

U.S. and the Americas Investment Research

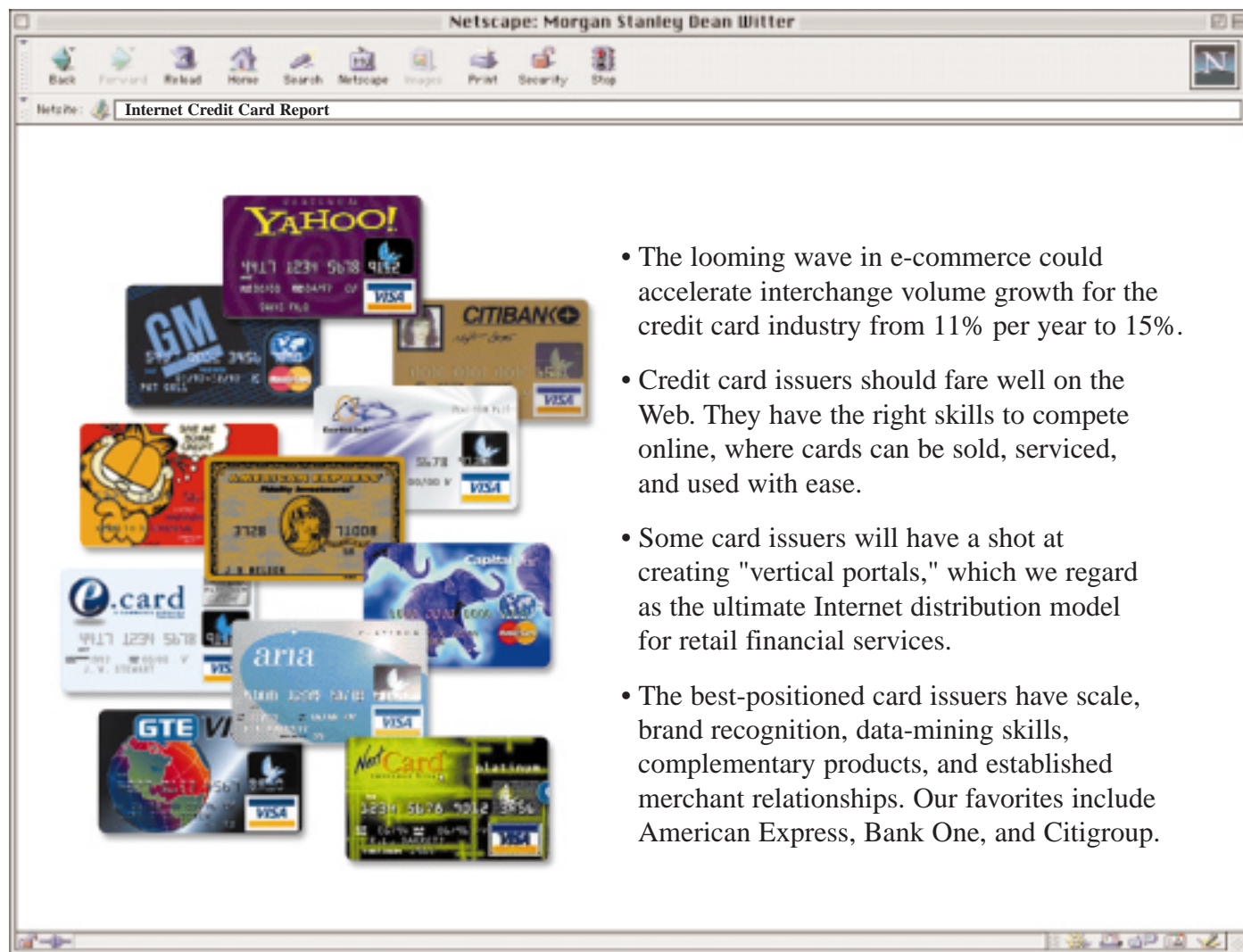
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U.S. Specialty Finance

The Internet Credit Card Report: A Primer on the Industry and Its Role in E-Commerce



- The looming wave in e-commerce could accelerate interchange volume growth for the credit card industry from 11% per year to 15%.
- Credit card issuers should fare well on the Web. They have the right skills to compete online, where cards can be sold, serviced, and used with ease.
- Some card issuers will have a shot at creating "vertical portals," which we regard as the ultimate Internet distribution model for retail financial services.
- The best-positioned card issuers have scale, brand recognition, data-mining skills, complementary products, and established merchant relationships. Our favorites include American Express, Bank One, and Citigroup.

Selected Cool Credit Card Sites

Citibank.com



Citigroup is the largest issuer of cards in the U.S. Its credit card site features online applications that ask for friends' e-mail addresses and will soon offer online approvals.

NextCard.com



NextCard's site offers 30-second online approval, instantaneous card upgrades to qualifying applicants, balance transfers, introductory rates as low as 2.9%, and rich online account access options. You can also decorate the card with a personal photo.

American Express Rewards and Benefits



American Express boasts one of the best discount and reward programs. On the Web, you can redeem points for special savings or search for online deals by state and product type.

Yahoo! Visa



Yahoo! Visa cardholders can accumulate bonus points through on- and offline purchases. Cardholders can redeem the points at select online retailers, including CDNow, Yahoo!Style, and Cyberian Outpost. The card, which is also available in a striking purple swirl, is issued by First USA.

Selected Cool Credit Card Sites

e.Card from First USA



First USA's e.Card features online approval and balance transfer and offers 5% cash back on purchases at a large number of online merchants.

EarthLink Visa



EarthLink, one of the world's largest independent Internet service providers, offers a credit card designed and issued by MBNA. Shop at the EarthLink Mall with EarthLink Visa and earn 2% cash back.

The Associates' studentcreditcard.com



The Associates offers cards to college students. This hip website accepts online applications and also offers Killer Deals, Web Celebs, and a game room.

Providian's Aria Brand



Providian created a new brand for the Web — its "Aria" card. The site features immediate approvals and balance transfers, online rewards, and links to shopping.

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The Internet Credit Card Report: A Primer on the Industry and Its Role in E-Commerce

Summary and Investment Conclusion

We wrote this report to serve as a primer on the U.S. credit card industry, with a special focus on how the Internet will affect the strategic positioning and earnings power of the major card issuers. This is the second report we've written assessing the impact of the Internet on a sub-sector of the financial services industry.¹ We've focused on this subject because of the widespread belief that the Internet, together with other advances in information technology, will radically reshape the competitive landscape in most businesses. In the words of American Express chairman Harvey Golub, the impact of the Internet on business could lie somewhere between that of the telephone and the industrial revolution. Nowhere will this change be more profound than in financial services, in our opinion. The potential cost savings from electronic distribution of financial products are so dramatic that one can envision much of the financial services industry migrating online in coming years. What Amazon.com has done to retailing will pale in comparison with the ultimate metamorphosis of financial services, we believe.

(1) See "The Internet Mortgage Report," February 4, 1999.

The looming wave in e-commerce spending holds the key to success for credit card issuers over the next five years, in our view. Over that timeframe, we project e-commerce boosting card industry charge volumes from an annual 11% growth rate up to 15%, with the wave really hitting in 2001/2002. We envision the greatest upside for those firms that can stimulate online spending by their cardmembers through comprehensive rewards programs, shopping links, special deals with merchants, targeted advertising based on spending patterns, e-wallets, alliances with Internet partners, and bill presentment and payment. We call this the "e-commerce enabler" model.

Business spending will account for the lion's share of e-commerce, in our view. As such, card issuers that offer corporate charge, small business, and procurement cards should see the biggest jump in interchange revenues (fees that issuers earn from card spending).

Credit cards are the payment system of choice on the Web. The 2% discount that merchants pay for credit card transactions appears to leave a big window of opportunity for innovative new technologies that might match banks and merchants at lower cost. However, most of that discount goes to servicing merchant accounts and implementing rewards programs. Also, the card industry has created a net-

work that is popular with consumers and merchants. New payment technologies will face a considerable chicken/egg problem, in that they'll have to rapidly win over both consumers and merchants in order to gain widespread acceptance. We are monitoring alternative technologies, such as e-cash, ACH, smart cards, and online debit cards, but see little threat to the dominance of the credit card system at this time.

Ultimately, some of the card issuers may make the leap to become "vertical portals" — i.e., retail distributors of multiple products with their own brand identity and Internet traffic. We don't think every credit card issuer has to pursue a vertical portal strategy. However, they all will need to cross-sell additional products to generate revenues and encourage online servicing to cut costs. Those firms that do create successful vertical portals will enjoy the strategic high ground in the financial services industry. Card issuers may create portals focused on travel, entertainment, and special deals from merchants. Or the card may be one product at portals that seek to offer a broad banking relationship.

However, branding — and hence Web presence — will prove frustrating for many card companies. Brand is very important on the Web. However, with the exception of American Express and Discover, most card issuers rely on the shared brands of Visa and MasterCard. Most of these issuers have low consumer awareness, and they will likely have trouble generating traffic at their sites.

Otherwise, U.S. credit card issuers are well positioned to compete in cyberspace. . . . In our view, their relationship with consumers is strong because credit cards help people manage their monthly budgets and maximize purchasing power through rewards programs. This industry is accustomed to operating without branches, segmenting its customers into micro-niches, and implementing new product variations rapidly — the right skills for online competition, in our view.

. . . and credit cards work well on the Web. The product is simple. It's a necessary part of the Internet spending experience. Consumers can now apply for cards on the Web, receive approval in seconds, and immediately start using the account even before the plastic arrives in the mail. We expect consumer adoption of online cards to be much faster

than that of mortgages or insurance. American Express, for example, has already signed up 1 million cardholders, or 5% of its membership base, for online accounts. In five years, we project that the Internet will account for almost 30% of new credit card sales in the U.S., up from 8% in 1998.

In this new distribution channel, the winners are likely to take share. Like any other channel, the Web won't create lasting strategic advantage, since it's available to all issuers. That said, the Internet is an ideal medium for credit cards, because they can be distributed electronically (unlike, for example, toothpaste, autos, or even mortgages, for that matter). Those who figure it out first will likely poach the best customers. Those who don't figure it out will fall behind in the competitive battle. Ultimately, the Web will become the primary marketing channel for the card industry because response rates and thus cycle times are faster than direct mail. Bank One's First USA, NextCard, and MBNA have built the earliest lead in figuring out the Web as a new distribution channel. The rest of the field is close behind.

Easier applications could mean more teaser surfing and pressure on the net interest margin. Over the last few years, intense competition among issuers has resulted in better deals for creditworthy customers. The Internet could intensify this trend, as balance transfers will become as easy as clicking a button. If you haven't done so already, visit www.NextCard.com to see just how quick and easy balance transfers can be. Those firms that are most successful in boosting interchange revenues will be able to cut pricing on balance transfer deals, we believe, contributing to erosion in net interest income for slower competitors.

The card issuers best positioned to leverage the Internet are American Express (\$136, Strong Buy), Citigroup (\$49, Outperform), and Bank One (\$60, Strong Buy), in our view. American Express is extremely well positioned to enable e-commerce spending because of its merchant relationships, closed-loop processing system, international reach, business market penetration, and scale. The company's brand and mix of products also give it an opportunity to create a vertical portal business model. Citigroup and Bank One boast strong credit card operations and are also well positioned to stimulate e-commerce spending. They are in the lead among banks in creating vertical portals with content and transaction capability.

The monoline issuers — Capital One (\$50, Neutral), MBNA (\$32, Outperform), and Provident (\$97, not rated) — have demonstrated superior execution of targeted lending strategies. They are not as well positioned to enable e-commerce or build vertical portals because they lack merchant relationships and their own brands. Because of their strong management teams, however, we would certainly not count them out in the competition to conquer cyberspace.

