediation occurs, lenders receive higher returns and borrowers are charged lower rates[31]. In addition to creating a network for lenders and borrowers, P2P service providers collect and verify borrower's credit information, and assign them credit ratings. Lenders then reference credit ratings and information through the website, and pay fees directly to P2P service providers when loan conditions are finalized.

Some significant challenges face P2P retail financial service providers. First, P2P providers are still very small in scale. Since inception, Zopa, Prosper, and Lending Club have spurred the creation of around 190 million pounds, 327 million dollars, and 600 million dollars in total loans respectively; miniscule figures in comparison to large retail banks (Avery, 2012). Second, financial intermediaries provide liquidity and asset transformation services, which disintermediated service providers cannot. In P2P loans and crowdlending, funds are lent directly to lenders. Whereas, banks and other intermediaries offer liquidity to depositors by allowing them to draw funds on demand, in the case of P2P lenders commit savings for the entire duration of the loan. Also, through asset

[31]Loan terms are decided in different ways according to each company. Zopa allows lenders to set the terms for their loans, and then make offers to borrowers, who in turn select terms favorable to them. Lending Club sets the interest rates on all loans of either 36- or 60-months of equal payments. In the case of Prosper borrowers choose a loan amount and purpose and then post a loan listing with interest rate and loan duration terms they decide themselves. Investors then review loan listings and invest in listings that meet their personal criteria, and borrowers make fixed monthly payments to investors. Methods of settlement vary slightly by company, however for both Zopa and Prosper, lenders and borrowers must use a bank account. Lending Club allows bank accounts, wire transfers, and checks as means of settlement.

transformation financial intermediaries lower the risky nature of lending by converting deposits into loans and absorbing risk on behalf of savers. In disintermediated P2P retail finance, loan risk lies solely with the lender. If the borrower defaults on a loan, the lender will almost certainly suffer losses on principal. On top of all that, as indicated above, P2P accounts are usually linked to bank accounts to facilitate payments for starting and settling accounts. Which means, essentially, banks (or other financial intermediaries) would still play some role in the lending process.

These obstacles may prove insurmountably high when conducting services with small-scale retail savers because not only would their savings be unavailable for extended periods of time, but also because no guarantee promises the return of their savings. Furthermore, bank accounts required for registration mean customers will have to continuously maintain a relationship with a financial intermediary anyways. Thus, while crowdlending and P2P services may be capable of connecting borrowers and lenders, they are not complete substitutes for financial intermediaries.

5.2.3 Big Data

As indicated in figure 5-1.1, an obvious shift that is taking place within the evolution of banking channels is increased informational intensity. Also, as indicated above, a number of ISP are extending data management, analysis and mining services to banks and other financial institutions. This subsection sheds light on the role 'big data' is playing in shaping the competitive environment.

Big Data is making access to competitive tools more even across financial institutions because it provides customer information when approaching new customers, and vital information management capabilities. The term big data refers to increasingly vast quantities of stored data that have become so large; managing it requires sophisticated management and specially developed software[32]. In fact, data storage capabilities are

[32] Most studies refrain from numerically defining 'big data' primarily because technology is always changing. Defining a specific data level only forces multiple future revisions. Our intention is to bring attention to the fact that consumer data is growing exponentially. In addition to having access to consumer information, financial institutions can also access information management and marketing assistance services.

growing more voluminous and cheaper all of the time, promoting data collection so rapidly that some research estimates by 2020 the total amount of global digital information will be more than 250 times larger than in 2005 (Smart, 2012; Rosenthal, 2012). Consumer data is particularly important to 'big data', and since the quantity of data makes its management so difficult, a number of highly specialized companies (most notably the ISP above) devoted to collecting, storing and later selling consumer's information, and financial intermediaries stand to gain the significantly from improved data and information management (Manyika et al., 2011).

Types of information collected through 'big data' reach farther than almost anyone could have imagined a few decades ago. Information collected by data companies includes the immensely detailed data in table 5-2.1. Data is typically collected from a variety of sources, ranging from publicly available information to data from commercial entities, such as Facebook and YouTube, among other social networking websites (Franklin, 2012; Glasgow, 2012; Hadley, 2012; Kamerschen, 2012; Lansing, 2012; Letters to major data brokers, 2012). Therefore, big data is not only amassing huge quantities of information, but also information which is also very detailed.

A review of one data company's customers reveals large retail banks are among financial institutions purchasing information, and on aggregate financial services account for more than half of revenue[33]. Such detailed information is especially important because it allows banks to more effectively market financial products and services to, and accurately determine the creditworthiness of, new customers. While banks may have been able to collect some of that information in decades past when customers visited the branch, a large portion of the information has become collectable just over the last decade or so. 'Big data' is opening a window through which banks can see directly into the lives of potential new customers.

Furthermore, even if banks were able to collect detailed information, they would unlikely have been able to organize or truly utilize it without data companies. The

[33]One of the world's largest consumer data collection companies, Acxiom, holds vast sums of information on individual consumers. Among Acxiom's customers are HSBC and Citibank as well as four of the top five retail banks in the United States (Glasgow, 2012).

organization of information is especially crucial given the fact that bank channels are becoming increasingly information intensive. As argued above, information collection is likely a concern for banks when implementing technologies that make new bank channels possible. Over time though, the amount of information on customers that banks collect internally grows so large, it becomes a deluge that most financial intermediaries do not have the capability to sift through effectively. Thus, in addition to providing information on new customers, big data players help a number of banking institutions to better understand current customers as well.

Table 5-2.1 Big Data Information Collection

Data Type	Details
Identifying and Contact Information	Name, Address, Landline Telephone Number, Mobile, Phone Number, E-mail Address
Sensitive Identifying Information	Social Security Number, Driver's License Number
Court & Public Record Information	Criminal History, Bankruptcies, Judgments and liens, license and registration data (professional, hunting, fishing, boating, firearms, ATV, etc.)
Demographic Information	Birthdate, Race, Ethnicity, Religious Affiliation, Language Preference, Length of Residence, Home Value, Home Characteristics, Marital Status, Presence of Children, Household Member Numbers, Education, Occupation, and Political Party
Financial Indicators	Estimated Net Worth, Estimated Income, Credit Card Type
Health Interests	Organic Eating Habits and Alternative Medicines
Other Lifestyle and Interest Indicators	Hobbies, Shopping trends, methods and purchase frequency, media channel usage (e.g. Internet, TV, yellow pages, radio), social media use (e.g. Twitter, Facebook, LinkedIn, YouTube), and other license and registration information

Sources: Franklin, 2012; Glasgow, 2012; Hadley, 2012; Kamerschen, 2012; Lansing, 2012; Letters to Major Data Brokers, 2012

However, important to point out, is that "even as big data are helping banks, they are also throwing up new competitors from outside the industry" (Rosenthal, 2012, p. 12). New entrants, small, medium, and large banks, as well as non-bank retail service providers, can more easily overcome the difficult task of understanding new individual customers because information that would have previously been difficult, if not impossible, to obtain is now available from data collection corporations. On top of that, should new competitors need assistance in understanding how to utilize customer information, those services are readily

available as well. Procurable tools are let competing institutions overcome what used to be massive obstacles to entry in a very short period of time.

Therefore, 'big data' is actually a double-edged sword: on the one hand, voluminous information and data management assists retail banks in expanding products and services; but on the other hand, big data also intensifies competition by making information available to many sizes and types of institutions.

5.3 Summary

This chapter has shed light on how technology is transforming retail banking. We found that bank channels are evolving as a result of technological advancements. Significantly, we argue that while transaction costs may have been an initial concern; the fact that bank channels have increasingly higher informational intensity implies the focus is not solely upon lowering costs but additionally on collecting customer information. Internet banking and mobile banking offer banks the opportunity to gather information they would otherwise be unlikely able to obtain. In fact, it might be argued that Internet and mobile banking will become tools which lower individual and SME informational asymmetries to manageable levels, propelling the retail segment to further heights in years to come.

The flip side of the coin however, is that competition will likely intensify. However, we do not suppose that – somewhat similar to non-financial industries – a process of disintermediation will replace banks altogether. We insist that competition for the provision of retail financial services will intensify *amongst* varying sizes and types of financial intermediaries. P2P and crowdlending will likely only be supplemental services because they do not provide all of the services provided by banks. Notably, disintermediated retail financial service providers do not provide liquidity or asset transformation services to customers. Internet-only banks may however, prove to be instrumental if growing numbers of retail customers decreasingly prefer the branch as a bank channel.

The main reason competition will intensify is the increasing supply of data management and analytical tools, or what is also called Big Data. Given the significance of credit information service providers and technology in transforming retail banking, especially on a globalized level, considering the impact of these developments on host

nations is essential. Next, we contemplate how host countries' domestically-owned banks and financial stability have been impacted by the entry of global banks, credit information service providers, and the rise of retail banking.

Chapter 6 Impact on Host Countries

This chapter looks into the impact aforementioned developments have had on host countries. By impact we do not mean just global banks, but also include ISP (as mentioned) expanded to many of the same countries roughly around the same time. We present statistics on subject countries, examine their macroeconomic conditions, banking sector developments and stability, and analyze credit information availability for each country. We begin by outlining methods for defining subject countries for analysis. We draw on statistics from *The Banker*'s Top 1,000 World Banks annual publication for the following two reasons. First, *The Banker*'s statistics allow for a smooth comparison across a number of countries. Second, they also narrow down banking institutions to the largest, most important entities, which is meaningful given our aim of grasping financial stability.

We identify countries for analysis by applying the following four criteria to statistics from *The Banker*'s Top 1,000 World Banks. First, subject countries will have a minimum of five total banks, and three foreign owned subsidiary banks in the July 2011 publication. Second, countries will have a minimum of 50 billion U.S. dollars in total foreign owned subsidiary assets according to the same year's publication[34]. The first and second criteria ensure our analysis covers countries with relatively high foreign bank presence by global comparison. Assets are also important to our analysis because below we examine assets in the form retail, and nonperforming, loan percentages within each market. Third, we establish a time duration criterion by eliminating any country with no foreign owned subsidiary bank in *The Banker*'s 2007 or 2005 publications. This ensures the duration of foreign bank presence is long enough to impact the host nation's banking sector both before and after the 2008 global financial crisis. Lastly, countries will have more than 15 percent of banking assets (aggregate of all banks in the 2011 publication) controlled by foreign owned subsidiaries. This criterion assures we observe countries where banks have meaningful influence within the host nation's banking sector.

[34] 50 billion U.S. dollars in assets was chosen mainly as a matter of practicality to prevent huge gaps, and thus incomparability, between countries.

Below we examine how host markets with high foreign bank presence have been affected in the following five ways. First, we demonstrate the subject countries' macroeconomic conditions were favorable; establishing the environment upon which retail could expand existed. Second, we analyze financial developments, showing clearly that retail banking is a prominent banking segment in each country. Third, we take the financial analysis one step further by explaining other important banking sector changes that have occurred. Fourth, we analyze financial stability as it relates to specifically to retail banking developments in the subject countries. Lastly, we uncover what impact these developments have had on the volume and quality of credit information in each country.

6.1 Countries With Significant Global Bank Entry

We apply the above criteria to statistics on foreign bank presence in various countries in table 6-1.1 below[35]. Initially applying the first criteria (minimum five total banks, and minimum three foreign owned subsidiary banks) creates a rather sizeable list of 23 countries. However, after applying the second criteria, total asset size, ten countries are eliminated; Argentina, Bulgaria, Egypt, India, Indonesia, Morocco, Serbia, Thailand, Ukraine and Venezuela each had less than 50 billion U.S. dollars in total foreign subsidiary assets. Next, we apply the time duration criteria by eliminating any country without a foreign bank in the 2005 or 2007 publications. This turns out to eliminate only China. In applying the last criteria, a minimum of 15 percent of bank assets controlled by foreign subsidiaries, we can eliminate two more countries: Malaysia and Russia. This leaves us with a group of ten countries to observe: Brazil, Chile, Croatia, Czech Republic, Hong Kong, Hungary, Mexico, Poland, Romania, and Turkey.

[35] Please note the percent of foreign bank presence is not the overall presence of foreign owned banks in the entire banking system, it is the foreign bank presence within that country's largest institutions, i.e. those represented in *The Banker*'s Top 1,000 World Banks in July, 2011.

Table 6-1.1 Countries with Significant Foreign Owned Bank Presence

Country*	Number of Banks	Number of Foreign Banks	Total Banking Assets in Banker (USD Mil)	Foreign Bank Assets in Banker (USD Mil)	Foreign Share (%) in Total Assets from Banker	Foreign Banks in 2005 Publication	Foreign Banks in 2007 Publication
			A	F	%=F/A	No. #	No. #
Africa							
Egypt	10	5	145,521	32,165	22.10%	0	1
Morocco	6	3	106,991	22,144	20.70%	1	2
Americas							
Argentina	11	4	100,027	25,143	25.10%	3	2
Brazil	16	4	1,971,413	333,411	16.90%	5	6
Chile	9	3	208,933	73,857	35.30%	2	3
Mexico	9	6	368,088	295,819	80.40%	5	5
Venezuela	13	3	145,201	24,962	17.20%	2	2
Asia							
China	111	10	117,943,599	134,522	0.10%	0	0
Hong Kong	16	9	1,329,134	1,161,477	87.40%	5	6
India	35	3	1,502,025	26,339	1.80%	0	0
Indonesia	14	5	242,917	41,546	17.10%	0	1
Malaysia	17	4	521,427	70,023	13.40%	3	4
Thailand	15	4	326,826	26,459	8.10%	1	1
Europe							
Bulgaria	6	5	28,419	25,025	88.10%	2	2
Croatia	5	5	54,327	54,327	100.00%	4	5
Czech Republic	6	6	163,210	163,210	100.00%	5	5
Hungary	8	7	125,828	78,951	62.70%	7	6
Poland	15	12	281,392	204,591	72.70%	7	8
Romania	5	4	58,536	51,756	88.40%	2	3
Russia	31	7	742,260	68,498	9.20%	2	2
Serbia	6	4	15,728	10,715	68.10%	na	0
Turkey	17	6	616,554	131,750	21.40%	1	2
Ukraine	8	3	55,228	18,157	32.90%	0	2

Source: *The Banker*, Top 1,000 World Banks, 2011, 2007, & 2005
*Minimum 5 Banks in *The Banker* Top 1,000 and 3 Foreign Banks

Immediately decipherable from this group is that almost all of the remaining countries are from either Latin America or Emerging Europe, with Hong Kong and perhaps (depending on definitions of Emerging Europe) Turkey being exceptions. This geographic

concentration is at the very least partially explained by the fact that authorities in Latin America and Emerging Europe opened up their banking systems to foreign acquisition of domestic banks, by comparison, earlier than authorities in other regions. Indeed as we alluded to above, these are precisely the same countries where many global bank acquisitions have taken place.

The three Latin American and five Emerging European countries, along with Turkey and Hong Kong offer valuable examples for research. Not only because the quantity of countries permits important comparisons, but also because the two outlying countries serve to control for any geographic biases that may appear. In analyzing this group of countries, below we demonstrate how important retail banking, make implications about financial stability, and show how both the volume and quality of credit information are evolving in these subject countries.

6.2 Macroeconomic Developments

Each subject country experienced robust economic growth during most of the 2000s. Strong macroeconomic conditions are essential to the expansion of retail as a banking segment (Morison & Frazer, 1982; Clark et. al, 2007). Starting with GDP growth rates, table 6-2.1 lays out statistics for each country and averages for the first and second halves of the period. Growth in the first half of the decade averaged over three percent for all countries but Mexico, which was close behind at 2.65 percent. The second half of the decade saw some countries improve over the first half, such as Brazil, Chile and Poland. Others countries slipped in the second half when taken on an average basis, suggesting a deep impact from the 2008 crisis. Indeed, with the exception of Poland, all countries experienced negative growth in 2009. Nonetheless, a majority of countries improved in 2010 and 2011, implying most have rebounded.

Next, we draw on two statistics to comprehend how economic growth translated into individual income growth over the same period. Table 6-2.2 below displays data on GDP per capita rates of growth and GDP in constant 2000 U.S. dollars. First, in terms of GDP per capita growth rates, a clear difference emerges between the Latin American countries and all other subject countries when comparing averages over the two halves of

the decade. Over the first half, Brazil, Chile and Mexico achieved less than three percent average growth, while the other countries' averaged a minimum of 3.5 percent. In fact, four Emerging European countries (Croatia, Czech Republic, Hungary, and Romania) each achieved four percent growth or higher in the first half of the decade. The second half of the decade was slightly different, however, as Brazil and Chile improved between 2006 and 2011, to over three percent. During the same time, most of the Emerging European countries (Poland being an exception) saw growth slow considerably. Hong Kong and Turkey witnessed large growth swings when compared year-by-year. But, when taken as an average, both exhibited significant growth during the period as a whole. Essentially, GDP per capita growth rates signal individual income expanded, albeit in somewhat different years for each country.

Table 6-2.1 Subject Countries GDP Growth Rates 2000-2011

Country Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2000-2005 Average	2006-2011 Average
Americas														
Brazil	4.3	1.3	2.7	1.2	5.7	3.2	4.0	6.1	5.2	-0.3	7.5	2.7	3.1	4.2
Chile	4.5	3.4	2.2	3.9	6.0	4.3	5.7	5.2	3.3	-1.0	6.1	6.0	4.1	4.2
Mexico	6.6	-0.2	0.8	1.4	4.1	3.2	5.2	3.3	1.2	-6.2	5.5	3.9	2.7	2.1
Asia														
Hong Kong	8.0	0.5	1.8	3.0	8.5	7.1	7.0	6.4	2.3	-2.7	7.0	5.2	4.8	4.2
Europe														
Croatia	3.8	3.7	4.9	5.4	4.1	4.3	4.9	5.1	2.2	-6.0	-1.2	0.0	4.3	0.8
Czech Republic	4.2	3.1	2.2	3.8	4.7	6.8	7.0	5.7	3.1	-4.7	2.7	1.7	4.1	2.6
Hungary	4.2	3.7	4.5	3.9	4.8	4.0	3.9	0.1	0.9	-6.8	1.3	1.7	4.2	0.2
Poland	4.3	1.2	1.4	3.9	5.3	3.6	6.2	6.8	5.1	1.6	3.9	4.4	3.3	4.7
Romania	2.1	5.7	5.1	5.2	8.4	4.2	7.9	6.0	9.4	-8.5	1.0	-0.4	5.1	2.6
Turkey	6.8	-5.7	6.2	5.3	9.4	8.4	6.9	4.7	0.7	-4.8	9.2	8.5	5.1	4.2

Source: World Bank

Table 6-2.2 Subject Countries GDP Per Capita Growth Rates (%) and Constant 2000USD 2000-2011

GDP Per Capita Growth Rates	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2000-2005 Average	2006-2011 Average
Americas														
Brazil	2.8	-0.1	1.3	-0.2	4.4	2	2.9	5.1	4.2	-1.2	6.6	1.8	1.7	3.2
Chile	3.2	2.2	1	2.8	4.9	3.2	4.6	4.1	2.3	-2	5.1	5	2.9	3.2
Mexico	5.1	-1.5	-0.5	0.1	2.8	1.9	3.8	2	-0.1	-7.4	4.2	2.7	1.3	0.9
Asia														
Hong Kong	7	-0.2	1.4	3.2	7.6	6.6	6.3	5.3	1.5	-3	6	5.1	4.3	3.5

Europe														
Croatia	6.8	3.3	4.9	5.4	4.2	4.2	5	5.2	2.2	-5.9	-0.9	0.2	4.8	1
Czech Republic	4.3	3.5	2.5	3.7	4.7	6.5	6.7	5.1	2.2	-5.3	2.4	1.4	4.2	2.1
Hungary	4.5	4	4.8	4.1	5	4.2	4.1	0.3	1.1	-6.7	1.5	2	4.4	0.4
Poland	4.8	1.7	1.5	3.9	5.4	3.7	6.3	6.8	5.1	1.6	3.8	4.3	3.5	4.6
Romania	2.2	7.2	6.7	5.5	8.7	4.4	8.1	6.2	9.6	-8.4	1.1	-0.1	5.8	2.8
Turkey	5.2	-7	4.7	3.8	7.9	7	5.5	3.3	-0.7	-6	7.8	7.2	3.6	2.8
GDP per capita (constant 2000 US$)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2000-2011 Change %	1990-1999 Change %
Americas														
Brazil	3,696	3,693	3,740	3,734	3,899	3,977	4,091	4,298	4,479	4,425	4,717	4,803	30.0%	7.2%
Chile	4,878	4,983	5,033	5,173	5,427	5,600	5,859	6,100	6,240	6,117	6,430	6,754	38.5%	54.0%
Mexico	5,817	5,729	5,703	5,709	5,869	5,983	6,212	6,333	6,327	5,858	6,105	6,270	7.8%	12.9%
Asia														
Hong Kong	25,374	25,313	25,666	26,489	28,509	30,395	32,320	34,044	34,570	33,526	35,537	37,352	47.2%	17.5%
Europe														
Croatia	4,862	5,024	5,269	5,552	5,782	6,025	6,326	6,652	6,799	6,399	6,338	6,352	30.7%	-13.4%
Czech Republic	5,725	5,923	6,069	6,296	6,589	7,020	7,489	7,868	8,042	7,618	7,803	7,912	38.2%	0.7%
Hungary	4,543	4,722	4,949	5,154	5,414	5,639	5,868	5,884	5,947	5,551	5,634	5,746	26.5%	-0.3%
Poland	4,454	4,532	4,600	4,781	5,039	5,224	5,553	5,932	6,236	6,333	6,574	6,854	53.9%	37.0%
Romania	1,651	1,770	1,888	1,992	2,165	2,260	2,444	2,596	2,845	2,607	2,637	2,633	59.5%	-14.8%
Turkey	4,189	3,895	4,078	4,235	4,569	4,887	5,155	5,324	5,288	4,969	5,356	5,741	37.0%	15.5%

Source: World Bank

GDP per capita in constant 2000 U.S. dollars shows individual income growth, in real terms, was exceptional in most cases. While levels varied by country in 2000, by 2011 almost all countries had achieved more than a twenty-five percent increase, with Mexico the only country unable to achieve that mark. Particularly impressive were eight countries with more than thirty percent increases: Brazil, Chile, Croatia, Czech Republic, Poland, Romania, Hong Kong, and Turkey. When comparing the same change in GDP per capita over the previous decade, 1990 to 1999, we can see that for many countries there is a gaping difference. Some countries actually had higher growth in the 1990s, such as Chile and Mexico, while others achieved significant growth in both decades, such as Poland, Hong Kong, and Turkey. For Croatia, Czech Republic, Hungary, and Romania GDP per capita barely crawled forward, and even declined in the 1990s; thus for them, the 2000s welcomed economic growth. In any respect, individual income grew for all countries. To be sure, some countries experienced faster growth than others. Nonetheless, increased GDP per capita, in real terms, set the stage for a transformation in household consumption.

Per capita household consumption expanded considerably over the 2000s in all countries. Table 6-2.3 below displays statistics on final household consumption per capita in constant 2000 U.S. dollars. Again, Mexico lagged behind some of the other countries, but it still achieved more than twelve percent growth from 2000 through 2010. All other subject countries experienced more than twenty percent overall growth in per capita household consumption. Six of which, experienced more than a thirty percent rise in a decade: Brazil, Chile, Czech Republic, Poland, Romania, and Hong Kong. Croatia and Turkey too were not far behind at twenty-eight, and twenty-nine percent respectively. Interestingly, the half of the decade in which the majority of growth took place varies by country, and correlates somewhat with the above GDP statistics. Brazil, Chile, Poland, and Hong Kong all experienced faster growth in the second half of the decade. On the other hand, Mexico, Croatia, Czech Republic, Hungary, Romania, and Turkey had faster growth in the first half of the decade. As a comparison, we also include household consumption growth in the United States in table 6-2.3. Each of the subject countries experienced faster per capita household consumption growth than the United States over the 2000s. At just over ten percent, the majority occurring in the first half of the decade, the United States did not experience growth anywhere near that of the faster subject countries.

Table 6-2.3 Household Final Consumption Expenditure Per Capita Constant 2000 U.S. Dollars

Country	2000	2005	2010	2000-2005 Change (%)	2005-2010 Change (%)	2000-2010 Change (%)
Americas						
Brazil	2,378	2,453	3,095	3.1%	26.2%	30.1%
Chile	3,113	3,798	4,704	22.0%	23.9%	51.1%
Mexico	3,896	4,267	4,365	9.5%	2.3%	12.0%
United States	24,207	26,749	26,777	10.5%	0.1%	10.6%
Asia						
Hong Kong	14,966	16,068	19,497	7.4%	21.3%	30.3%
Europe						
Croatia	2,935	3,730	3,766	27.1%	1.0%	28.3%
Czech Republic	2,973	3,552	3,875	19.5%	9.1%	30.3%
Hungary	2,492	3,227	3,047	29.5%	-5.6%	22.3%
Poland	2,856	3,319	4,068	16.2%	22.6%	42.4%
Romania	1,303	1,981	2,660	52.0%	34.3%	104.1%
Turkey	2,954	3,558	3,824	20.5%	7.5%	29.5%

Source: World Bank

In addition, when comparing the decade-long percent change in per capita household consumption with GDP per capita (from constant 2000 U.S. dollars in table 6-2.2) we can see that household consumption outpaced GDP in four countries: Brazil, Chile, Mexico and Romania. And, many other countries' figures were not far behind. In other words, household consumption accelerated as fast as per capita incomes, and in some cases household appetites for consumption may have grown faster than incomes.

Economic developments indicate the ten subject countries experienced sound growth during the 2000s. Without question, the global financial crisis impacted all countries negatively. Nevertheless, economic growth was fairly high prior to 2009, and recovered thereafter in most cases. Furthermore, for most countries GDP per capita growth was significant over the 2000s, especially in comparison to the 1990s, attesting to the fact individuals attained higher levels of income. Crucially, all countries experienced much higher household consumption growth, actually exceeding growth in the United States at a time when uncreditworthy individuals are widely known to have borrowed heavily to finance consumption in that country. Moreover, in some subject countries, household consumption growth outpaced GDP per capita growth, indicating many households had to finance consumption via means other than income, such as debt. Conditions were thus optimal for the expansion of retail loans to individuals and households at a rapid pace.