We're forecasting 12% annual earnings growth for the U.S. credit card industry over the next five years, up from a 10% growth rate over the last five, but driven increasingly by charge volume and fee revenues, and less by interest income. E-commerce spending should provide a revenue lift from interchange revenues as well as targeted advertising and cross-sales of other products. These revenues will help offset ongoing margin pressure, as consumers use the Internet to surf for teaser rates and transfer balances more frequently than they do now. Also offsetting revenue pressure, costs should fall over time as consumers gradually adopt online servicing. This forecast presupposes a sunny economic outlook, since the industry remains vulnerable to cyclical credit losses. As the Internet speeds up the competitive cycle, we may find that firms with poor segmentation skills end up holding the weakest credits, a trend that will create problems for them in an economic slowdown.

What It Will Take for Stocks to Work

Pure-play Internet stocks have achieved remarkable valuations. **For credit card issuers and other financial stocks, however, we don't foresee much chance of "Internet premiums" unless investors can detect or project an impact on revenues or earnings.** After all, most financial business models are capital intensive, unlike the highly lev-

ered earnings streams characteristic of certain Internet and technology companies. We view an acceleration in interchange revenues as the biggest potential change to the card industry's income statement in coming years. Even so, stocks of credit card issuers are likely to continue to trade on portfolio growth, margins, the credit cycle, and improvements in fee income.

Failure to implement an Internet strategy will likely hurt stock prices. The Internet is so important to the financial services industry that stocks of issuers that "just don't get it" will surely be penalized by investors, in our opinion.

Success in Internet distribution or online interchange could help stock multiples, provided investors think the success will lead to an acceleration in account growth, expansion of market share, or enhancement of revenues and earnings. Bank One's First USA expects as much as 15% of its new account growth to come from the Web in 1999. MBNA has seen positive early results from Internet marketing of affinity cards. We project rising e-commerce volumes leading to a modest acceleration in American Express' long-term EPS growth rate.

A portal strategy could impart a premium valuation — but only if it's compelling. Building a vertical portal website with a multitude of products and resources sounds exciting. But investors are likely to be cautious until they're convinced that such a strategy will be successful. We think the market will look for significant increases in Internet traffic metrics, such as "reach" and "stickiness," as indications of progress. (See Section 8 of this report for a discussion of these metrics of Web usage.) Ultimately, the portal strategy will be deemed successful only if it attracts new customers and generates fee revenues.

Table 1-1

U.S. Credit Card Industry Profitability: 1993, 1998, and 2003
Growing Fee Revenues Replace Net Interest Income

	1993		1998		CAGR 1993-1998	2003		CAGR 1998-2003
	\$ Billions	% of Assets	\$ Billions	% of Assets		\$ Billions	% of Assets	
Avg. Balances Outstanding	\$226.9	100%	\$470.2	100%	16%	\$623.3	100%	6%
	More balance transfers, better deals for consumers							
Interest Income	\$30.9	13.6%	\$64.5	13.7%	16%	\$82.3	13.2%	5%
Interest Expense	(12.3)	-5.4%	(25.2)	-5.4%	15%	(\$34.3)	-5.5%	6%
Net Interest Income	18.6	8.2%	39.3	8.4%	16%	\$48.0	7.7%	4%
Credit Charge-offs/Fraud	(9.2)	-4.0%	(23.8)	-5.1%	21%	(34.9)	-5.6%	8%
Risk-Adjusted Margin	9.4	4.2%	15.5	3.3%	11%	13.1	2.1%	-3%
Interchange Income	7.7	3.4%	14.7	3.1%	14%	28.0	4.5%	14%
Miscellaneous Fees (a)	6.0	2.7%	11.5	2.4%	14%	16.2	2.6%	7%
Enhancements (b)	0.0	0.0%	0.5	0.1%	7%	2.0	0.3%	32%
Total Net Revenues	23.2	10.2%	42.2	9.0%	13%	59.3	9.5%	7%
Operating Expense	(15.2)	-6.7%	(29.3)	-6.2%	14%	(36.2)	-5.8%	4%
Pretax Income	\$8.0	3.5%	\$12.9	2.8%	10%	\$23.2	3.7%	12%

Saturated market, pressure from mortgage as substitute

More balance transfers, better deals for consumers

Web cross-selling revenues; e-commerce stimulates interchange

Savings from online servicing, electronic bills

Note: Credit card industry composed of Visa, MasterCard, American Express and Discover.
 (a) Includes late, overlimit, cash advance, and annual fees.
 (b) Includes cross-selling, targeted ads, and revenue sharing.
 Sources: Faulkner & Gray, MSDW Research estimates.

Table 1-2

U.S. Credit Card Industry Profitability: Historical and Forecast

	1993	1994	1995	1996	1997	1998	1999E	2000E	2001E	2002E	2003E	'98/93 CAGR	'03/98 CAGR
Avg. Balances Outstanding	\$226.9	\$274.2	\$339.4	\$407.1	\$450.8	\$470.2	\$493.7	\$523.3	\$554.7	\$588.0	\$623.3	16%	6%
% Change		20.9%	23.8%	20.0%	10.7%	4.3%	5.0%	6.0%	6.0%	6.0%	6.0%		
Interest Income	\$30.9	\$35.3	\$47.0	\$59.7	\$65.0	\$64.5	\$67.6	\$71.2	\$74.9	\$78.2	\$82.3	16%	5%
Interest Expense	(12.3)	(15.7)	(20.8)	(24.6)	(25.0)	(25.2)	(27.2)	(28.8)	(30.5)	(32.3)	(34.3)	15%	6%
Net Interest Income	18.6	19.6	26.2	35.1	40.0	39.3	40.5	42.4	44.4	45.9	48.0	16%	4%
Credit Charge-offs/Fraud	(9.2)	(8.9)	(13.5)	(21.0)	(24.5)	(23.8)	(25.7)	(28.0)	(30.2)	(32.6)	(34.9)	21%	8%
Risk-Adjusted Margin	9.4	10.7	12.6	14.1	15.4	15.5	14.8	14.4	14.1	13.2	13.1	11%	-3%
Interchange Income	7.7	8.9	10.4	12.1	13.6	14.7	16.3	18.3	20.8	24.1	28.0	14%	14%
Miscellaneous Fees (a)	6.0	6.3	7.4	8.5	9.4	11.5	12.8	13.6	14.4	15.3	16.2	14%	7%
Enhancements (b)	0.0	0.4	0.4	0.4	0.5	0.5	0.5	0.7	1.1	1.6	2.0	7%	32%
Total Net Revenues	23.2	26.4	30.9	35.1	38.9	42.2	44.4	47.0	50.5	54.2	59.3	13%	7%
Operating Expense	(15.2)	(18.0)	(22.3)	(26.1)	(28.1)	(29.3)	(30.6)	(31.9)	(33.3)	(34.7)	(36.2)	14%	4%
Pretax Income	8.0	8.3	8.6	9.1	10.8	12.9	13.8	15.1	17.2	19.5	23.2	10%	12%
As % of Avg Receivables													
Interest Income	13.6%	12.9%	13.8%	14.7%	14.4%	13.7%	13.7%	13.6%	13.5%	13.3%	13.2%		
Interest Expense	-5.4%	-5.7%	-6.1%	-6.0%	-5.5%	-5.4%	-5.5%	-5.5%	-5.5%	-5.5%	-5.5%		
Net Interest Income	8.2%	7.2%	7.7%	8.6%	8.9%	8.4%	8.2%	8.1%	8.0%	7.8%	7.7%		
Credit Charge-offs/Fraud	-4.0%	-3.2%	-4.0%	-5.2%	-5.4%	-5.1%	-5.2%	-5.4%	-5.5%	-5.6%	-5.6%		
Risk-Adjusted Margin	4.2%	3.9%	3.7%	3.5%	3.4%	3.3%	3.0%	2.8%	2.6%	2.3%	2.1%		
Interchange Income	3.4%	3.2%	3.1%	3.0%	3.0%	3.1%	3.3%	3.5%	3.8%	4.1%	4.5%		
Miscellaneous Fees (a)	2.7%	2.3%	2.2%	2.1%	2.1%	2.4%	2.6%	2.6%	2.6%	2.6%	2.6%		
Enhancements (b)	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.3%		
Total Net Revenues	10.2%	9.6%	9.1%	8.6%	8.6%	9.0%	9.0%	9.0%	9.1%	9.2%	9.5%		
Operating Expense	-6.7%	-6.6%	-6.6%	-6.4%	-6.2%	-6.2%	-6.2%	-6.1%	-6.0%	-5.9%	-5.8%		
Pretax Income	3.5%	3.0%	2.5%	2.2%	2.4%	2.8%	2.8%	2.9%	3.1%	3.3%	3.7%		
Year/Year % Change													
Interest Income		14%	33%	27%	9%	-1%	5%	5%	5%	4%	5%		
Interest Expense		27%	33%	18%	2%	1%	8%	6%	6%	6%	6%		
Net Interest Income		5%	33%	34%	14%	-2%	3%	5%	5%	3%	5%		
Credit Charge-offs/Fraud		-3%	52%	55%	17%	-3%	8%	9%	8%	8%	7%		
Risk-Adjusted Margin		14%	18%	12%	9%	1%	-5%	-3%	-2%	-6%	-1%		
Interchange Income		16%	17%	16%	12%	8%	11%	12%	14%	16%	16%		
Miscellaneous Fees (a)		5%	17%	14%	10%	22%	12%	6%	6%	6%	6%		
Enhancements (b)		NM	5%	0%	25%	0%	-1%	48%	51%	43%	26%		
Total Net Revenues		14%	17%	14%	11%	8%	5%	6%	7%	7%	9%		
Operating Expense		19%	24%	17%	8%	4%	5%	4%	4%	4%	4%		
Pretax Income		4%	3%	6%	19%	20%	7%	9%	14%	14%	19%		

Note: The credit card industry is composed of Visa, MasterCard, American Express, and Discover.

(a) Includes late, overlimit, cash advance, and annual fees. (b) Includes cross-selling, targeted ads, and revenue sharing.

E = Morgan Stanley Dean Witter Research Estimates Sources: Faulkner & Gray, Company Reports, Morgan Stanley Dean Witter Research

Section Highlights

We've briefly summarized the key conclusions of this report, section by section:

- **Section 2: *What It Takes to Win*** As we survey activity among credit card issuers, we see three principal business models: specialty lender, e-commerce enabler, and vertical portal. We rank each issuer according to the competitive advantages we think are necessary for each of these models. We favor those issuers that are making the fastest progress in the e-commerce enabler model.

- **Section 3: *The Internet and Financial Services — A Snapshot of Current Activity*** Current research identifies early adopters of online financial services as coming from the “emerging affluent” segment (young, educated, high income/net worth, and active consumers of financial services). These users are both price-conscious and “brand-needy” — suggesting that financial firms can create successful Web presences if they build upon existing trust and awareness.

- **Section 4: *The Credit Card Industry and the Future of the Payments System*** We begin with a review of the credit card payment distribution chain. With the credit card as the payment vehicle of choice on the Web, issuers could see e-commerce purchases boosting charge volume growth rates from 11% to 15% over the next five years.

- **Section 5: *Internet as Distribution Channel*** We expect the Internet to account for almost 30% of new accounts in five years. We believe the Internet will eventually become the most important medium for card issuers because it's fast and supports real-time customization of product and message in a way that direct mail cannot. In this section, we describe several Internet marketing

strategies, including the use of banner ads, customizable offers, and portal deals. We also assess international opportunities and the importance of brand.

- **Section 6: *Internet Strategies for Boosting Returns*** Next, we zero in on a few of the Internet strategies that issuers will use to boost fee income, including targeted advertising, development of online rewards programs, and use of electronic wallets. As the industry becomes more competitive, the ability to generate fee income, whether from enabling e-commerce, advertising, or selling complementary products, will help winning firms sustain growth.