6.3 Banking System Developments and Stability

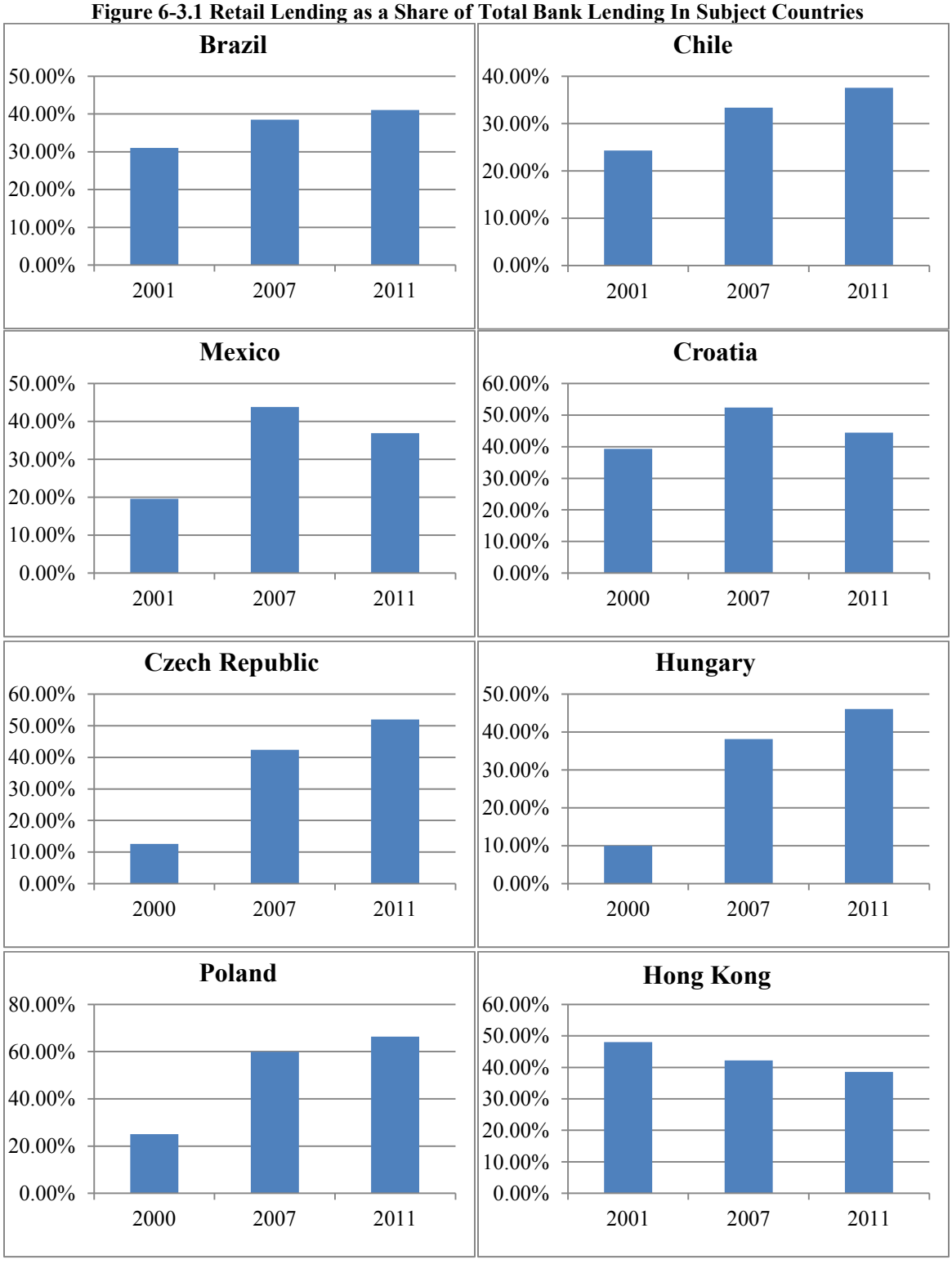
Turning to financial developments, this section confirms extraordinary financial changes occurred during the 2000s. Expectably, foreign banks played a role in shaping those developments because just "by their entry the foreign banks change the environment" (Tschoegl, 2005, p. 7). Inasmuch as all ten subject countries have high levels of foreign bank entry, the potential for comparable banking sector developments would seem high. In the following subsections we establish that retail loans accelerated during the 2000s as a percentage of total lending. Also, we show statistics on other crucial transformations in overall bank credit, interest rates, and domestic bank strategies occurring in the subject countries' banking sectors over the same period.

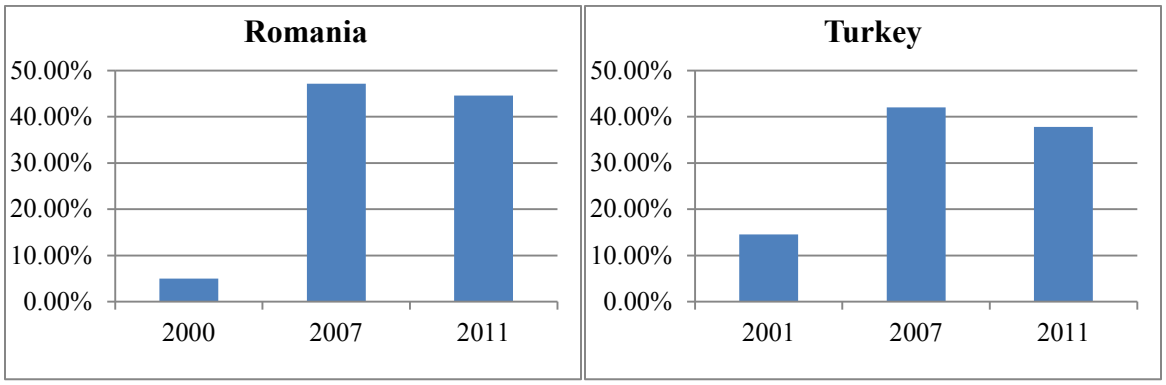
6.3.1 The Rise of Retail Lending

Individuals took on rising debt in many subject countries during the 2000s. Figure 6-3.1 illustrates how loans to individuals as a percent of total loans rose, sometimes dramatically, over the last decade. As an exception, Hong Kong experienced a decline in retail loans as a share of total lending. Nevertheless, a clear pattern emerges from these data: by year-end 2011, retail lending accounted for roughly 40 percent of all bank lending in all ten countries.

Dividing subject countries into two groups according to gains retail loans made allows for some interesting interpretations. The first group we call the *over-30s* and the second group we call the *under-30s*. *Over-30* countries saw retail loans grow more than thirty percent of the entire loan portfolio during the 2000s – Czech Republic with 39 percent, Hungary with 36 percent, Poland with 41 percent and Romania with 39 percent. This group of countries also began the 2000s with relatively lower percentages of retail loans – Czech Republic with 12.57 percent, Hungary with 10 percent, Romania with just 5 percent, and Poland the highest with 25 percent. They also displayed some of the highest growth in household consumption, as well as GDP per capita. Romania's experience, as the lowest household consumption and GDP per capita (in constant 2000 dollars) in 2000, represents a particularly swift example of how households probably financed consumption through bank loans. Other *over-30s* displayed similar trends, so we could say particularly rapid retail loan expansion was related to low starting points, quickly growing incomes and consumption.

Figure 6-3.1 Retail Lending as a Share of Total Bank Lending In Subject Countries





Sources indicated below for respective authorities and countries. To the extent possible, statistics represented here account for loans to individuals and households as a share of total loans extended by banks. Conditions stipulated where necessary. All values at year-end.
Brazil: Central Bank of Brazil. Financial system credit operations to individuals (mortgages included). Total credit includes government credit.
Chile: Central Bank of Chile. Bank loans to individuals in the form of consumers loans and housing loans as a percent of total private sector credit.
Mexico: Mexico's National Banking and Securities Commission (Spanish: La Comisión Nacional Bancaria y de Valores (CNBV)). Data represents mortgages and consumer loans as percent of total credit portfolio. Total credit includes financial institutions and governments.
Croatia: Croatian National Bank. Data represents bank loans to households as share of total credit. Total credit includes governments and financial institutions.
Czech Republic: Czech National Bank. Commercial banks loans to households as a percent of total credit. Total credit includes financial and government institutions. Loans to non-residents excluded.
Hungary: Republic of Hungary Central Bank. Monetary financial institutions loans to households as a percent of total credit. Total credit includes government and financial institutions.
Poland: National Bank of Poland. Loans and advances of Polish banking sector to households (includes mortgages) as a percentage of total credit. Total credit includes credits to government, but not to financial institutions.
Hong Kong: Hong Kong Monetary Authority. Data From Hong Kong Monetary Authority's Annual Reports is for Retail Banks (defined as banks operating a local branch network and active in retail banking business), and represents loans to individuals inside Hong Kong as percentage of total credit. Total credit includes financial companies.
Romania: The National Bank of Romania. Bank household credits divided by total credits. Total credits includes government and financial institutions. Loans to Non-residents not included. 2000 data taken from The National Bank of Romania's financial stability reports, since statistics for 2000 were not available directly from the website (supplementary data is included as a way of confirming the 2000 loan level).
Turkey: Central Bank of The Republic of Turkey. Deposit Money Banks Loans to households as a percent of total credit. Total credit includes advances to governments and financial institutions.

Six countries fall into a group we call the *under-30*s, or those countries that saw retail loans grow less than thirty percent as a share of the portfolio. Of these countries, Turkey had the highest expansion with 23 percent, followed by the Latin American countries of Mexico with 17 percent, Chile with 13 percent, and Brazil with 10 percent, and then by Croatia at 5 percent and Hong Kong at negative 9.4 percent. We should point out that by comparison though, this group of countries began the period with relatively higher levels of retail loans. The slimmest progress in fact occurred in Brazil, Croatia and Hong

Kong, all of which were the only countries to have over thirty percent of loans devoted to retail in the early 2000s. Turkey, Chile, and Mexico on the other hand, started with somewhat lower levels of retail loans in the total portfolio, but saw larger expansion. Turkey actually began the period with the lowest percentage in this group, at 14.55 percent, but achieved the widest retail loan expansion. In Hong Kong, retail slid as a percentage of the loan portfolio. Hong Kong began with comparatively high percentages of retail loans, and in fact it was the only country over forty percent in the early 2000s. Relatively high GDP per capita and retail loan share at the beginning of the 2000s might mean Hong Kong's households had limited desire, or capacity, to take on more debt. Nonetheless, at 38.58 percent, retail was still a significant portion of loans in Hong Kong in 2011. Thus, the degree to which retail loans gained (or lost) total loan share depended heavily upon retail levels in the early 2000s; expansion was the greatest in countries where retail loans started low.

Finally, the 2008 financial crisis negatively impacted retail loans in a number of countries. Mexico and Croatia saw the largest drops after 2007 at 6.9 percent and 7.9 percent of the portfolio respectively, along with Hong Kong at 3.6 percent, Turkey with 4.2 percent and Romania with 2.5. Four of these countries – Mexico, Croatia, Turkey, and Romania – all experienced rather large drops in household consumption during the latter half of the decade as well, suggesting a correlation between household consumption and retail bank loan levels. Hong Kong's household consumption actually climbed faster over the second part of the decade despite retail loans declining as a percent of total loans, particularly post-crisis. GDP per capita growth rates averaged 3.5 percent from 2006 to 2011 in Hong Kong though (table 6-2.1), faster than any country other than Poland. Thus, it may be that households in Hong Kong did not require bank financing, but instead increased consumption through income growth. Indeed when comparing Mexico, Croatia, Turkey and Romania we can see that the largest drops in retail loans occurred in countries where GDP per capita growth rates slowed considerably – Mexico and Croatia. On balance though, the key point here is mostly all countries had higher percentages of loans allocated to individuals in 2011 than the beginning of the decade, despite the 2008 crisis.

6.3.2 Overall Credit Conditions

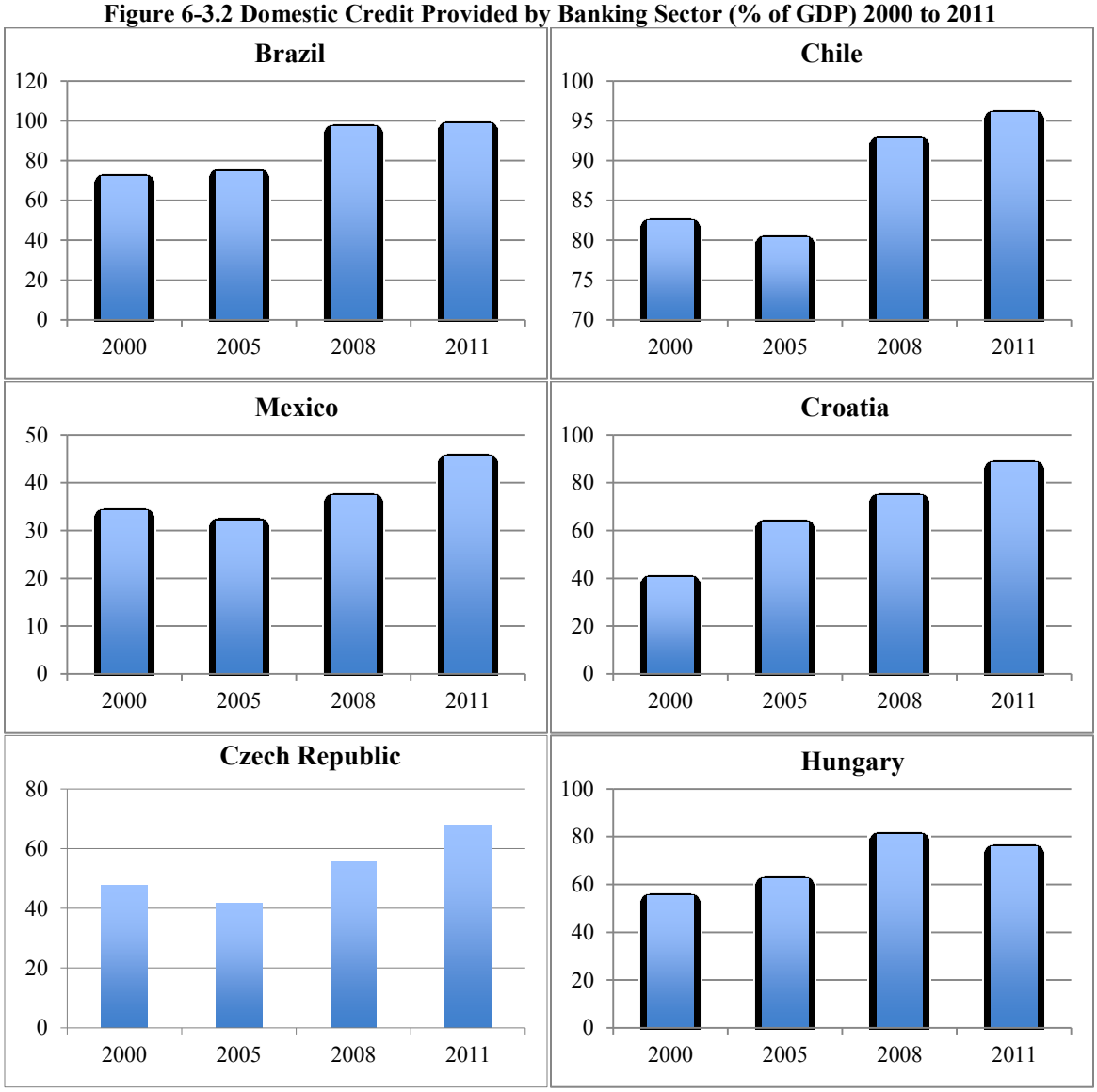
Other important financial developments also occurred during the 2000s. Among some of the most noteworthy were the overall growth of credit and shifts in interest rates. We begin by observing overall developments in bank credit as a percentage of GDP to provide perspective on retail bank loan expansion. Then, we review the evolution of loan interest rates and interest rate spreads to arrive at implications on borrowing costs and banking sector competition.

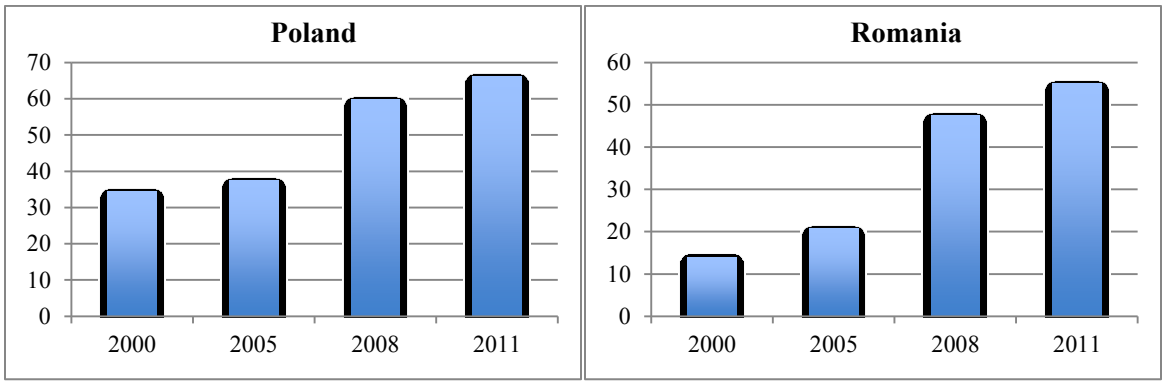
While we have established the share of retail loans climbed in total loans, we now demonstrate banks were extending accelerated amounts of overall credit during the 2000s. Figure 6-3.2 illustrates developments in bank credit as a percentage of GDP for select years. In all cases, domestic bank credit expanded between 2000 and 2011. In fact, the percent increase (relative to GDP) was over ten percent for each country, and for a number of countries above twenty percent. Essentially, increased bank credit means, because retail grew as a percentage of total credit, retail loans were growing at substantially high rates. Also, as mentioned, figure 6-3.2's statistics present credit as a percentage of GDP. The fact that credit expanded so rapidly during a decade in which GDP was growing robustly for most subject countries is a further testament to the speed at which retail loans grew. In other words, credit (especially retail loans) was growing exceptionally faster than GDP. Certainly, this indicates larger percentages of the population were able to access finance. But, a looming question relates to whether individuals had the capacity to take on such debt.

Observing loan interest rates allows us to grasp some of the costs facing borrowers in each country. Figure 6-3.3 shows loan interest rate statistics since 2000. Admittedly, we should acknowledge some imperfectness because, in addition to individuals and SMEs, they also include larger corporations. Nonetheless, these World Bank statistics permit important inferences because interest rates probably moved in the same general direction for all private sector borrower types. Immediately, we can see loan interest rates fell for all countries during the period. There were some rate increases around 2008 for a number of countries, but that later subsided in most cases. Some of the most notable declines were 41.72 percent in Romania, 20 percent in Poland, 12.95 percent in Brazil, and 12 percent in Mexico. Declining interest rates probably lowered borrowing costs for all borrower types,

thus pricing many individuals into the market for bank loans. Or, put another way, greater numbers of individuals had the capacity to take on debt to finance consumption because borrowing costs fell.

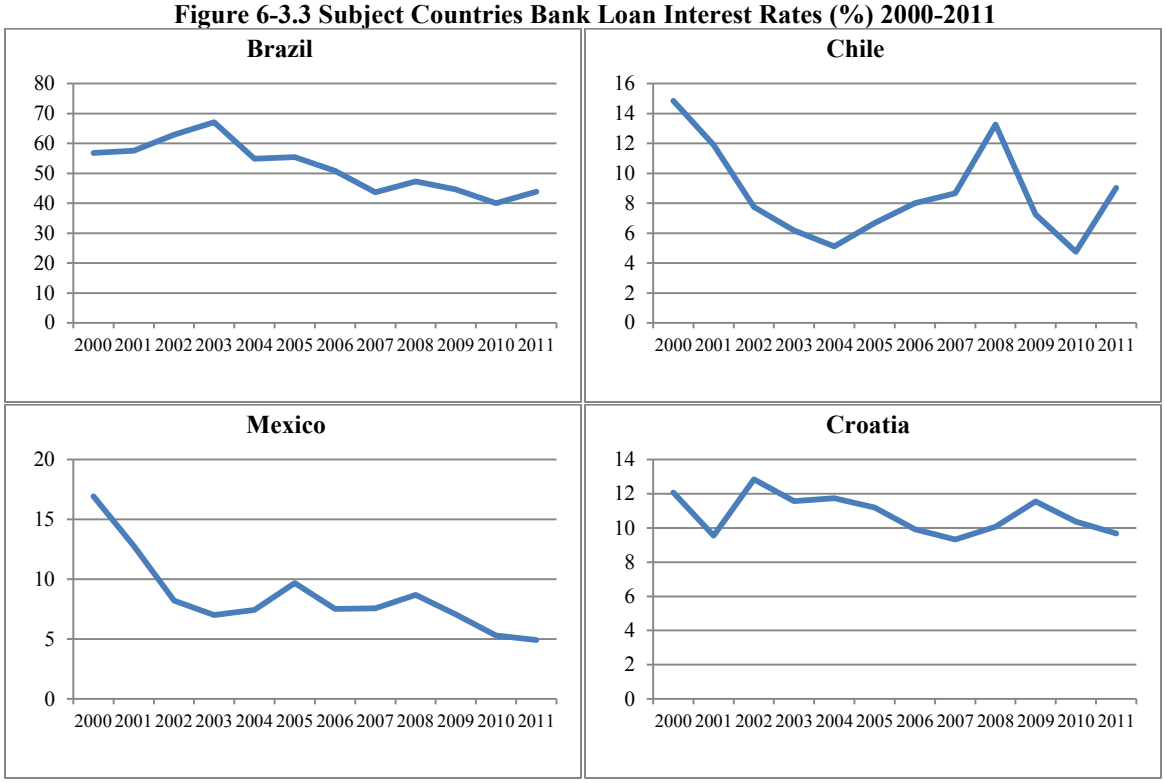
Figure 6-3.2 Domestic Credit Provided by Banking Sector (% of GDP) 2000 to 2011