- **Section 7: *Credit Cards and Unsecured Loans — The Game Is Getting Old*** We foresee modest growth for the business of revolving debt. The Internet could intensify margin pressure as instant approvals online make it easier to surf from one card to the next in search of the best deal.

- **Section 8: *The Strategic High Ground — Creation of a Vertical Portal*** We wrap up this report by describing the race to create vertical portals, i.e., websites that deliver content and transaction functionality and that successfully draw traffic. Vertical portals may influence the economics of the financial services industry, because fee income from advertising, cross-selling, and revenue sharing opportunities could allow the portals to cut prices on traditional transaction products.

Appendix A takes the reader on a brief tour of selected emerging vertical portals.

Appendix B contains snapshot descriptions of some of the companies mentioned in this report.

Section 2: What It Takes to Win

In surveying the credit card industry, we see elements of at least three business models among the mix of activities that issuers pursue: specialty manufacturer – lending, e-commerce enabler, and vertical portal. In this section, we evaluate the major issuers against each model. We favor card issuers that are well positioned to enable e-commerce, as this is where we see the most revenue growth for the industry. While specialty lending skills remain necessary for success, we foresee slower growth in this business. We don't think it is necessary that every credit card issuer pursue a vertical portal strategy. However, those firms that can create successful vertical portals will enjoy the strategic high ground in the financial services industry.

American Express, Bank One, and Citigroup strike us as the card issuers best positioned to successfully enable e-commerce spending. We also believe they have a shot at

creating vertical portals. Monoline issuers, such as MBNA, Capital One, and Providian, have demonstrated superior execution of their targeted lending strategies. However, we don't think they are as well positioned to enable e-commerce or create vertical portals because they lack merchant relationships and their own brands.

The competitive analysis in this section is based on information we've gathered from companies, consultants, and other industry sources. We assigned scores to each issuer for the criteria that we believe create sustainable competitive advantage. Obviously, many caveats are appropriate for an analysis like this. One could argue with our assessments and/or with the weightings we assign to each criterion. Nonetheless, we believe this is a useful exercise. We plan to update this analysis as individual companies modify their strategies and announce new plans.

Table 2-1

Competitive Ranking — Summary

Specialty Manufacturer - Lending		E-Commerce Enabler		Vertical Portal	
Bank One/First USA	3.4	American Express	3.1	Schwab	2.9
MBNA	3.1	Citigroup	2.1	Intuit	2.9
American Express	2.9	Bank One/First USA	2.0	Citigroup	2.8
Capital One	2.7	Associates First Capital	1.8	AOL Finance	2.6
Citigroup	2.7	Chase	1.8	E*Trade	2.5
Providian	2.6	Household	1.7	Yahoo! Finance	2.4
Chase	2.5	Bank of America	1.7	American Express	2.2
Fleet	2.4	MBNA	1.5	Bank One/First USA	1.9
Household	2.2	Capital One	1.3	Bank of America	1.4
Bank of America	2.1	NextCard	1.0	Fleet	1.2
Associates First Capital	1.9	Providian	1.0	Chase	1.1
NextCard	1.8	Fleet	0.9	Associates First Capital	0.6
				NextCard	0.6
				Household	0.5
				Providian	0.3
				Capital One	0.2
				MBNA	0.2

Source: Morgan Stanley Dean Witter Research.

Companies are ranked from 4 (high) to 0 (low). Numbers are weighted-average scores for relevant criteria in each business model.

See Tables 2-2, 2-3, and 2-4 for details.

Specialty Manufacturer – Lending: Necessary, But No Longer Sufficient

The specialty manufacturer – lending model is the business of making unsecured loans to consumers. As shown in Tables 1–1 and 1–2, the net revenues from specialty lending, i.e., net interest income after credit losses, totaled \$15.5 billion for the U.S. card industry in 1998, or 37% of total net revenues, and has grown at an 11% annual average rate since 1993. Looking ahead, we forecast revenues declining by 3% per year, as consumers transfer balances more quickly on the Web, as lower-cost home equity products gradually take share from unsecured loans, and as issuers that successfully boost fee and interchange revenues sharpen their pencils on new balance transfer deals.

Our competitive analysis highlights Bank One as best positioned among the major issuers, followed by a number of strong competitors. (Table 2-2 scores several issuers against the criteria that we believe create competitive advantage.) The secret of success, as Capital One and Provident have illustrated, consists largely of segmenting customers into micro-niches and pricing their accounts for the risk. Brand is also key to marketing success, whether the card carries the brand of the issuer or the brand of merchants or affinity groups. MBNA and Bank One have obtained thousands of affinity group endorsements. Economies of scale are important in this business; cross-selling complementary products helps boost fee income. The banks have a wide variety of products to offer, and the monoline issuers have begun cross-selling home equity loans, insurance, and other products. Finally, developing skill in Internet marketing will become more and more important as the proportion of cards sold online increases. Bank One has taken an early lead here through marketing deals with six major portals.

E-Commerce Enabler: Positioning for the Wave in Online Spending

E-commerce enabling refers to the business of stimulating use of the credit card as the payment vehicle for online spending. Developing skills in stimulating e-commerce is critically important for the card industry, as we envision e-commerce spending lifting interchange revenues significantly. Issuers that bring in the most in-

terchange revenues will gain the upper hand competitively, in our view. The most successful will work to win over online buyers and sellers to the credit card payment network and use data to pitch targeted ads and transactions.

Interchange revenues for the industry totaled \$14.7 billion in 1998, or 35% of total net revenues. Over the last five years, interchange revenues have grown at an average annual rate of 14%, although growth has slowed to 10% since 1997. In 1998, Internet spending was still under 1% of total card volumes. Looking ahead, the surge we see coming in e-commerce spending should reaccelerate annual growth toward 15%. The wave should really start to hit in 2002, pushing interchange revenue growth into the high teens or above.

Our competitive rankings highlight American Express as the issuer best positioned — by a wide margin — to enable e-commerce (Table 2-3). We find Citigroup, Bank One, Bank of America, Associates First Capital, Household, and Chase tightly grouped in the second tier. Strong relationships with merchants are critical to stimulating e-commerce. American Express, Bank of America, Chase, and Bank One are leading merchant acquirers. The Associates and Household have large portfolios of private label cards (i.e., cards issued under the name of and only good for purchases at specific merchants).

Data manipulation skills are very important in targeting consumers for special deals based on their spending patterns. We assign a great deal of importance to international reach and business card strategies, as worldwide business-to-business e-commerce will likely dwarf U.S. consumer online spending. American Express is strongly positioned in both of these areas. Rewards programs and an early lead in Internet marketing are also important.

Vertical Portal: The Ultimate Distribution Model

The vertical portal is what we envision as the ultimate distribution model for the financial services industry — a website that offers a multitude of products, as well as information. Because of the nature of the Internet, we think there will be room for only a handful of winners in this space. Companies that create successful vertical portals will earn revenues from selling financial and possibly other products and from advertising. The credit card

industry is already moving in this direction. Many issuers pitch various cross-sells during inbound customer service calls. As of 1998, however, card industry data showed only \$500 million in fee income from these sources, equivalent to 0.1% of receivables or just over 1% of net revenues.¹ We're modeling a modest increase to \$2 billion (or 0.3% of receivables) by 2003. Some of the more aggressive issuers are targeting cross-selling and other fee income at 1.0% of receivables.

In Table 2-4, we rank card issuers, other financial services firms, and technology companies in terms of their progress in creating vertical portals. We give top marks to Schwab, Intuit, Citigroup, AOL, E*Trade, and Yahoo! Bank One and American Express are moving in the right direction, we believe. The monoline card issuers have made little progress towards creating vertical portals.

¹ This data probably understates cross-selling revenues, some of which may be accounted for outside of the credit card subsidiaries operated by major banks.

Among the criteria we believe necessary for success, brand is critically important in drawing traffic to the site. We grade Internet traffic in terms of "reach" and "stickiness" (see Section 8 for a discussion of these terms and Table 8-1 for recent data). Most card issuers rely on the shared brands of Visa and MasterCard. As such, consumer awareness of the issuers is limited and traffic to their sites is weak.

We think financial services-oriented vertical portals will need to offer transaction products to help consumers manage their finances, and "open architecture" (i.e., choice among many providers) for big-ticket transactions, such as mortgages, insurance, and mutual funds. Credit cards are one such transaction product. In addition to an Internet presence, however, companies need multiple distribution channels because most consumers want a range of options for interaction with their financial service providers. Citigroup scores highly: in addition to bank branches and ATMs, Citigroup has several separate sales forces (for example, PFS and Commercial Credit) that can reach out to consumers.

Table 2-2

What It Takes to Win: Specialty Manufacturer — Lending

	Customer Segmentation	Risk Management	Economies of Scale	Brand	Breadth of Products	Internet Marketing	Weighted Average
American Express	3 Numerous card products	3	4 \$41B receivables	3 Strong financial services brand	2 Travel; brokerage; mutual funds; CDs	2 Limited banner ads; off-line ads	2.9
Associates First Capital	2 Private label, college niches	3	2 \$6B receivables	1 Strong partner brands	2 Home equity, auto loans	1	1.9
Bank of America	1	3	3 \$21 receivables	1	4 Full range	1	2.1
Bank One/First USA	3 Database marketing skills plus affinity endorsements	3	4 \$70B receivables	3 Bank brand plus affinity partners	4 Full range	4 Six major portal deals	3.4
Capital One	4 Leader in info based marketing	3	3 \$14B receivables	1	2 CDs; mortgages; auto loans	2 Marketing agreement with DoubleClick	2.7
Chase	2	3	4 \$32B receivables	1	4 Full range	1	2.5
Citigroup	2	3	4 \$70B in receivables	2 Aggressively marketing the brand	4 Full range	2 Marketing to increase with Citi f/i rollout	2.7
Fleet	2	3	3 \$14B in receivables	1	4 Full range	2 Deals with Go2Net and Lycos	2.4
Household	2 Private lable portfolios	3	3 \$14B in receivables	1 Strong co-branded and affinity partners	2 Personal and auto loans; home equity	2 Online apps at merchant sites	2.2
MBNA	3 Industry leader in affinity endorsements	3	4 \$49B in receivables	3 Strong brand through affinity partners	2 Consumer loans; CDs; auto insurance	3 Portal deals, targeted banner ads, e-mail	3.1
NextCard	3 Real-time customization features	2 Too early to tell	0 Very small	1 Internet-based, word-of-mouth	1 Insurance	3 Skillful use of banner ads	1.8
Providian	4 Spans the credit spectrum	3	3 \$11B in receivables	0	2 Home equity; mortgages; CDs	2 Banner ads	2.6

Weighting

2.5

2

1.5

1.5

1

1

Source: Morgan Stanley Dean Witter Research. Ranked from 4 highest to 0 lowest.

This memorandum is based on information available to the public. No representation is made that it is accurate or complete. This memorandum is not an offer to buy or sell or a solicitation of an offer to buy or sell the securities mentioned. Please refer to the notes at the end of this report.