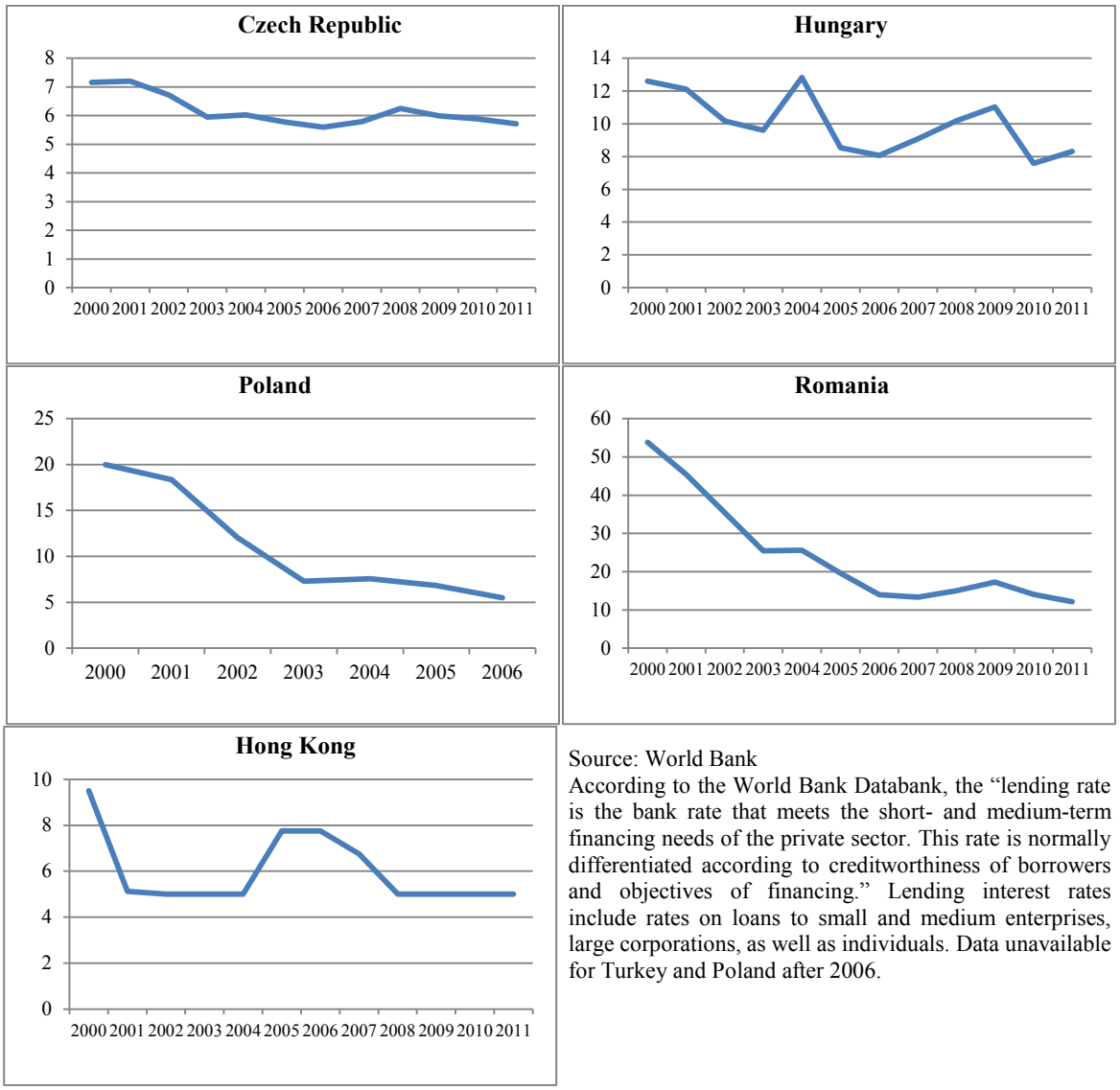




Source: World Bank

Figure 6-3.3 Subject Countries Bank Loan Interest Rates (%) 2000-2011



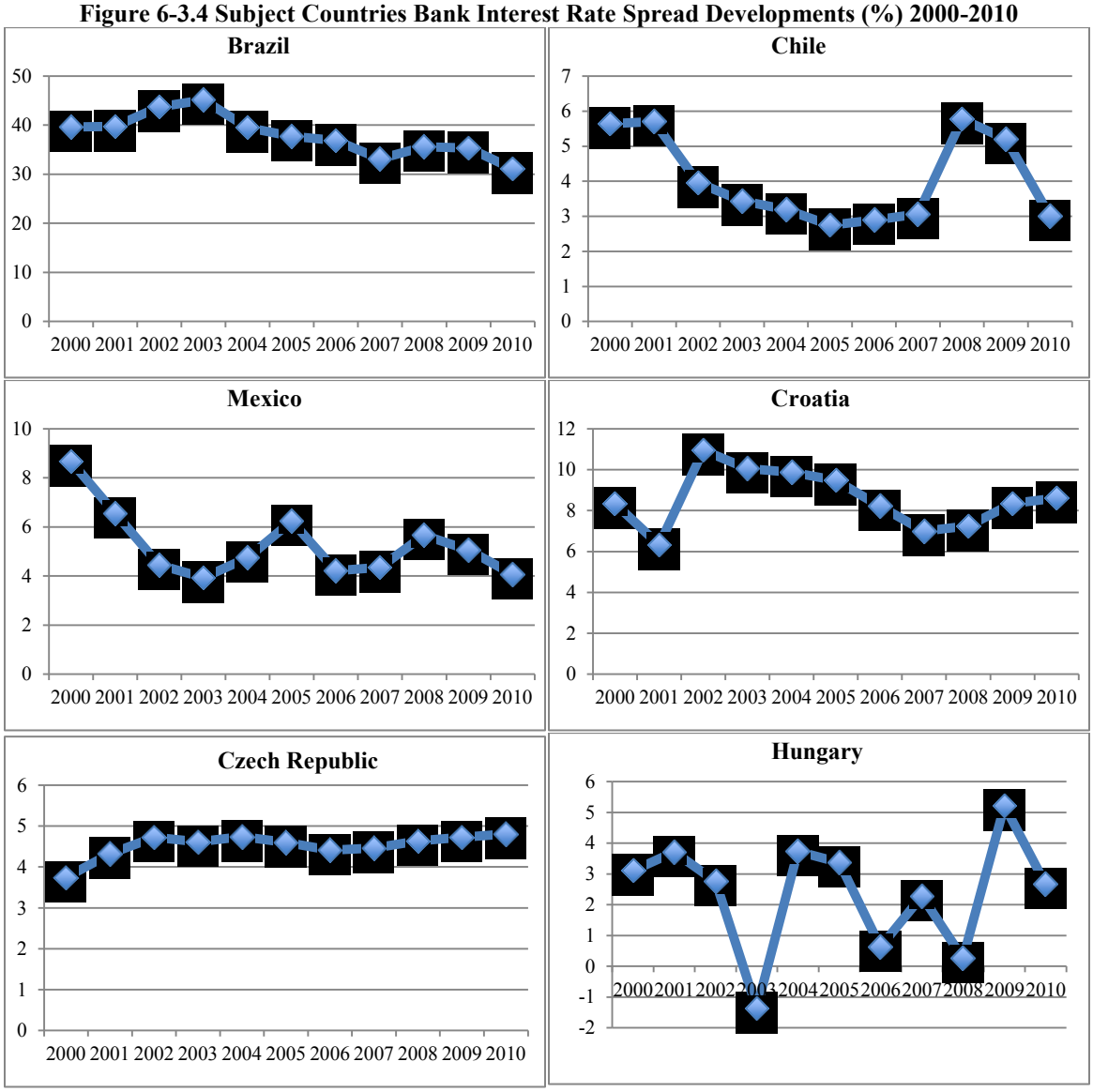


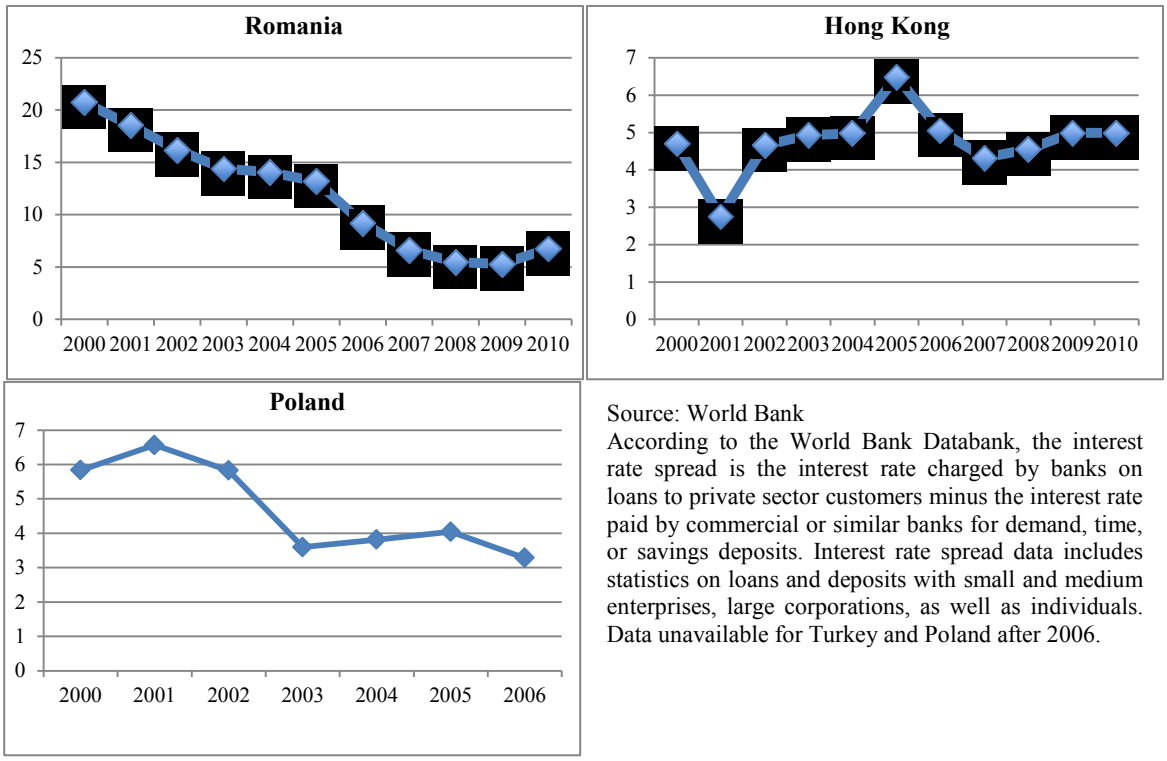
Source: World Bank
According to the World Bank Databank, the "lending rate is the bank rate that meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing." Lending interest rates include rates on loans to small and medium enterprises, large corporations, as well as individuals. Data unavailable for Turkey and Poland after 2006.

Shifts in interest rate spreads allow us to make important observations on the margin between loan and deposit interest rates. That margin carries important implications for the level of competition within a banking sector. Generally, competition can be thought of as intensifying if interest rate spreads show an overall downward trend in the long run (Claessens, Demirguc-Kunt, & Huizinga, 2001). Figure 6-3.4 presents interest rate spread developments between 2000 and 2010. For almost all of the subject countries, interest rate spreads declined, when taken over the entire decade. Spreads actually increased for three

countries: Czech Republic, Croatia and Hong Kong. However, at less than 1 percent, and only 0.29 percent in the cases of Croatia and Hong Kong, the increases were minimal. The crisis likely contributed to slight jumps in spreads around 2008, but in most cases were not prolonged. Thus, we can reasonably conclude that, in large part, narrowing spreads indicate banks were operating on slimmer margins, and therefore within an increasingly competitive environment in most countries. Conditions such as these could have spurred banks to compensate for narrowing margins by rapidly increasing loans.

Figure 6-3.4 Subject Countries Bank Interest Rate Spread Developments (%) 2000-2010





Source: World Bank
According to the World Bank Databank, the interest rate spread is the interest rate charged by banks on loans to private sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. Interest rate spread data includes statistics on loans and deposits with small and medium enterprises, large corporations, as well as individuals. Data unavailable for Turkey and Poland after 2006.

Taken together, these developments at least suggest banks financial stability could have been jeopardized. Since retail loans expanded faster than other loan types during a time when overall bank credit growth exceeded the pace of GDP growth certainly warrants analysis. On top of that, the combination of declining loan interest rates and margins has the potential combined effect of placing more individuals into a position to take on debt and conceivably providing banks an incentive to expand lending. Given that household consumption grew faster than in the United States at a time when consumption was dangerously high in that country understanding whether banks made large portions of rapidly rising retail loans to uncreditworthy individuals is the issue we turn to in section 6.3.4 below. Next we demonstrate domestic banks were also part of retail's rise.

6.3.3 Domestic Institution's Response to Foreign Entry

The entry of foreign banks most certainly impacted domestic banking institutions. This subsection demonstrates retail banking strategies transferred to domestic banking institutions. We analyze developments in two ways. First, we look into lending

developments at selected domestic banks to determine whether retail loans increased in total share. Then, we focus on operating efficiency to understand whether domestic banks made improvements in the face of fierce competition from foreign owned subsidiaries of global banks.

First, we analyze the percent of total loan portfolio allocated to the retail segment at selected domestic banks. Banks selected were chosen because they are comparatively large banks operating in countries where the aforementioned global banks also operate. This enables us to make important observations about the degree to which global banks' retail strategies transferred to large local institutions. Table 6-3.1 shows percentages for select domestic banks from the earliest years available.

Table 6-3.1 Retail Loans as Percentage of Total Loans for Selected Domestic Banks at Year-End

Brazil	Bank	2000	2007	2011
	Banco Do Brasil	20.20%	21.40%	30.90%
	Bank	2001	2007	2011
	Bradesco	27.20%	42.82%	39.80%
Mexico	Bank	2000	2007	2011
	Banorte	8.31%	33.63%	30.39%
Poland	Bank	2004	2007	2011
	PKO Bank Polski	23.18%	23.97%	16.15%
Turkey	Bank	2002	2007	2010
	TC Ziraat Bankasi	11.68%	46.32%	40.85%
	Bank	2001	2007	2011
	Turkiye Is Bankasi	19.87%	34.70%	27.80%

Source: Annual Reports and Financial Statements

Three crucial points become apparent from this data. First, early in the decade, domestic banks had lower retail loan shares than most global banks had around the same time. Each global bank had devoted over thirty percent of their portfolios to retail in 2002, and over 40 percent by 2004. None of the domestic banks listed in 6-3.1 was over thirty percent in the early 2000s. Brazil's Bradesco was the highest at just over 27 percent, but that was still far behind banks like Santander and Citibank. Second, almost all of the domestic banks pushed retail lending after the early 2000s, eventually accounting for noteworthy shares. In fact, retail loans comprised an additional 10 percent of the loan

portfolio in the last year available than the first year for all but two banks: Turkey's Turkiye Is Bankasi and Poland's PKO Bank Polski. In the case of PKO Bank Polski though, data was not available prior to 2004, so it may be possible retail loans experienced similar growth when taken from the very beginning of the 2000s. Turkiye IS Bankasi's drop may be due to impact from the financial crisis since 2007 figures showed nearly 35 percent of the portfolio devoted to retail. On the other hand, some banks such as Mexico's Banorte and Turkey's TC Ziraat BAnkasi were able to push retail's loan share upwards of twenty percent of the total loan portfolio. Third, the financial crisis impacted a number of domestic banks. After 2007, retail fell, or stagnated, for each domestic bank, with the exception of Brazil's state-owned Banco do Brasil.

Domestic banks, thus, exhibited similar patterns to global banks during the 2000s. While their retail segments may not have reached the same heights as some global banks, they unquestionably increased their focus on retail banking. The majority of that change in focus occurred prior to the global financial crisis. Nonetheless, that global banks allocated higher percentages of lending to retail – keeping them fairly high for most of the decade – the fact that domestic banks increased retail strongly implies domestic banks were mimicking global bank's retail strategies.

Additionally, domestic banks would have had to compete directly with increasingly efficient foreign owned subsidiaries. Table 6-3.2 below outlines cost-to-income developments for select domestic banks over the decade. These statistics show most domestic banks were productive in achieving better cost-to-income ratios. Some of the most notable improvements were by state-owned banks. Poland's PKO Bank Polski lowered its ratio by an astonishing 54 percent in 11 years. Brazil and Turkey's state-owned banks achieved less dramatic improvements, but significant nonetheless at around 10 each. Privately-owned domestic banks accomplished notable progress as well. Mexico's Banorte saw more than a 20 percent improvement, while Brazil's Bradesco lowered its ratio by 12 percent. Turkey's Turkiye Is Bankasi bank was the only major domestically owned institution observed here to not improve its cost-to-income ratio. Perhaps that is explained by the fact that in 2000, its ratio was already quite low. In fact, at 50.75 percent in 2000, it

had better overall cost-to-income than even the global banks. Furthermore, it improved to 46 percent by the end of 2008. So, Turkiye Is Bankasi's apparent deterioration might better be explained by stress from the financial crisis.

Table 6-3.2 Selected Domestic Banks Cost-to-Income Ratios (%) at Year-End

Country	Type	Bank	Dec-01	Dec-07	Dec-11
Brazil	SOB	Banco do Brasil	69.23%	60.6%*	58.47%
	DPB	Bradesco	59.90%	43.40%	47.41%
Country	Type	Bank	Dec-01	Dec-08	Dec-11
Mexico	DPB	Banorte	76.72%	65.60%	55.72%
Country	Type	Bank	Dec-01	Dec-08	Dec-11
Poland	SOB	PKO Bank Polski	93.84%	49.85%	39.59%
Country	Type	Bank	Dec-00	Dec-08	Dec-11
Turkey	SOB	Ziraat Bankasi	59.34%	36.00%	49.55%
	DPB	Turkiye Is Bankasi	50.75%	46.11%	59.08%
				*Dec-2006	

Source: *The Banker*, Top 1,000 World Banks, Various Issues
Bank types are State-Owned-Bank (SOB), and Domestic Private Bank (DPB)

6.3.4 The Stability of Retail Banking

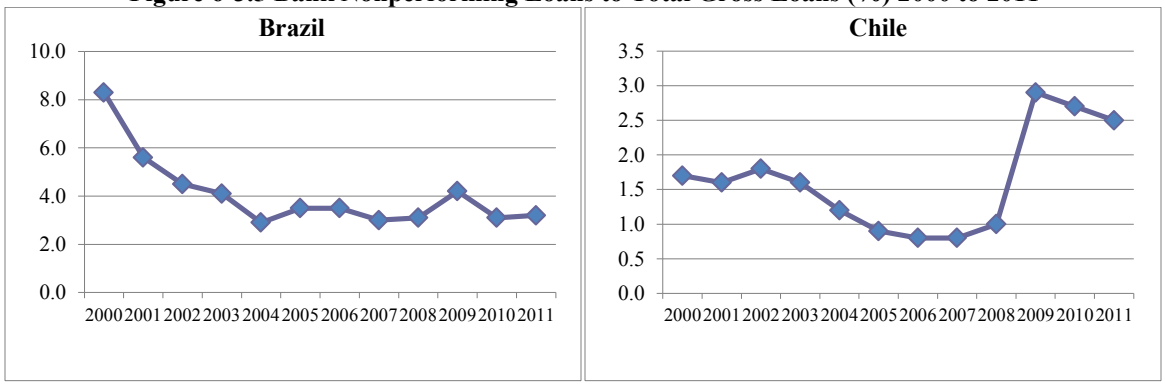
In this section we examine the ten subject countries' banking sector stability. We compare total banking sector nonperforming loans (NPLs) and nonperforming loans made to individuals to grasp whether the aforementioned retail banking developments were stable in nature. In the case of overall bank NPLs, we employ all available data over the entire 2000s. Historical data on individual NPLs though, is not always obtainable, so we focus on developments since the financial crisis. The main reason for examining NPLs is they provide a meaningful barometer for measuring the extent to which loans were made to creditworthy (or uncreditworthy) borrowers. In addition to delivering a sound understanding of stability both before and after the financial crisis, this approach also offers us the opportunity to make important conclusions about the stability of retail bank lending.