Table 2-3

What It Takes to Win: E-Commerce Enabler

	Merchant Relationships	Data Mining/ Technology	International Reach	Business to Business	Vertical Integration	Rewards Program	Internet Marketing	Weighted Average
American Express	4 Major merchant acquirer	3 Proprietary data; closed loop system	4 Issues cards in 43 countries	3 Largest issuer, procurement cards	1 Travel	3 Multi-partner, multi-card, special discounts	2 Limited banner ads; off-line ad support	3.1
Associates First Capital	3 Private label relationships	2	2 UK, Japan	1 Commercial finance customers	0	2	1	1.8
Bank of America	3 Leading acquirer	2	1	2 3rd largest in commercial cards	0	1	1	1.7
Bank One/ First USA	2 Merchant acquirer	2	2 UK and Canada.	2 5th largest in commercial cards	0	2 Cash back on E.card; shopping discounts	4 Six major portal deals	2.0
Capital One	0	3 Pioneer in info-based marketing	2 UK and Canada, testing other markets	0	0	2 Miles One - single reward offering	2 Marketing agreement with DoubleClick	1.3
Chase	3 Leading acquirer	2	1	2 10th largest in commercial cards	0	2	1 Limited banner advertising	1.8
Citigroup	2	2	4 Global reach	2 6th largest in commercial cards	0	2 Discounts at select web retailers	2 Marketing to increase with Citi f/i rollout	2.1
Fleet	0	2	0	1 Integrate card services with online banking	0	1	2 Deals with Go2Net and Lycos	0.9
Household Int'l	3 Private label relationships	2	1 UK; Canada	1 11th largest in commercial cards	0	2 Co-branded cards	2 Online apps at merchant sites	1.7
MBNA	0	2	2 UK; Canada; Ireland	2 EarthWeb deal; 8th largest card issuer	0	2 Co-branded cards; e-coupons	3 Portal deals; targeted banner ads; e-mail	1.5
NextCard	0	2	0	0	0	3 Multiple-partner rewards, discounts	3 Heavy banner ads; wallet; e-coupons	1.0
Providian	0	2	1 UK	0	0	2 Multi-partner rewards for online cards	2 Banner ads	1.0

Weighting 2 2 1.5 1.5 1 1 1

Source: Morgan Stanley Dean Witter Research. Ranked from 4 highest to 0 lowest.

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Table 2-4

What It Takes to Win: Vertical Portal

	Brand	Internet Traffic	Open Architecture	Transaction Products	Multiple Channels	Content	Weighted Average
American Express	3 Strong financial services brand with an upscale focus	2	1 Microsoft Expedia for travel, mutual fund shopping mart	3 Credit cards; brokerage; travel services	2 Travel offices; AmEx Financial Advisors; ATMs	2 Small business exchange, limited investment info	2.2
Associates First Capital	1	0	0	1 Credit cards	1 Branches	1	0.6
Bank of America	1	0	0	4 Brokerage; credit cards; checking	3 Bank branches; ATMs; brokerage	1	1.4
Bank One/ First USA	1	2	1 Links to mortgage and insurance aggregators	4 Credit cards; brokerage; checking	2 Bank branches; ATMs	2 Concierge; insurance and stock quotes, news, investing info	1.9
Capital One	0	0	0	1 Credit cards	0	0	0.2
Chase	1	0	0	4 Brokerage; credit cards; checking	1 Bank branches	1	1.1
Citigroup	2	3	2 finance.com to provide mortgages, insurance	4 Brokerage; credit cards; checking	4 Bank branches; ATMs; PFS; SSB; Commercial Credit	2 Card features; stock quotes, news, research, and investing info	2.8
Fleet	1	0	0	4 Brokerage; credit cards; checking	2 Bank branches; Quick & Reilly	0	1.2
Household Int'l	1	0	0	1 Credit cards	1 Lending branches	0	0.5
MBNA	0	0	0	1 Credit cards	0	0	0.2

Weighting

2

2

1.5

1.5

1.5

1

Source: Morgan Stanley Dean Witter Research. Ranked from 4 highest to 0 lowest.

Table 2-4 (continued)

What It Takes to Win: Vertical Portal

	Brand	Internet Traffic	Open Architecture	Transaction Products	Multiple Channels	Content	Weighted Average
NextCard	1 Internet-based; word-of-mouth	1	0	1 Credit cards	0	0	0.6
Providian	0 Potential for Internet Aria	0	1 GetSmart	1 Credit cards	0	0	0.3
E*Trade	3	3	3 Mutual fund shopping mart	3 Brokerage; checking	0	3	2.5
Schwab	3	4 Stickiest financial services site	3 Mutual fund shopping mart	3 Brokerage; checking	1 Branches	3	2.9
Intuit	4 15mm software users	4	2 Mortgage and insurance	3 Helps consumers manage finances	0	4 Extensive news, research, articles	2.9
AOL Finance	4	4 Most visited financial services site	2 Content from multiple providers; links to brokers and banks	1 To offer through alliance with five banks	0	4 Extensive news, research, articles	2.6
Yahoo! Finance	4	4	2 Major portal	0	0	4 Extensive news, research, articles	2.4

Weighting 2 2 1.5 1.5 1.5 1

Source: Morgan Stanley Dean Witter Research. Ranked from 4 highest to 0 lowest.

Table 2-5

Credit Card Strategies for Selected Issuers

American Express	<p><u>General:</u></p> <ul style="list-style-type: none"> • Leverage one of the strongest brand names in financial services with affluent customer base. • Core product is 30-day charge card (Green, Gold, and Platinum) offered in the U.S. and internationally; revolving cards marketed under American Express Optima brand in the U.S. and as American Express Credit Card overseas. • AmEx has several co-branded partners domestically and through extensive relationships overseas. • Industry leader in development of Membership Rewards program, which allows cardholders, for an annual fee, to accrue points that can be redeemed at participating retailers/outlets. The program can be linked to multiple American Express cards. • 2.70–2.75% average discount rate provides greater income to fund rewards than other issuers. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Create vertical portal that offers the best content and services related to card, travel, and financial services. • Working out special deals with merchants for consumer and small-business clientele. Data-driven marketing of special deals/rewards programs is a key component of management’s vision. • AXP website currently enables cardholders to access account information and view rewards status. Built basic online brokerage capability with mutual fund shopping mart for American Express Financial Advisor clients. • Experimenting with online functionality, such as automated travel booking, small business exchange, international payment facility. • Using offline marketing trust, to stimulate online purchase volumes. • Positioning itself for business-to-business market by forming alliances with commerce exchanges, like Ariba and CommerceNet.
Associates First Capital	<p><u>General:</u></p> <ul style="list-style-type: none"> • Diversified lender in consumer and commercial finance. • Credit card strategy focused on niche markets, including students, private-label oil and store cards. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Online applications, special site for college students with deals and other attractions. • Card selector helps customer find card suited to needs. • Link from AOL Personal Finance site to AFS page for home equity loans. Participates in GetSmart aggregator.
Bank One/First USA	<p><u>General:</u></p> <ul style="list-style-type: none"> • Use database marketing skills to target prime customers. • Offers affinity and co-branded cards with approximately 1,500 marketing partners. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Locked up important portal advertising with exclusive contracts, including AOL and Yahoo!, positioning company to dominate Internet card advertising. These deals also position First USA to capture online charge volume by getting its card into portal e-wallets. • Innovative marketing deal with priceline.com. • Offering e.card with rewards for online purchasing. • Experimenting with “vertical portal” presence through third-party content concierge service at AtYourRequest.com. • Wingspanbank.com — Internet bank with open architecture and separate brand.

Source: Morgan Stanley Dean Witter Research

Table 2-5 (continued)

Credit Card Strategies for Selected Issuers

Capital One	<p><u>General:</u></p> <ul style="list-style-type: none"> • Apply database marketing skills to target underserved market segments. • Focus on fee-generating credit cards to the subprime and “super-prime” markets, with less emphasis on teaser-rate balance-transfer credit cards. Subprime includes secured cards to less credit worthy cardholders. Super-prime strategy emphasizes low fixed-rate credit cards. • Diversifying into new product areas, such as indirect auto and cellular phone marketing. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Alliance with DoubleClick. Takes credit card applications for 9.9% product and offers customer CD accounts at company website. • Management’s vision is to create a destination site that will have reach and stickiness.
Chase	<p><u>General:</u></p> <ul style="list-style-type: none"> • Focused on building a scale operation, comprised of its bankcard portfolio and several co-branded credit card relationships (i.e., Wal-Mart, Shell, Continental Airlines, and Bell Atlantic). <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Account information is integrated with online banking product.
Citigroup	<p><u>General:</u></p> <ul style="list-style-type: none"> • Building a scale operation, comprised of its bankcard portfolio and several co-branded credit card relationships (i.e., American Airlines and Sony). • Building fee income from cross-selling financial products and targeting special merchandise offers. • Interested in building Citibank brand and de-emphasizing association identity. • Acquires merchant relationships and may be interested in creating closed loop. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Goal is to capture more than its share of e-commerce spending. • Working to bring special deals to customers from large merchants. Would like to create online servicing traffic to use as leverage in negotiating special deals. • Integrating card services with online banking products, including roll-out of Citi e-wallet and Citi f/i.
Fleet	<p><u>General:</u></p> <ul style="list-style-type: none"> • National database marketing program under Fleet brand name, as well as co-branded and affinity group programs • Complimentary product cross-sells (e.g., insurance) and related lending products (e.g., closed end loans) <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Implementing online applications and approvals. • Using national prospect database to make prequalified offers to website visitors. • Exploring mass-customized product design and considering “vertical business” with content.

Source: Morgan Stanley Dean Witter Research

Table 2-5 (continued)

Credit Card Strategies for Selected Issuers

Household International	<p><u>General:</u></p> <ul style="list-style-type: none"> • Primary focus on subprime consumer finance (home equity and auto) and direct marketing of credit cards. • Credit card portfolio largely made up of co-branded GM Card, and affinity group cards with AFL-CIO unions, marketed under Union Privilege brand. • Entering subprime credit card business by leveraging consumer finance customer base. Established partnership with secured-card issuer, Renaissance Holdings. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Online application for GM Card found at General Motors site. Links from HI, GM, and aggregator pages. • Private-label credit card banner advertisements on individual merchant sites. Immediate online approvals and instant credit authorization. • Online account servicing by fall with targeted advertising to follow.
MBNA	<p><u>General:</u></p> <ul style="list-style-type: none"> • Affinity strategy with over 4,600 endorsements. Focus on high-credit-quality borrowers who need large revolving lines. • Developing cross-selling capability for auto insurance and other products by leveraging inbound customer calls. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Early leader in Internet marketing: projecting 400,000 new account in 1999. Using targeted ads and outbound e-mails. • Deals with a dozen portals and Internet service providers, including Infoseek's Go Network and Earthlink. Includes rewards related to card spending and discounts for online purchases. • Leveraging affinity relationships with online links to card applications at over 700 affinity websites. • Enhance customer loyalty through online customer service and cross-selling, including automated cross-selling prompts. • Goal of generating more than its market share in e-commerce spending. Offering electronic wallets and coupons and targeted special offers based on purchasing habits.
NextCard	<p><u>General/Online strategy:</u></p> <ul style="list-style-type: none"> • Internet-only marketer of Visa credit cards. • Pioneer of automated approval and balance transfer. • Implementing mass customization features, including picture cards. • Pursuing micro-affinity relationships (Dilbert Card) and co-branded partnerships (Baby Center). • Offers full range of Internet servicing capabilities with online rewards, links to shopping sites, and e-wallets.
Providian	<p><u>General:</u></p> <ul style="list-style-type: none"> • Use database marketing skills to target underserved market segments. • Focus on fee-generating credit cards to the subprime and "super-prime" markets. Subprime includes secured cards to less credit-worthy cardholders. Super-prime strategy emphasizes low fixed-rate credit cards. • Diversifying into home equity and mortgage products. Marketing fee-based products. <p><u>Online strategy:</u></p> <ul style="list-style-type: none"> • Acquired GetSmart aggregator to offer large variety of mortgage loans and credit cards in open architecture format. • Aria to represent Providian's online brand for all credit segments. Credit card launched with full online functionality. • Exploring potential to offer larger variety of financial products and services.

Source: Morgan Stanley Dean Witter Research

Section 3: The Internet and Financial Services — A Snapshot of Current Activity

We believe the Internet will fundamentally reorganize the financial services industry, if only for the obvious reason that most financial products can be distributed electronically at zero marginal cost. However, the impact of the Internet is just beginning to be felt. In this section, we review some of the findings of technology research, market research, and strategic consulting firms in order to provide a brief snapshot of activity taking place on the Web right now. We provide a simple framework for technology trends and product adoption. And we discuss who the current customers are and how they're likely to behave.