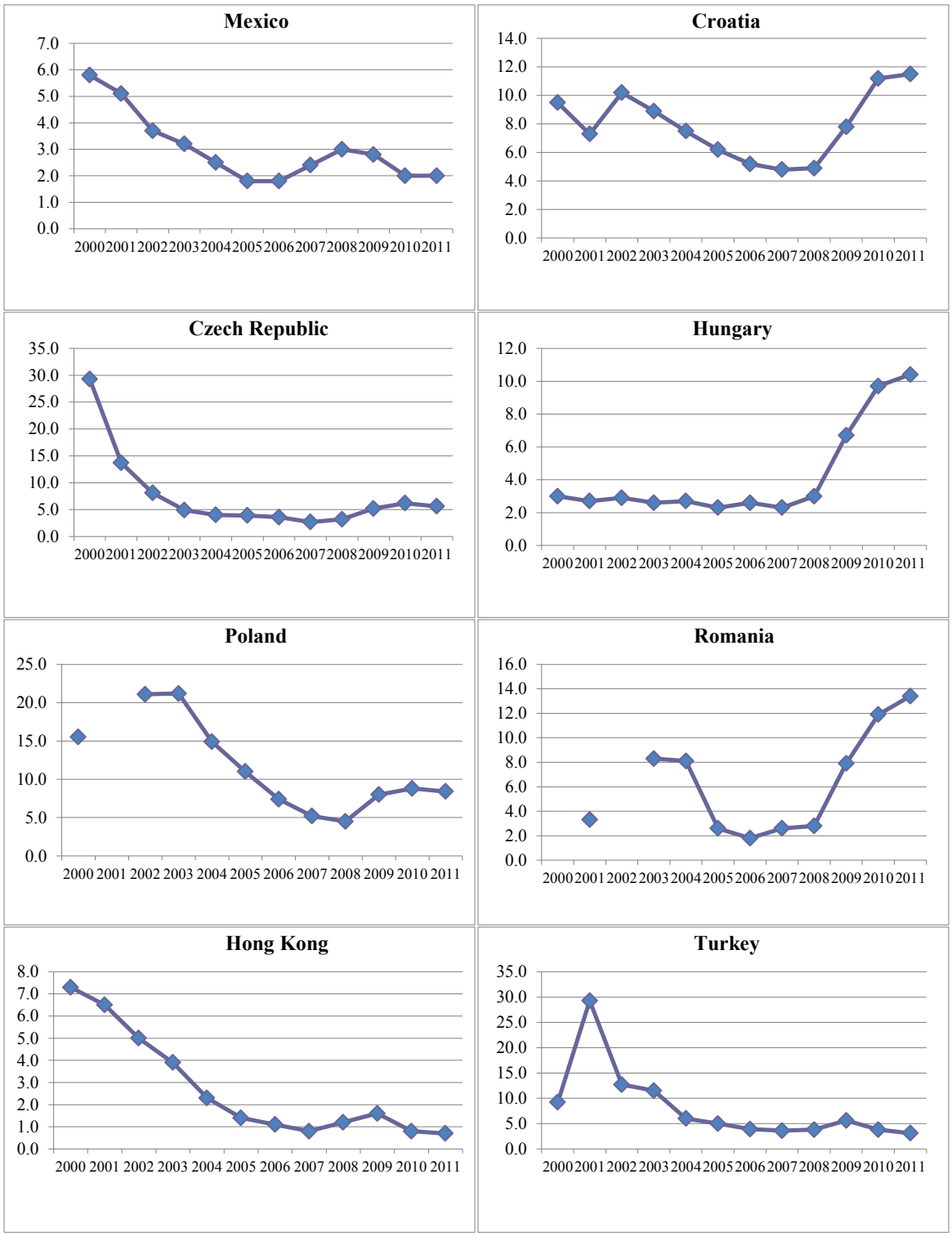
Figure 6-3.5 displays statistics for overall nonperforming bank loans from 2000 to 2011. Perhaps the most important point exhibited by this data is that for all countries NPLs were improving (declining) before the 2008 crisis. Some countries experienced sharp rises

in 2008, and as a result, four countries ended the period with higher NPLs than the beginning. In 2011, NPLs in Chile, Croatia, Hungary, and Romania were all higher than 2000 levels, with increases of 0.8, 2.0, 7.4 and 13.4 percent respectively. Nevertheless, the impact was arguably minimal for Chile because despite the increase, they still had less than three percent of total bank loans nonperforming at the end of the period, a relatively low figure compared with other countries. So, despite improving and/or keeping NPLs steady prior to 2008, for three countries, Croatia, Hungary, and Romania, the decade ended with over ten percent of loans nonperforming.

Overall though, a majority, six of the ten countries, exhibited improved results throughout the 2000s. Brazil, Mexico, Czech Republic, Poland, Hong Kong, and Turkey all lowered banking sector NPLs, and in some cases by wide margins, even despite the 2008 crisis. Czech Republic made drastic progress with a drop of 23.7 percent, while Brazil, Mexico, Poland, Hong Kong, and Turkey lowered NPLs by 5.1, 3.8, 7.1, 6.6 and 6.1 percent respectively. With fewer NPLs than in 2000, many retail loan borrowers were probably not only creditworthy, their creditworthiness was strong enough to withstand the financial crisis' impact. So while across the board the financial crisis had a negative impact on loan performance, it was severe for only a few countries. Thus, taking a general view of bank NPLs, financial conditions were relatively stable in a majority of countries.

Figure 6-3.5 Bank Nonperforming Loans to Total Gross Loans (%) 2000 to 2011





Source: World Bank

Next, we investigate individual loan NPLs to understand how retail loans have performed in recent years. We have compiled data on nonperforming loans to individuals by country in figure 6-3.6. Differences between national authorities' statistics slightly hinder our ability to make comparisons directly across countries because in two cases (Croatia and Czech Republic) individual loan NPLs are expressed as a percent of total loans, and not a percent of total individual loans as in all other countries. Nonetheless, these statistics permit some decisive observations. First, individual loan NPLs deteriorated drastically[36], in really only two countries, Hungary and Romania. Second, in cases where individual loan NPL increases were milder, conditions soon stabilized (Brazil, Chile, Czech Republic, Croatia, Mexico, Poland). Granted, Croatia, Czech Republic, and Poland all experienced rising NPLs, but the most recent data suggests the overall change will be limited to just a couple percentage points in all three cases. On top of that, being Croatia and Czech Republic are countries where figure 6-3.6 statistics are expressed as a percentage of total loans, we can also infer that because individual NPLs did not surpass total NPL figures (figure 6-3.5); individual NPLs were not the primary source of loan deterioration. Third, in two countries (Turkey and Hong Kong) individual NPLs improved on aggregate, in spite of the 2008 financial crisis. Lastly, for the two countries where individual loan NPL deterioration was most severe (Hungary and Romania), individual NPLs worsened beyond overall NPL levels (figure 6-3.5) only in Hungary.

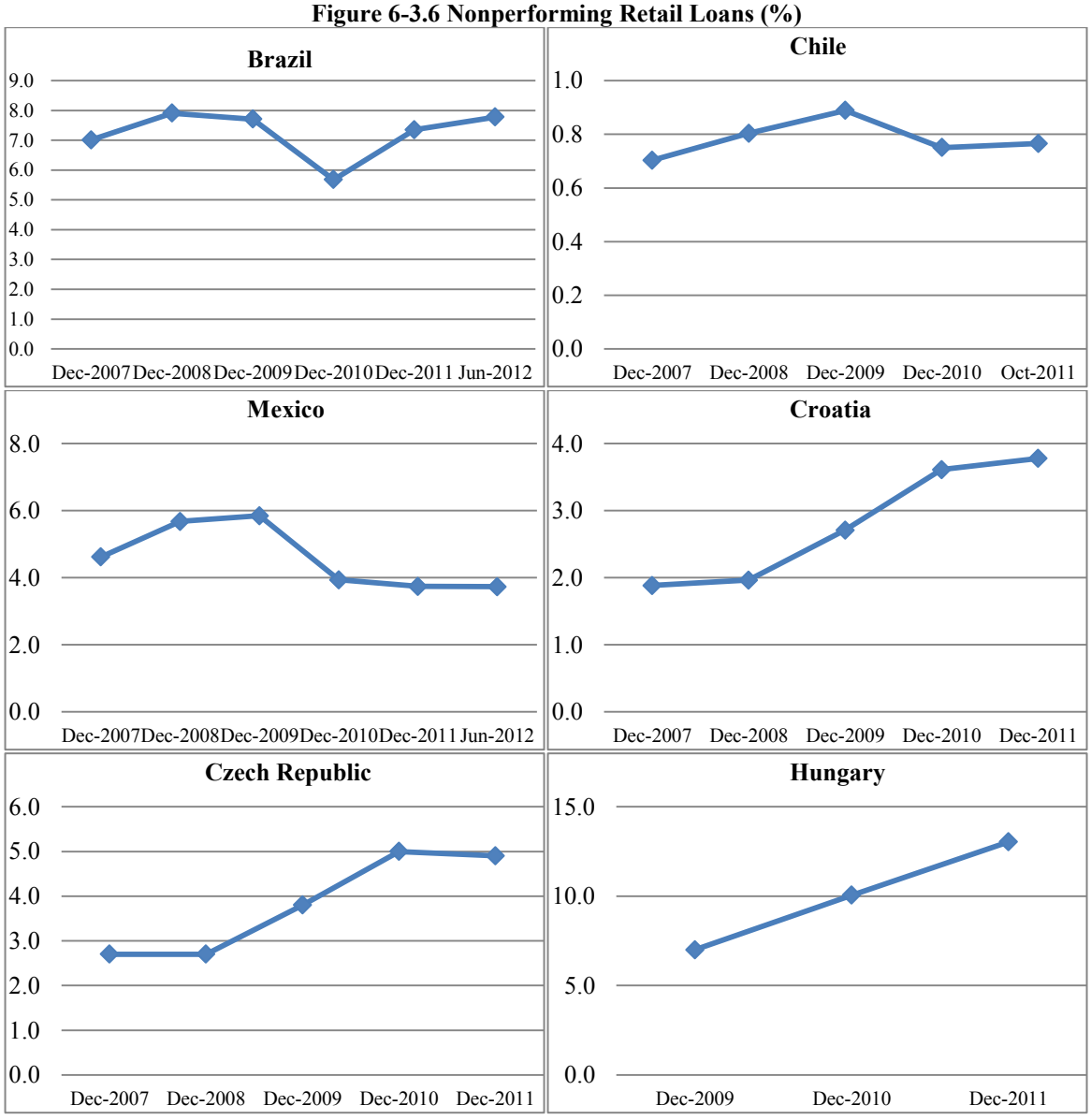
Thus, a majority of retail bank loans in countries with high foreign bank presence have remained relatively stable, withstanding stress from the financial crisis. In fact, for half of the countries: Turkey, Hong Kong, Mexico, Chile[37], and Brazil, individual NPLs stayed level or even *dropped* post-crisis. Insomuch as NPL deterioration occurred, it was likely as attributable, if not more attributable, to non-retail loan types. The main finding demonstrated here is financial stability does not appear to have been jeopardized in because

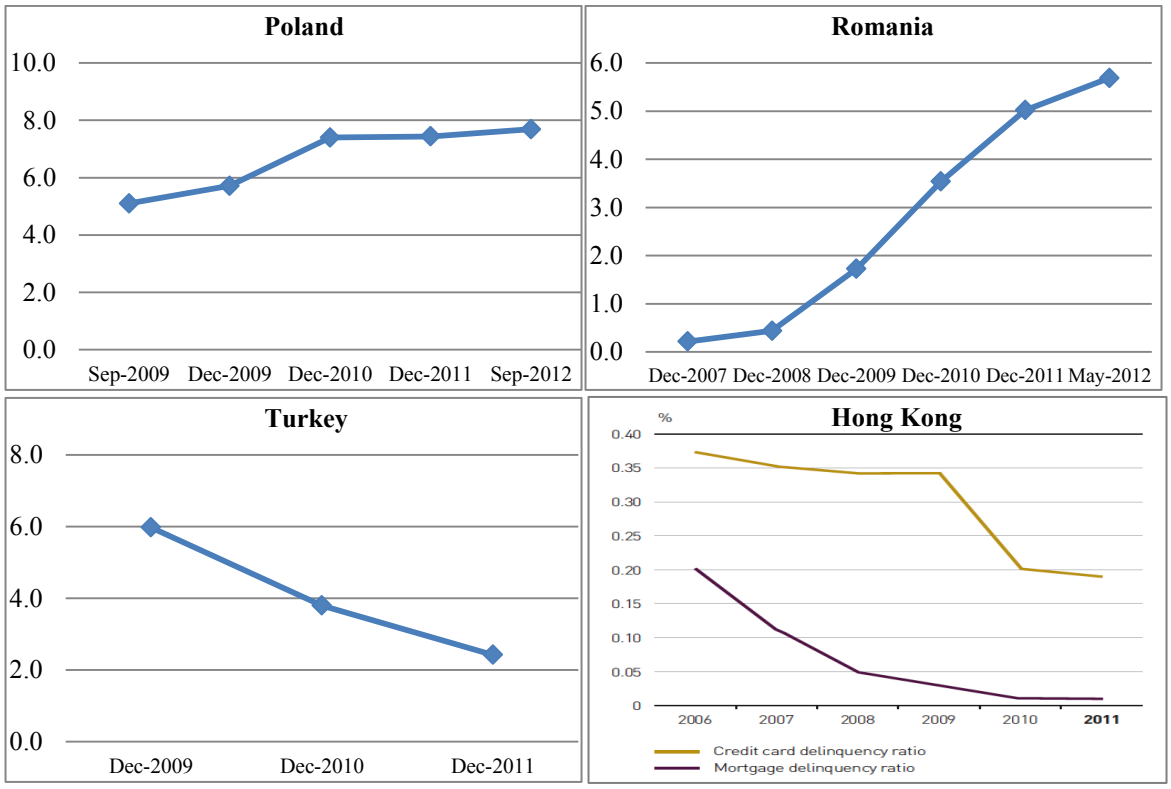
[36]Beyond three percentage points.

[37]Chile's individual NPLs are a somewhat special case because authorities split them into mortgages and consumer debt, which had slightly differing experiences after the crisis. Regardless of the fact that minimal increases occurred, we conclude Chile is in fact a country with stable individual NPLs due to its comparatively low percentage of NPLs.

of high foreign bank participation or increased retail lending. To the contrary, given the severity of the global financial crisis, it might be said that foreign bank presence has, at the very least, enhanced financial stability in some cases.

Figure 6-3.6 Nonperforming Retail Loans (%)





Sources indicated for each country and authority below. Depending on the respective national authorities statistics on nonperforming individual loans differ slightly. We clarify definitions and other conditions related to each country's statistics below. All values at year-end unless otherwise stipulated.
Brazil: Central Bank of Brazil. Percentage of total credit extended to individuals (non-earmarked funds) in arrears more than 90 days.
Chile: Central Bank of Chile. Household consumer and mortgage nonperforming loans as a percent of total household consumer and mortgage loans respectively. Nonperforming loans are in arrears more than 90 days. Averaged over all retail loan types.
Mexico: Central Bank of Mexico. Nonperforming mortgage and consumer loans nonperforming loans as a percent of total mortgage and consumer loans by commercial banks.
Croatia: Croatian National Bank. Total non-performing loans to households as a percentage of total loans.
Czech Republic: Czech National Bank. Total household nonperforming loans over total loans.
Hungary: Republic of Hungary Central Bank. Composition of household loan portfolio overdue more than 90 days.
Poland: National Bank of Poland. Average impaired loan ratio for all household loans in banking sector.
Romania: National Bank of Romania. Share of past-due loans in total loans due from households as granted by credit institutions.
Turkey: Central Bank of The Republic of Turkey. Percent of each loan type nonperforming. Averaged over all retail loan types.
HongKong: Hong Kong Monetary Authority. Delinquency ratios of residential mortgages and credit card lending.

6.4 Informational Availability

In this section we consider the impact on informational availability. We measure informational availability in two separate, but equally important ways: volume and quality. The World Bank Doing Business reports make available remarkably detailed statistics on

private credit bureau coverage as a percentage of the adult population (which we take as an indication of volume), and depth of credit information index (which we use as a measure of quality). We split the countries we observe here along the same lines as the discussion from section 8.1 above. The ten subject countries reviewed for financial stability, and the thirteen countries we initially eliminated from the discussion[38].

In this last section we look into what impact the global expansion of ISP has had on host countries. Below we examine a group of countries with private credit information institutions, and multiple ISP (those mentioned previously in this study) are present. We divide our analysis by examining developments in the overall quantity and quality of credit information available in these countries.

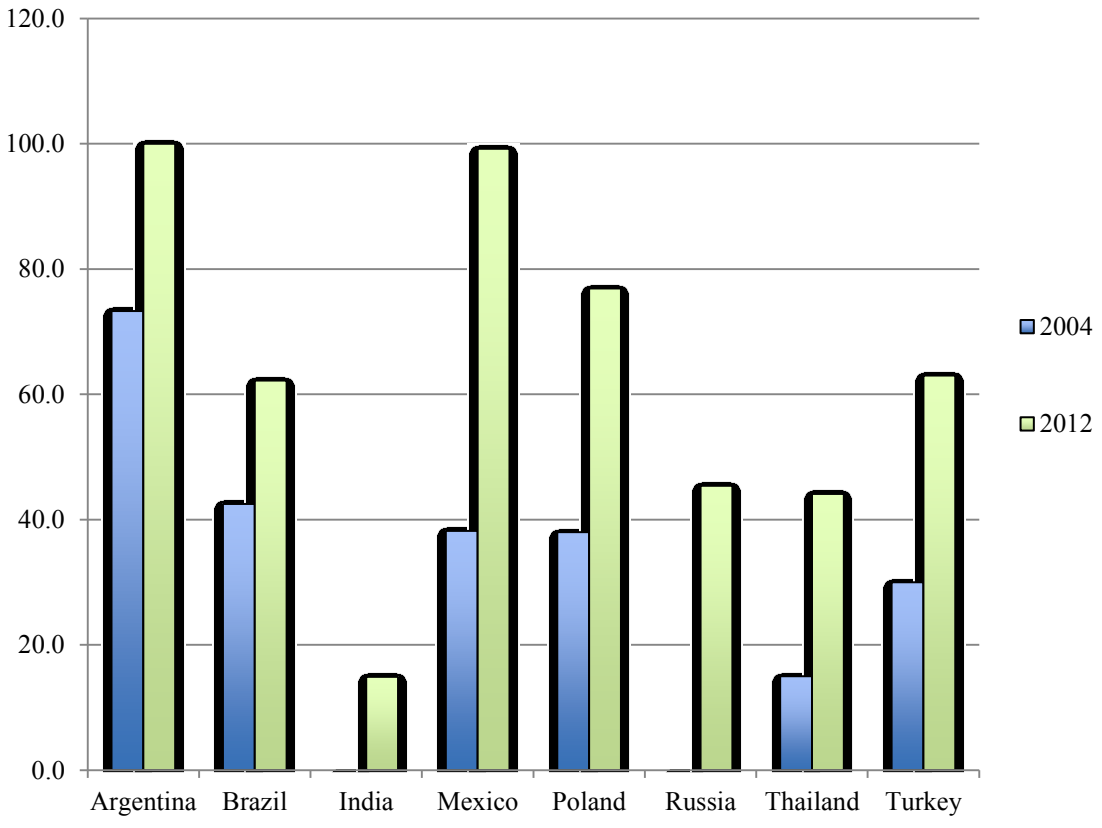
Overall, the quantity of information is exploding. Certainly, results vary by country, but the trend is the same: rapidly expanding information coverage. In six of the countries included in figure 6-4.1 below – India, Mexico, Poland, Russia, Thailand, Turkey – coverage of adults more than doubled between 2004 and 2012. In fact, credit information rose from *zero* in India and Russia to 15 and 45 percent of the adult population respectively in just eight years. Furthermore, in the remaining two nations, Argentina and Brazil, numbers rose to cover 100 percent of adults in the former, and to over 60 percent from 40 percent in the latter. In no uncertain terms, the impact of globally expanding ISP has been to increase the amount of credit information available to financial institutions. Or in other words, the foreign expansion of ISP is a crucial pillar supporting the increased importance of retail as a banking segment in many countries worldwide.

Not only is information more widely available in terms of quantity, the information that is available is also of increasingly better quality. Or, in cases where quality of information has more or less remained unchanged, the depth of information was already on par with levels comparable to the United States and the United Kingdom. Table 6-4.1 lays out statistics on the depth of credit information for select countries between 2004 and 2012. Since this index is only available from the World Bank from 2004, it may be for some

[38] Argentina, Bulgaria, Egypt, India, Indonesia, Morrocco, Serbia, Thailand, Ukraine Venezuela, China, Malaysia, and Russia.

countries that the largest improvements in information quality occurred prior to the index's start. Indeed, for a country such as Argentina, which already had a high level in 2004, ISP had expanded into that country relatively early. Essentially, the key point is that information is not only available; increasingly the information that is available is of relatively high quality. A development that illustrates banks, foreign and domestic alike, have adequate tools for offering financial services to what were once relatively opaque retail customers. The global expansion of information service providers has played a massive, if not defining role.

Figure 6-4.1 Private Credit Bureau Coverage in Select Countries 2004-2012



% of Adults, Source: World Bank

Table 6-4.1 Depth of Credit Information Index for Select Countries 2004-2012

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012
Americas									
Argentina	6	6	6	6	6	6	6	6	6
Brazil	5	5	5	5	5	5	5	5	5
Mexico	6	6	6	6	6	6	6	6	6
United States	6	6	6	6	6	6	6	6	6
Asia									
India	0	2	4	5	5	5	5	5	5
Thailand	4	4	5	5	5	5	5	5	5
Europe									
Poland	4	4	5	5	5	6	6	6	6
Russia	0	0	0	4	4	5	5	5	5
Turkey	5	5	5	5	5	5	5	5	5
United Kingdom	6	6	6	6	6	6	6	6	6

0=low to 6=high,
Source: World Bank

6.5 Summary

Host country banking systems were undoubtedly impacted by global bank entry. Domestic banks took note, and decided to shift focus towards the retail banking segment and efficiency improvement strategies. While we do not have data specific to retail segment cost-to-income ratios for domestic banks, it seems a reasonable assumption that since retail lending grew quickly, efficiency improvements within the retail segment would have been even more impressive than the overall cost-to-income ratios. Essentially, the evidence presented here strongly implies that a momentous transfer of retail banking practices, from global banks to domestic banks, occurred during the first decade of the 21st century. Yet, we saw little evidence to suggest this development could be linked with financial system weakness. On the contrary, it would appear that access to financial services is improving for large numbers of individuals in most of the host countries.

Conclusions

This research has demonstrated that retail banking is a hugely important segment within global banking. In fact, retail constituted the largest loan type, and the largest source of income for each of the global banks observed here. Furthermore, we have shown that global operations play an important role for each global bank. ROA developments revealed that the global banks were able to generate much higher rates of return abroad than in home markets. The global banks were also some of the industry leaders in the share of retail income sourced abroad.

International retail operations play a crucial role in stabilizing global bank income. Since domestically owned banks can quickly and easily emulate global bank's competitive and efficiency advantages, it may be difficult for global banks to continuously expand market share in host markets. Global banks require another incentive to remain committed to globalizing retail banking. Deeper geographical diversification has the distinct benefit of augmenting bank income in the event of negative financial shocks in home markets. Geographical diversification requires banks be truly diverse, operating across various countries, regions, and types of economies. Therefore, in response to Smith and Walter, we assert the only way to conceptualize success in global retail banking is drastic improvement of operating efficiencies in multiple foreign subsidiaries, both in developed and emerging markets, permitting both the cultivation of various income-earning opportunities, and insulation from adverse financial shocks in home markets.

Observing average ROA for each bank (see figure 3-7.1 above) between the five years from 2007 to 2011 allows us to make an important conclusion about which global banks have been most successful. HSBC and Santander had much higher ROA performance than Unicredit or Citibank, which was actually negative. The reason HSBC and Santander achieved higher performance was because their retail banking operations were more *geographically diverse* than the other two banks. HSBC operates in a number of markets across the world, including Asia, which became a huge source of income by the end of the 2011. At first glance, Santander's operations may appear concentrated in Latin

America. But, upon further inspection, operations in markets such as the United Kingdom, the United States, Poland, and other continental European countries also provide Santander with income diversity. While Citibank was present in Asia, Latin America and other markets, the number of countries in which it has a significant presence is low. And furthermore, Citibank operates in fewer emerging markets than any of the other global banks. Unicredit's operations were perhaps too concentrated in Central and Eastern Europe. These facts limited the countries Citibank and Unicredit could draw upon to support earnings after the global financial crisis.

Beyond demonstrating retail banking is indeed globalizing, this paper has sought to uncover *how* global banks have been able to conduct retail banking internationally and the *impact* it has had on host markets. Beginning with the former, certainly post-crisis acquisition of local institutions provided global banks an initial means of lowering obstacles associated with operating in foreign markets. However, acquisition alone is insufficient when *expanding* activities in host markets. Informational asymmetries are particularly high in the retail segment, which compounds difficulties related to expansion. With respect to what specifically has allowed banks to globalize retail, we think the globalization of credit information service provision and advancements in technology have been absolutely imperative.

This paper's main contribution to the academic literature on global banking is to reveal the crucially important credit information support system which assists global banks by reducing hurdles associated with international expansion. In particular, ISP are a crucial pillar buttressing the globalization of retail banking. We have showed that not only are a number of credit information service providers expanding globally, but also, in many cases, they have employed the same means of expansion as global banks: acquisition of local institutions. Credit information service providers offer global banks a number of services, including consumer information in foreign markets. That information is positively promoting the rise of retail banking worldwide.

This paper has confirmed the global expansion of six of the world's largest information service providers. As we have seen Avery, Brevoort, and Canner's (2010) suggestion appears to have been accurate in that a number of ISP have indeed expanded in Latin American countries where they may have collected information on immigrants. Beyond that though, we have confirmed ISP expanded into various other regions, and taken together cover many of the world's countries.