Looking for the Hockey Stick

How quickly will consumers move online to transact in financial services? Many observers, ourselves included, believe a "hockey stick" of consumer acceptance is looming just over the horizon. The principal driver of this hockey stick will be the development of new technology that increases convenience and reduces costs for the consumer. It's also important to recognize that consumers will migrate to the Internet for financial services in several waves, with the early adopters coming from different segments of the population than the mainstream.

We think of technology adoption in the financial services sector as arriving in three "waves" (see Figure 3-1 for our attempt to identify fundamental trends in an increasingly

complex sector). The first wave consists of financial firms using the Net as an advertising and distribution medium. Firms started by posting product information at company websites ("brochureware"). Gradually financial services firms have begun to advertise more aggressively on the Internet, using targeted banners and signing major advertising deals with the large portals and other high-traffic sites. Next, we envision targeted cross-selling on the Internet, exploiting the power of the Web as an interactive, customizable marketing channel with instant response.

The second wave of technology involves improving functionality for online sales and servicing of accounts.

Initially, online applications for loans and other products were simply data entry forms. After submitting an application, the consumer had to wait for the approval (or rejection) to arrive by "snail mail" several days later. Now consumers are increasingly able to apply for credit cards, home-equity loans, and other products online — and receive instantaneous approvals. Customers are also slowly turning to websites for service inquiries, providing an important cost savings opportunity for firms that service more customers with fewer telephone service reps. The ultimate goal for financial firms may be to create a "vertical portal," i.e., a popular website that consumers would frequent for financial information, products, and servicing. We discuss this concept in greater detail below.

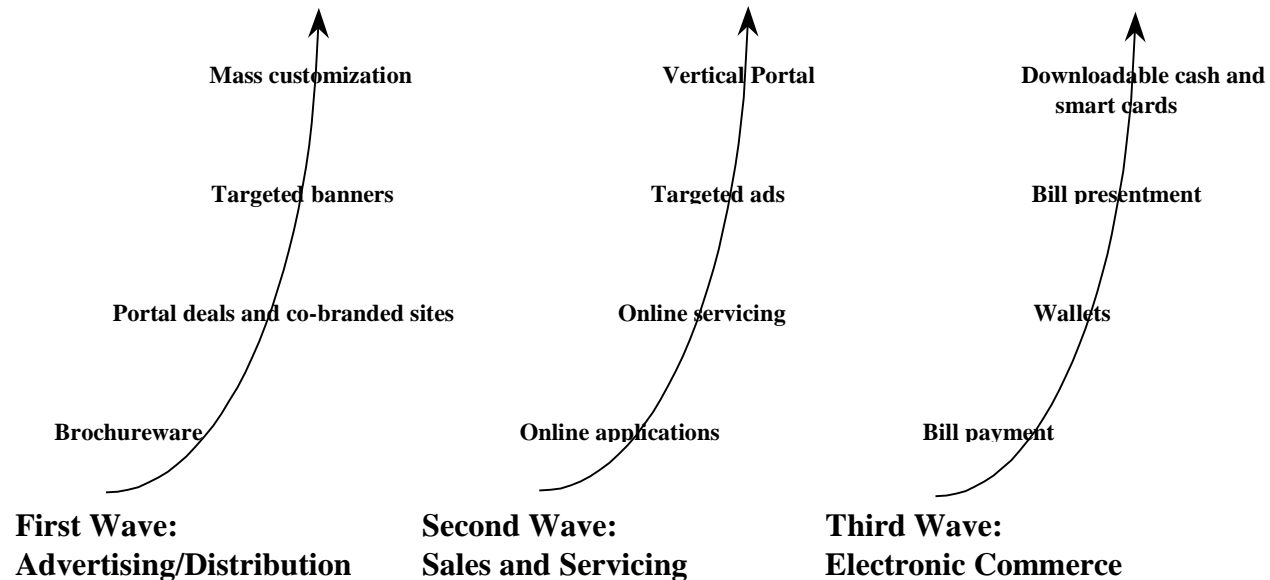
A Snapshot of Current Activity: Key Points

- **Expect exponential growth.** Online financial services usage will grow exponentially as firms provide greater convenience and cost savings to consumers, driven by technology innovations ranging from online applications to electronic bill presentment. Data on customer behavior suggest that online product adoption will come in the following sequence: brokerage, credit cards, mortgages, banking, and insurance.
- **Early users are affluent.** Early adopters of online financial services come from what consultants call the "young affluent" or "emerging affluent" segments, with excellent demographics (young, educated, high income, high net worth, active consumers

of financial services). This observation is important: first-movers will make rapid inroads with highly profitable customers. And laggards could face margin pressure if they start to lose their best customers to the Web.

- **Online customers are both price-sensitive and "brand-needy."** We expect price competition to intensify on the Web, as consumer search costs drop. But we believe large numbers of consumers will zero in on trusted brands they know from the offline world, thus affording the best known firms a modest premium in their pricing.

Figure 3-1

Waves of Adoption: Financial Services and New Technology

Source: MSDW Research

The third wave of technology developments will focus on creating true electronic commerce, which will slowly replace paper forms and manual processing. Bill payment, which is now available at many banks' websites, frees the consumer from the need to write checks by hand and post them manually. Electronic wallets, which are currently being developed by several technology companies, would contain credit card and other information to facilitate online purchases. Even more important, in our view, is bill presentment, in which billers will remit bills to consumers over the Internet, either via e-mail, at their own sites, or at the site of a financial services firm or a portal. Bill presentment will save billers the cost of mailing paper bills and will free consumers from the hassle of opening envelopes and filing paper. We believe the convenience factor of bill presentment, once it is widely available, will convince mainstream consumers to move to the Web for financial services. Eventually consumers may be able to download cash balances into smart cards via attachments to their PCs or keyboards.

The opportunity for financial services firms is not to invent this technology, which vendors will quickly make available to all players. Rather, **the winning financial firms will be those that can integrate the technology into their product offerings so as to strengthen relationships with their customers.**

Moving Online by Product: Brokerage, Credit Cards, Banking, Mortgages, Insurance

Early adopters may be comfortable playing with the latest technology. But the broad mainstream market will move online in search of cost savings (i.e., the ability to search online for attractive rates) and convenience (i.e., time savings). We expect the following sequence of financial services product adoptions: brokerage, credit cards, banking, mortgages and other loans, and insurance.

Online brokerage has grown the quickest, within more than 25% of all stock trades already taking place online. In our view, rapid growth reflects the convenience factor of

trading online (as opposed to calling brokers to place orders) and the affluent demographic of brokerage customers.

Online banking — checking accounts with online servicing and bill-payment capability — is following rapidly, although the convenience of bill-payment has been embraced a little bit more slowly by the masses. We estimate there are approximately 6–8 million online banking customers at present. Internet-savvy banks like Wells Fargo and First Union are presently experiencing online banking account growth of 75,000 and 100,000 customers per month, respectively, representing annualized growth rates in excess of 100%. Figure 3–2 shows McKinsey & Co.'s projections for rapid growth in online brokerage, with a somewhat slower ramp-up in online banking.

Online lending is just starting to pick up steam. The benefits to consumers of applying for loans online are twofold: the Web facilitates searching for the best rate and terms, and online application utilities save the bother of mailing in forms and waiting for approvals that come days (or weeks) later via the postal service. Forrester Research believes that rapid growth in consumer credit products is just around the corner for credit cards, with mortgages, student loans, and auto loans likely to gain acceptance over the next few years (Figure 3–4). In talking with banks and financial services firms, Forrester found that 82% of the institutions surveyed planned to offer online applications in 1999, and that 61% planned to provide online (i.e., immediate) approvals. The availability of this timesaving technology should stimulate consumer demand to shop for credit products online.

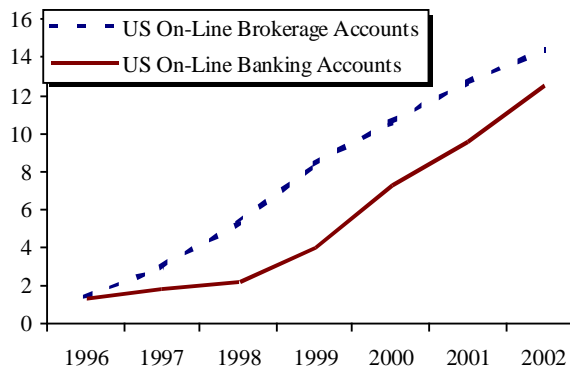
We agree with Forrester's assessment that consumers will adopt online credit cards more quickly than other lending products. For one, the card is a very simple product, and the online application takes only seconds to complete. Also, cards are part of the Web environment, since they are required for online spending. By 2004, we believe that online marketing will account for almost 30% of new card accounts.

In our "Internet Mortgage Report," (February 4, 1999) we projected online mortgage originations accounting for 10–20% of the total market by 2005, up from 0.5% in 1998. One of our assumptions is that consumers will shop online

Figure 3–2

The First Two Hockey Sticks: Online Brokerage and Banking Accounts

(Millions)



Source: McKinsey & Co. 1996–1998 actual, 1999–2002 projections.

most aggressively for big-ticket financial products, such as mortgages, that have the largest impact on their budgets (just as the Web is seeing rapid acceptance in auto shopping).

It's still early for insurance. To date, the sale of life insurance on the Internet has been very limited, presumably because of the complexity of products and the need for advice. The Internet, however, has been implemented on the back end, facilitating the processing of applications through agent links to insurance providers. Similarly, in the property and casualty sector, online purchasing of personal lines insurance (auto and mortgage insurance) is still some way off. Career agent sales forces apparently view the Internet (and other forms of low-commission, direct sales) as competition. Currently, insurance aggregators on the Internet offer information and content to help educate consumers and will provide customer leads to agents.

Consumers are rapidly moving online for financial information and products. A recent study by Brittain Associates (Table 3–1) shows what consumers are doing today (actually, as of October 1998), based on a survey of 1,200 Internet users. This study estimates that 30 million households, or 58% of Internet user households, use the Web to research stocks, bonds, and mutual funds. Roughly 30% of Internet users claim to have electronic checking accounts, and about the same amount report that they have shopped online for mortgages, home-equity loans, and credit cards. One-quarter to

one-third of those who shopped for credit products actually submitted applications online, indicating that consumers are rapidly overcoming concerns about privacy and security.

Survey data show high awareness, with more consumers moving online. Research by Cyber Dialogue (Table 3-2) shows high awareness among Internet users for a variety of financial products, ranging from 59% for online banking to 26% for trading. The “conversion rate” (i.e., the number of people actually using a product expressed as a fraction of those who are aware of it) is highest for trading (27%) and banking (20%), followed by credit cards, mortgages, and other loans, in descending order. Among those Internet households that intend to use financial products online, we see a similar pattern. The highest conversion rates are for trading (56% of Internet users who are aware of online trading intend to use the product) and banking (43%). This data is important. It suggests to us that **the convenience factor implicit in banking and trading online is still a stronger motivating factor than the price benefits that presumably drive online loan applications.**

Table 3-1

Where We Are Right Now: Consumer Usage of Online Financial Services

Adult heads of households in the U.S.*

	Mil	% Net User HHolds	% Total U.S. HHolds
Routinely use Internet	51.3	100%	50%
Research stocks, bonds, and mutual funds online	30.0	58%	29%
Comfortable using credit cards online	21.5	42%	21%
Have an electronic checking account	16.0	31%	16%
Transfer money/verify balances	10.0	19%	10%
Pay bills	8.0	16%	8%
Shop online for mortgage / home equity	15.0	29%	15%
Use online info when applying	9.5	19%	9%
Apply online	1.0	2%	1%
Shop online for credit cards	15.0	29%	15%
Apply based on info found online	10.5	20%	10%
Shop online for life, health, or property insurance	10.0	19%	10%
Apply based on info found online	3.5	7%	3%
Apply online	1.7	3%	2%
Trade online	9.0	18%	9%
Shop online for best CD rates	7.0	14%	7%
Purchase CDs based on info obtained online	2.5	5%	2%
Purchase CDs over internet	1.0	2%	1%
Open savings or money market accounts online	2.5	5%	2%

Source: Brittain Associates e-Financial Services and the Internet, October 1998.

* Total number of households in the U.S. is 102.5 million as of 12/1997.

Table 3-2

Awareness and Usage of Online Services by Cybercitizens

	On-line Trading	On-line Banking	On-line Credit Card	On-line Mortgage	On-line Loans
Awareness among Cybercitizens	26%	59%	46%	31%	31%
On-line usage (or on-line application) among Cybercitizens	7%	14%	6%	2%	2%
Conversion rate	27%	20%	14%	6%	6%
On-line usage intenders among current Cybercitizens	8%	14%	5%	4%	4%
Intender conversion rate*	56%	43%	24%	20%	20%

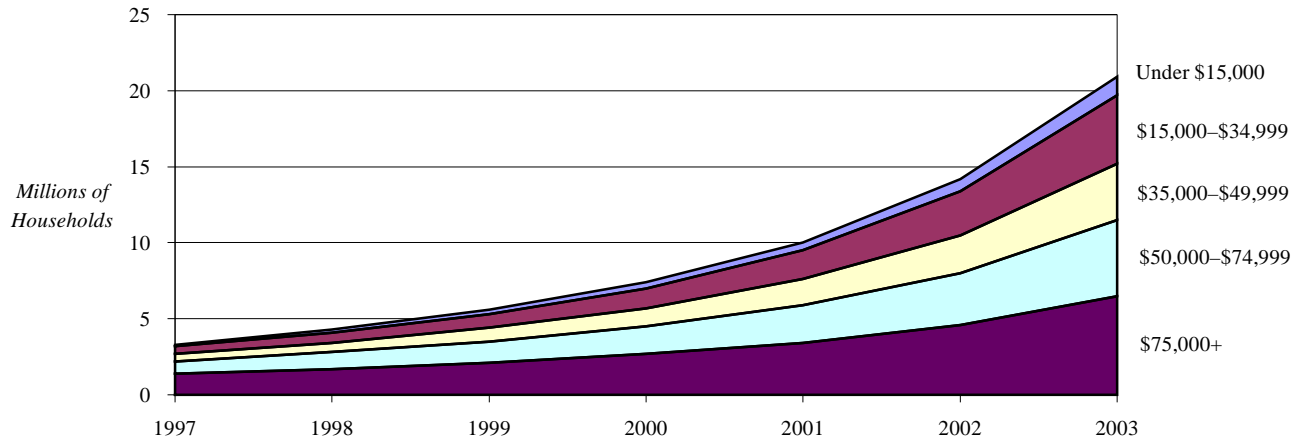
Source: Cyber Dialogue

* Calculated by dividing the sum of users and intenders by the awareness number

Note: CyberCitizens are defined as U.S. adults of age 18 and older who use either or all of the following: e-mail, the Web, and any commercial on-line service.

Figure 3-3

Forrester Forecast of Online Finance Households

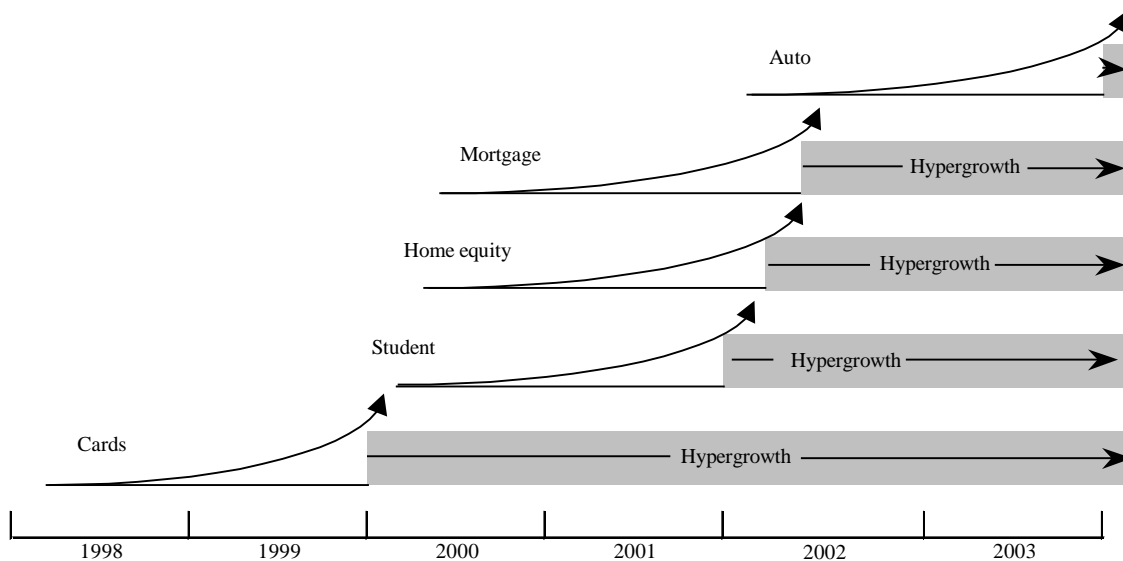


Household Income	1997	1998	1999	2000	2001	2002	2003	CAGR
Under \$15,000	0.1	0.2	0.3	0.4	0.5	0.8	1.2	40.9%
\$15,000-\$34,999	0.5	0.7	0.9	1.3	1.9	2.9	4.5	46.1%
\$35,000-\$49,999	0.5	0.6	0.9	1.2	1.7	2.5	3.7	39.7%
\$50,000-\$74,999	0.8	1.1	1.4	1.8	2.5	3.4	5.0	34.1%
\$75,000+	1.4	1.7	2.1	2.7	3.4	4.6	6.5	29.3%
Total	3.3	4.3	5.6	7.4	10.0	14.2	20.9	35.6%

Source: Forrester Research

Figure 3-4

Forrester's View on the Hockey Stick for Credit Products



Source: Forrester Research

Early Adopters Come from the “Emerging Affluent”

Much of the technology mentioned above, such as online bill presentment (once it is finally perfected), will offer truly compelling benefits to consumers across all segments of the population, in our view. What’s available today, principally online brokerage and banking, has attracted early adopters from what Forrester Research calls the “emerging affluent” segment, a techno-proficient, educated, young demographic with average income of almost \$70,000. Figure 3-3 shows Forrester’s projection for growth in U.S. online finance households. Of note, the projected 35% growth rate in total online households over the next four years is primarily driven by households with \$75,000 or more in annual income.

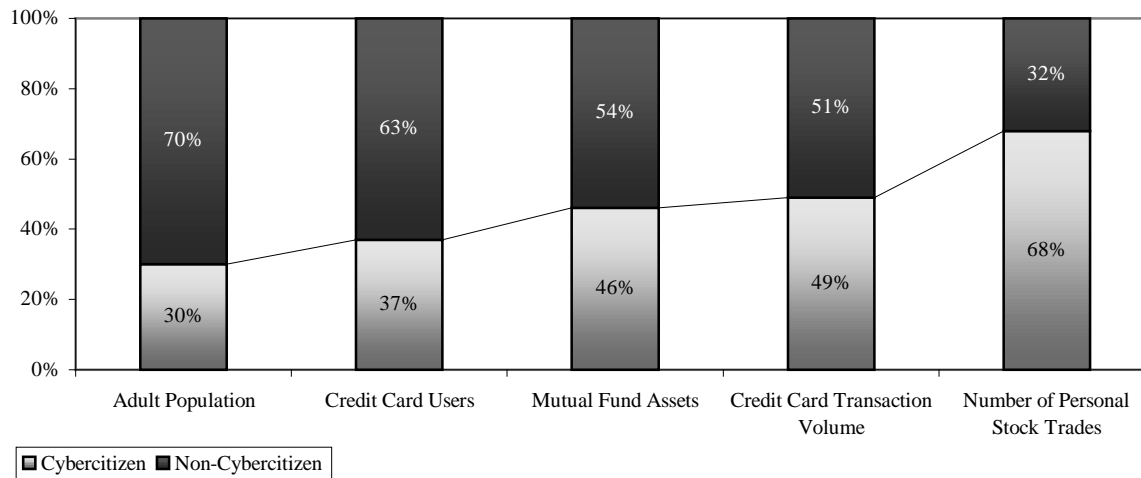
Online transactors are an important demographic segment for financial services. They’re affluent, technology proficient, creditworthy, and heavy users of most financial products. For more detail on this slice of the U.S. demographic pie, we’ve turned to PSI Global for data on what it calls the “younger affluent” segment (defined by income of \$100,000 or greater and age under 40 and accounting for 3.2 million households in the U.S.). Yes, this is a technology-proficient segment: 82% own a personal computer, 36% use financial software, 61% are online on the Internet, and 45% already transact online. And the segment is an active

consumer of financial services, with higher-than-average ownership of and average balances related to virtually all financial products (Figure 3-6). For some additional perspective, we note that Cyber Dialogue estimates that Internet users account for 30% of the U.S. adult population, 37% of U.S. credit card users, 49% of card transaction volume, 46% of mutual fund trades, and 68% of personal stock trade (Figure 2-7). MBNA finds that Internet customers spend 2.5 times as much as their offline counterparts.

This demographic skew is meaningful. For one, Internet financial services strategies should be able to produce substantial revenues, given that small numbers of affluent customers control large amounts of assets. Secondly, the threat to offline financial services firms could be significant. The so-called “80/20” rule holds that 20% of an average bank’s customers generate 80% of its profits. Offline banks that lose even a small number of their affluent customers to the Web could thus suffer outsized revenue pressure. According to PSI Global’s estimates, the “younger affluent” and “affluent” segments together account for 6 million households, or 6% of the U.S., but about \$54 billion in revenues, or 20% of the \$270 billion in total consumer financial services revenues in the U.S. As these folks migrate to the Web, they’ll leave a painful hole behind for offline firms that can’t keep up with them.

Figure 3-5

Internet Users Are an Important Demographic for Financial Services!

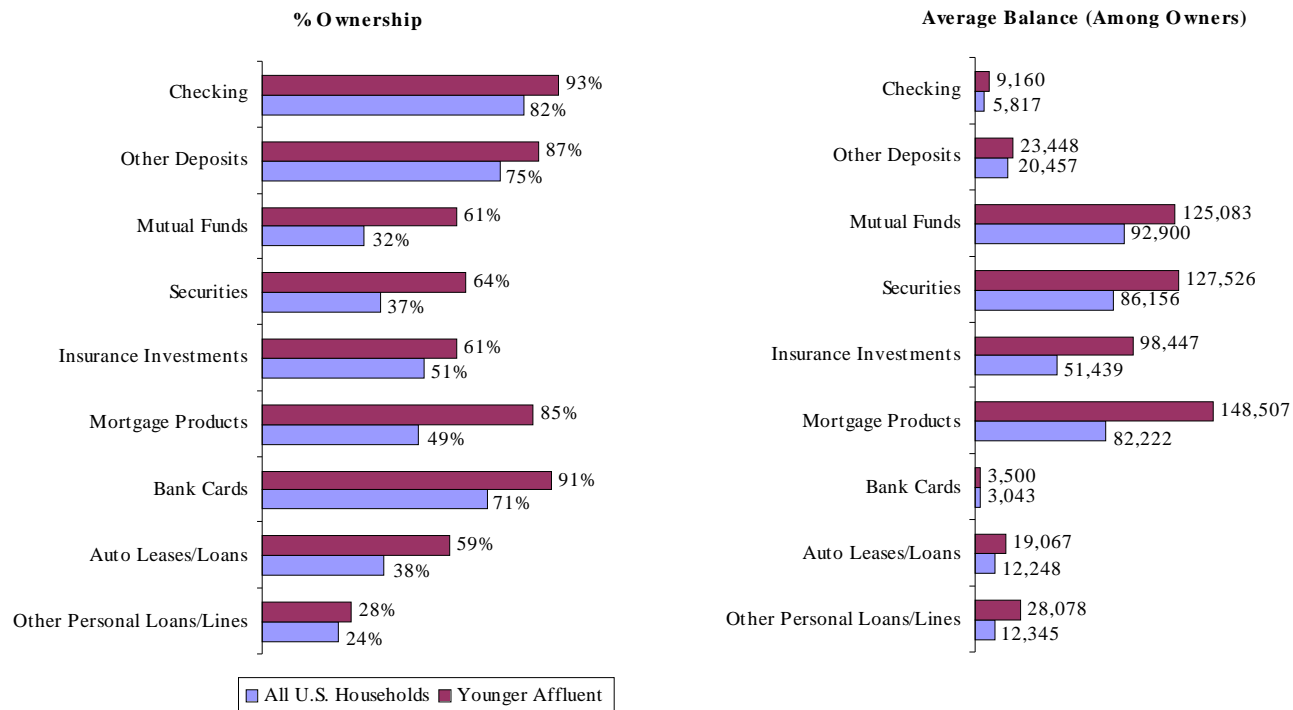


Source: Cyber Dialogue

Note: CyberCitizens are defined as U.S. adults of age 18 and older who use either or all of the following: e-mail, the Web, and any commercial on-line service.