We showed clearly what services ISP provide. Without question consumer credit information is a key component of the services offered. Moreover, we showed how ISP provide crucial decision management, customer information management, and marketing services as well. ISP even offer services to allow consumers to confirm whether information is accurate via the Internet. These findings suggest that banks operating in foreign retail banking markets have tools at their disposal to overcome challenges they face when operating globally. It would be difficult to imagine the retail segment, with its high informational asymmetries, could become such an important banking segment the world over if it were not for services provided by ISP.

This paper also showed that banks and ISP are deeply intertwined. ISP provide services to nonfinancial industries, but financial services providers appear to be making the most frequent use of those services. Furthermore, the connection goes beyond customer-client, and extends into executives serving on boards of both, and products and other services being specifically marketed to large banking institutions. Nonetheless, we demonstrated those banks do not have direct control over ISP, implying information and services from ISP are truly third-party in nature. That begs the question of how other financial services providers are able to rely upon that information.

The main conclusion of this paper is to add to the theoretical discussion on the use of third-party information services by banks. We think a crucial development has been in allowing consumers the power to confirm and verify their own information. If the information is visible, and people can correct it, banks may be able to more easily rely on that information. The reason that should be the case is consumers have a strong incentive, now more than ever, to protect and improve their credit history. Failing to do so may be the

difference between accessing the finance needed for a mortgage, student loan, or a credit card. The onus falls upon the consumer to make sure the information is correct. Since, consumer information is so important to the future of so many consumers' lives, banks probably rely upon more information sourced from third-parties. If mistakes or imperfections existed within most of the information, individuals may lose out on the opportunity to access credit. That poses a huge problem for many individuals who need to finance a housing purchase through a mortgage, transportation through auto-loans, and various expenses with credit cards, in addition to other student and personal loans. In essence, ISP have made their information believable by transferring the cost of information inaccuracy onto the consumer.

The literature may have said that you cannot believe the information from a third-party. But what we have seen is that third-parties can provide information, and many times that information can actually be relied upon. The reason that is the case is the information is actually being verified. Verification is occurring via the consumers themselves. Today, consumers have a much better grasp of what credit information is available on them. If that information is inaccurate, they have a strong incentive to amend that information. In fact, since services provided directly to consumers accounts for a significant portion of revenues in what has traditionally been thought of as credit bureaus, we can say that this is becoming increasingly important. Banks, and other financial institutions, can believe and be confident in the information they purchase from ISP because they know the consumers have that incentive. Crucially, and to the contrary of previous research, the internet and other technologies have allowed credit information to be verified not just by third-parties but by the very entities the information seeks to describe. That is the important difference that they have not realized.

Lastly we also confirmed the impact on many host countries has been wide reaching. The quantity of consumer credit information is growing at an unprecedented pace. At the same time, quality has not been sacrificed. To the contrary, information quality has either improved drastically, or remained at high levels in a number of countries where ISP operate. Part of the reason information quality has improved in those countries is likely related to

people in those countries beginning to verify their own consumer credit information. Thus, perhaps increasing the focus on information verification could have the benefit of improving all information used in credit decision-making. Given retail's increased importance, improving consumer information is almost certain to contribute to enhancing financial stability.

Technology is pushing forward far-reaching transformation of retail banking channels. This paper agrees with previous literature that technology is a major force in lowering geographic barriers to financial intermediation. We argue though that Internet and mobile banking technologies are lowering those barriers even further, and also eliminating other barriers by permitting banks and customers to interact not only from nearly any location, but also at nearly any time. The most advanced technologies are also capable of alleviating time constraints. Branches and ATMs, on the other hand, severely limit geographic reach and hours of operation.

The literature also indicated that originally cost concerns motivated technological implementation. Similar to technology allowing automated mass production in manufacturing, in financial services, intermediaries probably hoped to streamline processes. Indeed, when taken as cost-per-transaction, technology probably has allowed for some cost improvement. A key difference though is technological implementation has produced a by-product in financial intermediation that may have been unachievable in manufacturing. Channels like Internet and mobile banking have begun automating the process of collecting customer's personal information. By reducing informational asymmetries associated with individuals and SMEs, that customer type has become *relatively* less risky as a result. Retail banking would unlikely be such an important segment without the informational exchange made possible through advancements in information technology.

The continuous evolution of bank channels is developing a more close-knit relationship between banks and customers. Though deeper, the relationship structure is also going through a process of virtualization. Branches are no longer the only means of contact, or for that matter the main contact channel in some cases. Interactions that used to be face-to-face increasingly occur over virtual network connections. Virtual relationship banking,

where face-to-face interactions are increasingly being replaced by device-to-device interactions, is a fundamental transformation of financial intermediation.

Technology is also intensifying competition for the provision of retail financial services. In particular, competition has emerged in the form of two new entrant types. Internet-only banks and P2P service providers can take advantage of the Internet (and other technologies) to connect with customers, completely bypassing the traditional brick-and-mortar institution. Furthermore, access to detailed information from big data and other credit information service providers is flattening the playing field for new service providers as well as small and medium size banks and other financial intermediaries. Thus, technology appears capable of stirring up a reorganization of retail financial service providers.

Moreover, disintermediation could conceivably threaten the existence of banks and other financial intermediaries. However, we argue financial intermediaries are unlikely to fade away as the main suppliers of retail financial services because non-intermediaries cannot completely substitute all of the services provided by intermediaries. Certainly, some non-intermediaries have been successful in connecting savers and borrowers directly. Nonetheless, non-intermediaries do not provide liquidity or asset transformation services, which are likely of crucial importance for small-scale retail customers. Furthermore their tiny scale, relatively low visibility, and inability to circumvent traditional financial intermediaries' payment facilities may prove insurmountable obstacles. Internet-only banks though can officially collect deposits and operate as financial intermediaries. Thus, more than P2P retail financial service providers, Internet-only banks may become more serious competitors in the future. The bottom line is competition for retail financial services will intensify, but it will remain within the sphere of financial intermediation.

With respect to the impact foreign-owned banks have had on host markets, our opinion is they have had an overall positive influence. Countries with *considerably* high global bank participation largely fall in Latin America and Emerging Europe. There are two specific reasons those regions are the leaders in foreign-owned bank entry: 1) banking regulation allows the outright acquisition of local banks, and 2) strong macroeconomic

conditions provide attractive opportunities for banks post-entry. The first reason is magnified by a discussion on retail banking because of the (traditional) need for local branch networks to connect with customers. Moreover, with regard to the second reason, foreign-owned banks are more likely to target countries where individual incomes are growing, and thus borrowers have the foreseeable ability to make timely repayments on incurred debts. Indeed individual incomes rose in all countries observed, accelerating faster over the 2000s than during the previous decade in many cases. Household consumption expanded as well, in some cases actually growing faster than GDP. On top of all that, in all countries observed, household consumption expanded faster than in the United States during the 2000s. Considering the now well-documented crisis that occurred in the United States had roots in risky loans to uncreditworthy individuals; an important implication this research makes is that the same situation could potentially unfold in other countries if similar practices became industry-wide staples as suggested by Morison and Frazer (1982). Especially, we suppose, in countries with high presence of foreign-owned, and global, banks because if the same practices that led to the subprime crisis transferred to host markets, then a similar outcome could reasonably occur.

Foreign bank presence coincided with some important shifts in host market banking systems. Retail loans as a percentage of total loans went up for the entire banking system, and in many individual domestic banks, in markets where many foreign-owned banks operate. In fact, we confirmed a common trend whereby retail lending accounted for around 40 percent of loans in all countries observed. Moreover, as global banks transferred efficiency improvements from home markets to foreign subsidiaries, domestic banks in host markets took notice, and made similar efficiency improvements as well. Also, foreign-owned bank entry coincided with a decline in loan interest rates and interest rate spreads. Developments, which suggest, both an intensification of banking sector competition, and lower borrowing costs for borrowers. Additionally, credit levels as a percent of GDP were remarkable in nearly all cases. Therefore, the result of high global and/or foreign bank participation in host markets was to contribute to increasing individuals' access to financial services, and at lower interest rates. Seeing as these developments took place not just over

the 2000s, but also after the crisis, the possibility exists whereby lending practices could be fomenting credit bubbles.

Linking global banks and retail loan developments to financial stability does not produce evidence for instability. We agree with findings by Goldberg, Dages, and Kinney (2000) and Tschoegl (2005), among others; foreign bank entry may actually increase financial stability. This paper extends that assertion to retail banking because retail loans did not experience severe deterioration in most cases, despite negative macroeconomic spillover from the global financial crisis. Consequently, enhanced financial stability and access to finance for individuals demonstrated through this research might be prime examples of the positive effects Claessens, Demirguc-Kunt, and Huizinga (2001) argued foreign-owned banks could have on host markets. While banks observed here operate in a number of countries, some do not have a *significant* presence in notable emerging markets. Regulations preventing the outright purchase of domestic banks by foreign entities restrict the globalization process from deepening further. Banking customers in countries with stiff regulations on foreign ownership may be missing out on the benefits of valuable transfers of banking practices, efficiencies, and technologies. Furthermore, if credit information service providers venture abroad in tandem with global banks, banking customers, in addition to the economy as a whole, could be missing out on valuable credit information services in those countries as well.

Contrastingly, the unavailability of credit information had a detrimental impact in some countries. Hungary, Romania, and Czech Republic all exhibited very low levels of credit information towards the beginning of the 2000s. Interestingly enough, these are the same countries where nonperforming loans (including retail loans) rose dramatically after the onset of the global financial crisis. Suggesting that retail's rise took place in those countries despite a lack of sound information on borrowers. The support system global banks relied upon in other markets, was not available in those countries, and that was likely a determining factor in the rise of nonperforming loans in those countries. Meaning, foreign-owned banks did not have adequate information to establish a base upon which to

expand retail. They likely relied on other sources of information to supplement informational insufficiency.

Credit is still expanding in many countries, however, so there is potential for weaknesses to develop. Given worsening conditions in home markets, global banks could turn up attention on emerging markets in order to compensate for dwindling earnings at home. While until recently, retail banking has not severely jeopardized financial stability; that may not remain true indefinitely. The provision of credit information is unquestionably important. But, it is not the only determining factor in creating credit bubbles. Host market authorities should prevent predatory and reckless lending practices, similar to those which led to the 2008 financial crisis, from becoming mainstream in their countries.

Finally, drawing on our findings, we make an important implication about the theory of financial intermediation. Campbell and Kracaw (1980) insisted the information production function and transaction services function of financial intermediaries had to be considered hand-in-hand. They state, "intermediaries can profitably emerge where they can *jointly* produce information as well as other products or services…The obvious candidates for this joint production arrangement are the provision of liquidity or transaction services" (Campbell & Kracaw, 1980, p. 880)[39]. In fact, the developments portrayed in this paper illustrate this to be the case for two clear reasons. First, although credit information services were available to banks globally, they did not completely cease to produce information internally. To the contrary, we saw how global banks invested in bank channels which permit heightened information collection. Second, as we saw through P2P financial services, while other providers may be capable of connecting savers and borrowers and verifying information provided by both; only intermediaries can provide liquidity and asset transformation services. Financial intermediaries are extremely experienced in managing the risks involved with taking deposits and making loans. Disintermediated forms of retail finance cannot provide the same services. Therefore, the combination of liquidity and asset transformation service provision and internal information production continue to be the reason financial intermediaries exist. The central question thus becomes, why would credit

[39] Emphasis added by author.

information provision and internal information production by financial intermediaries coexist.

The reason is because since only the information producer understands its true accuracy, financial intermediaries must produce information internally to supplement information from other sources. Where informational asymmetries are high, the retail segment in a foreign market in particular, some information is better than zero information. This paper has shown credit information service provided by third-parties are absolutely vital in such circumstances because there would otherwise be zero informational availability. However, intermediaries must continue producing information internally in order to confirm the reliability of third-party information when expanding credit. Without banking channels such as Internet and mobile banking banks would have to continuously rely upon antiquated methods of internal information production to verify ISP information. Such an approach would not permit the expansion of retail banking activities, and certainly not in foreign markets, because verifying information on vast quantities of retail customers would be painstakingly slow. Thus, the speed with which automated bank channels, such as Internet and mobile banking, can provide information is the reason for their adoption.

That being said, we still must reconcile global banks' continued use of credit information service providers. As argued, over time financial intermediaries are capable of assessing – and presumably deeming reliable – the nature of information produced by third parties despite their having no particular financial stake in the outcome of the financial assets they produce. We think that this is the impetus for banks investing in technology, which allows them to gather more information from customers. The knock-on effect is that information has grown so voluminous, most financial intermediaries cannot manage it without assistance. Credit information service providers are filling that need by increasingly providing data management services. In essence, banks procure ISP services because the amounts of information are becoming too big to handle.

Automation of financial intermediation and information collection will probably continue for the immediate future. As technology continues to advance, intermediaries may automate other operations. Eventually a time could come when the entire loan origination

and monitoring process could be completely automated. In years to come, emerging markets will contribute larger shares of global retail banking revenues. Given that retail is such a significant portion of bank income, the future success of banking may depend on how global banks approach retail banking in emerging markets. Conversely, regulators in emerging markets must realize both financial intermediaries and credit information service providers must be monitored to ensure the proper due diligence is performed throughout the provision of retail financial services to individuals. Without monitoring both of these institution types, financial regulators may not be able to adequately assess appropriate stability measures to be taken for their domestic financial systems. Careful consideration on the ramifications of enhanced automation will become imperative *globally*. As a result, academics, researchers, bankers, regulators, and policymakers the world over will have to wrestle with issues such as, which banking processes should be automated; will automation increase or decrease systemic risks; will automation improve efficiency of intermediation; will each become meaningful discussion topics.

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