Figure 3-6

The “Younger Affluent” Segment Is an Active Consumer of Financial Services



Source: PSI Global 1998 Consumer Segment Fact Sheets

Over time, we expect broader middle market segments to follow these early adopters online as the convenience and cost-saving benefits of transacting online become clear. Recent surveys suggest that the Internet is quickly becoming home to mainstream America. According to Pew Research Center, new users are significantly older, less educated, and less affluent than those already online. Of course, there could be lags and delays as older and less affluent segments of the population might move more slowly to embrace new technology. Forrester finds that it has taken about two years of Internet experience before households embrace online financial services.

Internet Consumers are Savvy and Price Sensitive, But are also Attracted to Brand

Clearly, the Internet will intensify price competition. The greatest fear among financial services firms is that the Internet will make it easier to compare prices, resulting in even further commoditization of financial products, reduced switching costs, and hence additional margin pressure. In fact, this is already happening, as consumers are using the Web to shop for information, even if most don't yet go the

extra step of applying online. However, research is also showing that the Internet intensifies the importance of brand. With an almost unlimited number of choices, consumers seem to be relying even more on trusted names, even if it means a slight premium in price. As such, we believe the Internet will work to the advantage of large financial services firms with accepted brand names, such as American Express or Citigroup.

Web-savvy consumers are price sensitive. Data from Cyber Dialogue's research (Figure 3-8) show that Internet users are more likely than non-users to compare mortgage rates, compare loan rates, switch to lower rate credit cards, join discount shopping clubs, and use the Internet to compare mortgage information and rates. Common sense suggests that the spread of online applications with immediate approvals will make it easier to shop for the best rates. Lower search costs mean lower switching costs. As such, we'd expect the Internet to stimulate "teaser surfing" among credit card borrowers, rapid refinancings by mortgage borrowers, and greater price sensitivity for life insurance. Additionally, Web users show a modestly lower propensity to

obtain mortgages from their primary banks, indicating that price sensitivity could erode existing relationships. (Of course, we've found that mortgages are generally difficult to cross-sell, because the big-ticket nature of the obligation makes consumers extra price-sensitive.)

The growing popularity of online auction-style market places highlights the price-sensitivity of many consumers. LendingTree.com was one of the first sites that let lenders bid on consumer loan prospects. In partnership with Priceline.com, the popular consumer auction marketer, LendingTree now offers a different twist: consumers can submit bids for loans on the terms they'll accept. Another site called realestate.com also promises to help lenders bid on residential mortgage prospects. These sites and others will certainly attract loyal users among the most price-sensitive portion of the population.

However, brand, a trusted name, and existing relationships are still critically important for many online users. In a world with nearly unlimited choices, many consumers

zero in on names they know. Jupiter Communications believes that 23% of online users are "brand-needy," meaning that they search on the Web for trusted names from the offline world (Figure 3-7). We believe that this percentage will increase as the Web becomes more mainstream. Cyber Dialogue found that only 13% of the Internet users they surveyed would change financial services providers in order to use online services. Fully 52% of those surveyed indicated they preferred to use the same financial services provider online and offline. These data points suggest that many people will be very slow to leave existing, known, trusted providers behind.

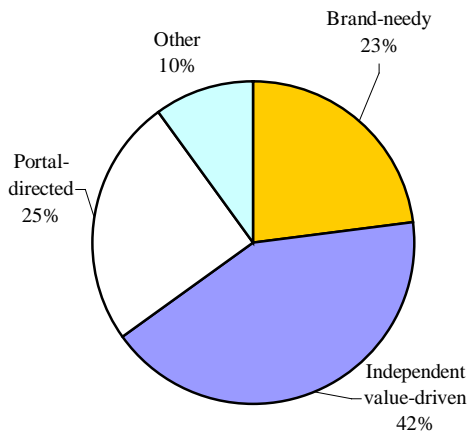
However, these advantages could erode quickly. Cyber Dialogue's researchers find that the proportion of Internet users that would change financial services providers rises significantly as these consumers spend time on and get more comfortable with the Web.

Brand affects pricing. We've found in studying the mortgage sector that many borrowers will pay a modest premium for a mortgage from a recognized lender in order to assure themselves of good service and a quick closing. As a proxy for brand power among financial services firms, we note that Merrill Lynch, American Express, and Citigroup top the list of the annual Fortune ranking of most admired financial services firms.

Financial products from a technology company? — No, thank you. In a recent survey, Forrester Research found that only 1% of the "emerging affluent" consumers they surveyed claimed they would be extremely likely to turn to technology companies to consolidate or purchase financial products. Instead, as we show in the following table excerpted from their study, most respondents prefer to go to banks for credit cards, checking accounts, and mortgages; to insurance companies for life insurance; and to brokerage companies for stocks and mutual funds. This study illustrates the difficulty in extending an Internet brand into financial services, where trust is a critical factor.

Figure 3-7

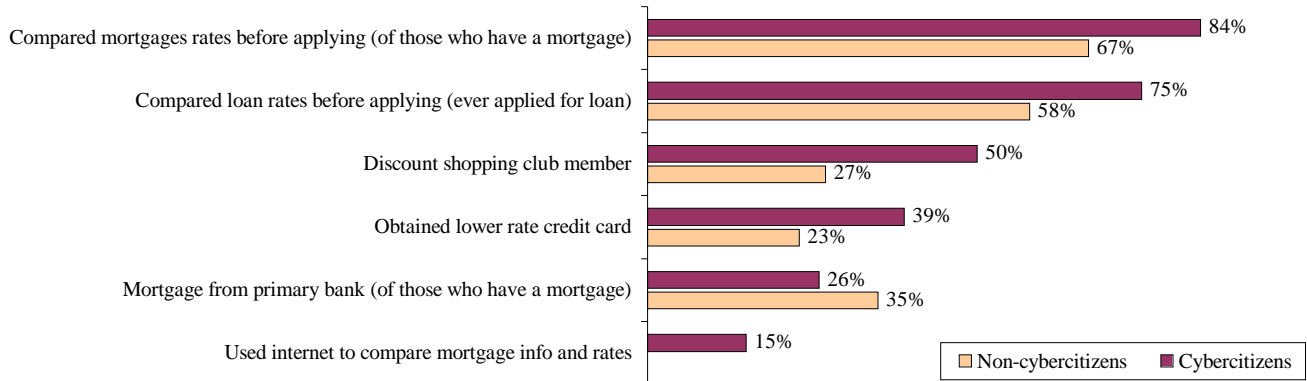
**Consumer Behavior on the Web —
Some Want Brand, Some Want Price**



Source: Jupiter Communications

Figure 3-8

“Cybercitizens” Are Smart Buyers



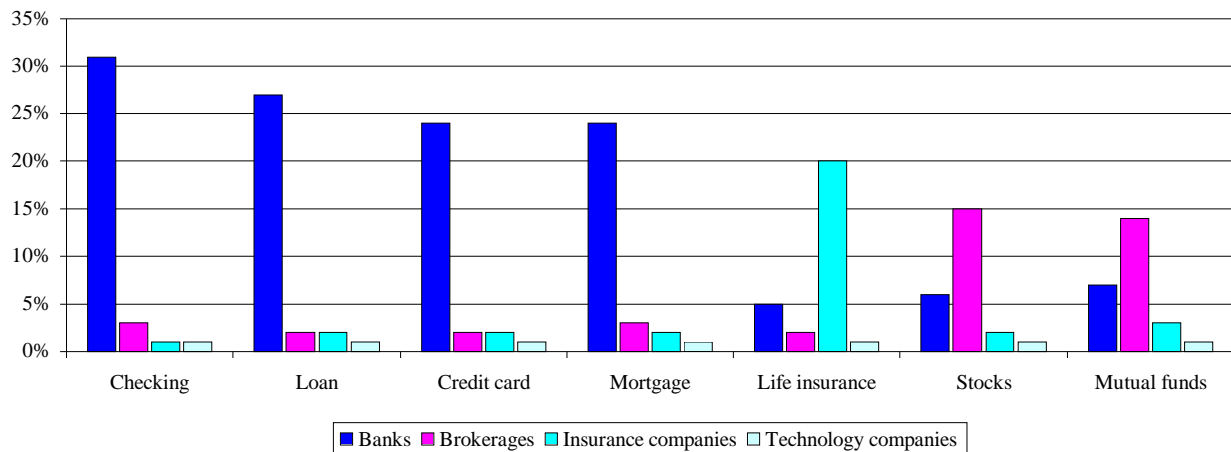
Source: Cyber Dialogue

Note: CyberCitizens are defined as U.S. adults of age 18 and older who use either or all of the following: e-mail, the Web, and any commercial on-line service.

Figure 3-9

Emerging Affluent Attitudes: Not Interested in Financial Products from Technology Companies

“How likely would you be to use this intermediary to buy this product?” (Summary of “extremely likely”)



Source: Forrester Research.

Section 4: The Credit Card Industry and the Future of the Payments System

We foresee the biggest revenue opportunities for the credit card industry in stimulating e-commerce. Credit cards began as a payment device. Then issuers realized that cards were a convenient vehicle for offering unsecured loans, a complementary product. In this section, we review the basics of the credit card payment system, discuss the future of Visa and MasterCard, forecast growth in charge volume resulting from Internet purchases, and discuss the potential of the Internet to introduce competitive payment systems.

As we all know, the primary role of a credit card is to facilitate purchases of goods and services. Some of the benefits of the card as a payment vehicle include liberal rewards programs, the safety of not having to carry cash, protection against fraud, detailed billing statements, and in most cases an easy pre-approved loan when purchases go over budget. Cards can also carry identity, whether the brand of a trusted financial institution or retailer, the logo

of an alma mater, trade organization, or sports team, or even a personal picture.

Introduction to the Payment System

To consumers, using a credit card is easy — all too easy, as many of us discover from time to time. Underlying this transaction is a highly evolved processing system. Let's review the steps in the credit card payment process.

The merchant swipes the card and foots the bill. When a customer makes a purchase with a credit card, the merchant swipes the card at the POS (point-of-sale) terminal and enters the amount of purchase. The information is then transmitted for authorization to the issuing bank via the Visa or MasterCard network, or, in the case of American Express and Discover, directly to those firms. The issuing bank confirms that the cardholder has available credit to cover the purchase and verifies that the card has not been reported lost or stolen. Settlement usually occurs within

The Credit Card Industry and the Future of the Payments System: Key Points

- **The importance of credit cards as a payment system will grow,** and their usage will increase relative to checks and cash. We don't see the Internet (or other technologies) as much of a threat to the domination of credit cards, at least at this time. We view smart cards as a complement to, rather than a substitute for, credit card usage.
- **E-commerce will provide an important lift to charge volume growth.** E-commerce will depend on credit cards for the foreseeable future and could elevate charge volume growth from a 10% annual rate to 15% per year. Business-to-business payments, which are larger than consumer-to-business payments, and which are relatively unpenetrated by credit cards, provide the biggest online growth opportunity.
- **Visa and MasterCard may decline in importance, to the benefit of large credit card issuers.** The importance and strength of the two associations, Visa and MasterCard, could decline, as large issuers seek to build their own brand recognition without subsidizing smaller competitors.
- **Controlling the payment system and gathering data on consumer purchase patterns will continue to create strategic advantage.** Issuers will use interchange income (at the expense of merchants) to build strong consumer relationships by offering high-value-added rewards/loyalty programs, which consumers will come to view as the primary value proposition for using cards.
- **Integrating credit and debit products could become strategically advantageous.** The chief substitute or competitive product for the credit card is the debit card. Volume is growing rapidly (around 50% per annum) and equals 10% of credit charge volume. Banks that already offer both products are best positioned.
- **Bill presentment could be a big opportunity, but will likely go to providers of checking accounts (which are basically the banks).** Credit card issuers may offer bill presentment and payment as tactics to stimulate use of credit cards. But unless they act quickly, they will lose out to banks that offer checking accounts, as consumers appear to view banks as the most logical sites for viewing and paying their routine bills. Banks that offer both credit cards and checking accounts are best positioned, in our view.

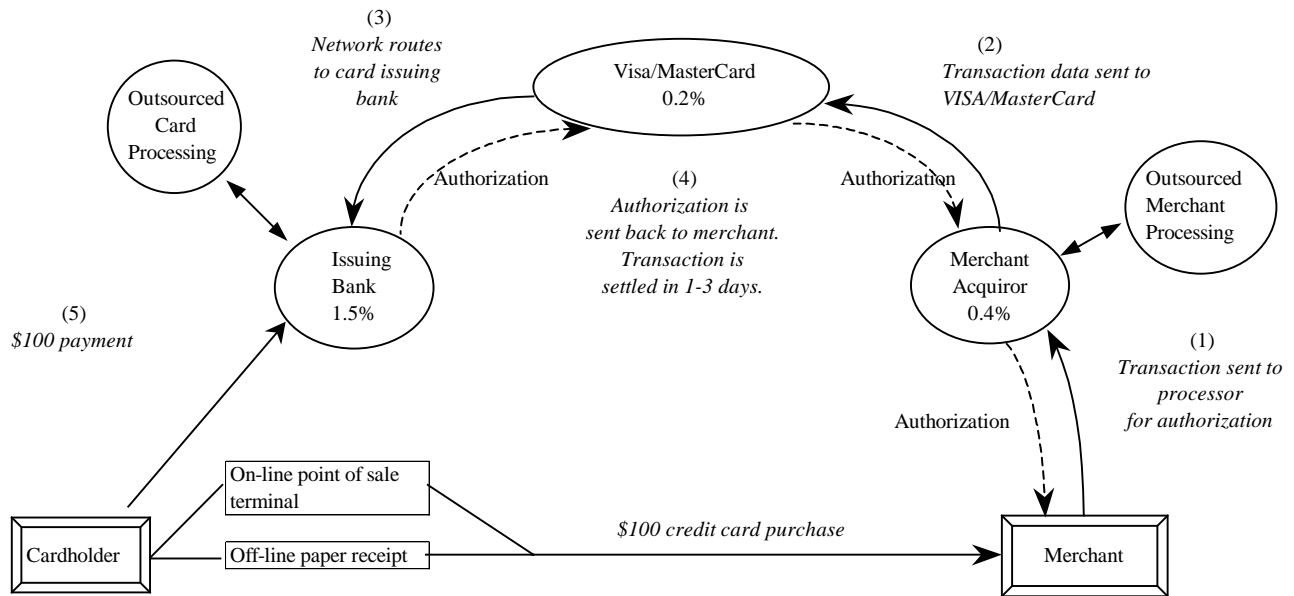
1–3 days in the U.S. Merchants foot the bill for processing credit card transactions through the entire distribution chain, paying what’s called the “discount,” which can range from 1% to more than 4% of the sale, depending on geographic locale, type of product or service, size of merchant, and the policy of the association.

The “discount” goes to merchant acquirers, credit card issuers, and the associations. Figure 4–1 illustrates how the credit card payment system works. The “merchant bank” establishes relationships with merchants (or “acquires” them, in industry parlance), providing them with accounts and, in some cases, point-of-sale equipment. Merchant banks sometimes outsource the processing and servicing to third-party merchant processors. Merchant

banks typically retain a portion of the discount (averaging something like 0.4%) to cover their costs. The remainder of the discount, called the “interchange fee,” goes to the card issuer and typically averages 1.3–1.5% of transaction volume. Many card issuers, particularly those without economies of scale, outsource various processing and servicing tasks (see Table 4–2). The credit card associations, Visa and MasterCard, collect approximately 0.2% of the transaction value in the form of authorization, settlement, and assessment fees paid by issuers and merchant banks. The associations are responsible for maintaining the network infrastructure, guaranteeing payments in the case of fraud or bankruptcy, and maintaining consumer awareness of and trust in the networks through advertising and brand building.

Figure 4–1

The Credit Card Processing System



Source: First Data, Morgan Stanley Dean Witter Research

Merchants grumble about paying the discount. They're unhappy because they lose 1–4% of the sale when customers use credit cards, where there is very little cost to them for cash and check transactions. They complain that the discount, which comes out of their thin margins, goes to fund frequent flier programs and other perks — and they're right. However, they don't have much choice, because it's hard to tell consumers that they can't use their favorite method of payment, particularly when they are eager to collect those miles and when each consumer has choices among many merchants. It's also hard for the merchants to exert leverage on the issuers, as there are thousands of merchants and only a few issuers. The bottom line is that the merchants' bargaining position is weak. To be fair, merchants benefit from accepting credit cards because cards drive impulse spending higher. Merchants benefit from reduced cash handling (and shrinkage) and lower returned-check fees and losses with cards. Also, payment is guaranteed by card and is faster than by check.

American Express charges the highest discount rate, averaging 2.70–2.75%. It gets away with this margin because its consumers are more affluent and spend more than average. For instance, the margin on a basket of goods purchased at a supermarket by an American Express cardmember tends to be higher (32%) than for the average Visa/MasterCard cardholder (28%). Also, American Express uses its closed loop system (see below) to provide useful information to merchants, such as profiles of customers and their spending patterns. Visa and MasterCard recently raised the interchange rates charged to merchant acquirers by about 10%, to 1.38% plus \$0.05 per transaction (Visa), and 1.36% plus \$0.10 per transaction (MasterCard). Assuming merchant banks receive 0.4%, this would equate to a total discount of around 2.0–2.1% charged to the merchant, significantly below that of American Express. Discover has the lowest discount rate, at just under 2% all-in.

The “closed loop” controls the entire process. American Express and Discover control the entire process, without relying on merchant banks or an intervening association. This provides them with certain benefits. For one, their control of all the information in the process allows them to provide helpful data analysis to merchants — for example, identifying which customers are the biggest spenders. Second, their closed loops provide them more detailed in-

Table 4-1

Leading Merchant Acquirers

(\$ Millions)

	1998 Dollar Volume
1. Chase Merchant Services	\$120,256
2. National City Bank	85,573
3. Paymentech	53,861
4. Nova Information Services	47,500
5. BA Merchant Services	39,428
6. Fifth Third Bank	33,541
7. First Data Corp.	28,646
8. U.S. Bancorp	24,613
9. Wells Fargo	24,551
10. First National Bank of Omaha	19,214

Source: *Faulkner & Gray's Credit Card Issuers' Guide, 1999*

Table 4-2

Leading Credit Card Processors

(\$ Millions)

Processor (Ancillary Services)	Number of Transactions in 1997		
	Total	Merchant	Cardholder
1. First Data Merchant Svcs. (a-d)	5,300	5,300	NA
2. Total System Services (b,c)	3,400	NA	2,100
3. Vital Processing Services (a,c,e)	2,770	2,770	NA
4. First Data Credit Svcs. (a-e)	2,700	NA	2,700
5. Global Payment Sys. (a-e)	2,700	2,653	47
6. EDS Card Processing (a-c)	2,465	589	1,876
7. Paymentech (NA)	1,600	1,600	NA
8. National City (a,c,e)	1,460	1,460	NA
9. Alliance Data System (a-e)	1,023	923	NA
10. BUYPASS (NA)	1,000	1,000	1,000

Ancillary Services:

- (a) Charge-back resolution.
- (b) Embossing/encoding.
- (c) Fraud, new account processing.
- (d) Customer service.
- (e) Back-office support.

NA = Not Available

Source: *Faulkner & Gray's Card Source Directory, 1999*

formation about transactions than what is available to Visa/MasterCard issuers. Third, controlling the entire process facilitates innovation. For example, American Express is pilot-testing a new system that will provide special discounts to card members at the point of sale. Finally, their marketing dollars go to building their own brands, rather than subsidizing a shared brand.

Private-label credit cards (which can only be used at a single merchant) also involve closed-loop systems and as such provide an interesting opportunity for e-commerce. GE Capital, Household, and The Associates are the largest issuers of private label cards.

The most interesting change on the horizon could be the declining strength of the associations — Visa and MasterCard. These associations are powerful entities.

They set the rules for the two most important payment networks in the world. They have multi-billion dollar budgets, resulting from payments by their members. They've spent hundreds of millions of dollars on advertising, and, as a result, their brands are better recognized than those of most issuers (see Section 5).

However, they may be gradually outliving their usefulness. For one, some of the largest issuers, like Citibank, increasingly prefer to build their own brand identity. They would like to reduce the associations' share of the discount (0.2% of sales), much of which goes to subsidizing the associations' brand, in essence giving small issuers a free marketing ride. Furthermore, the associations' guarantee of payment is presumably worth little for transactions between large issuers and highly creditworthy merchants. Citibank executives recently resigned from Visa's board of directors, suggesting the issuer would move most of its business to MasterCard. According to the press, one of the benefits they received from this deal was the ability to

relegate the MasterCard logo (or "bug," as it's called in the industry) to the back of the card, thus highlighting the Citibank brand on the front. Both Visa and MasterCard appear to be contemplating tiered assessments, whereby they would charge lower fees to large issuers and devote fewer resources to new product development and marketing.

Separately, the Department of Justice has sued Visa and MasterCard to put an end to the alleged collusive behavior of the two associations. As an example, Visa and MasterCard have similar rules prohibiting members from partnering with other networks, such as American Express. If the DOJ wins its lawsuit against the associations, their power will be reduced another notch, as they will be forced to compete with American Express and Discover.

The Principal Substitute for Credit Cards Is Likely to Be the Debit Card

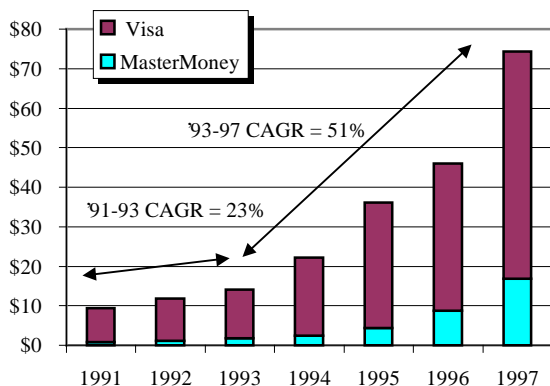
Debit cards are a potential substitute for credit cards. Volumes are currently small (still under 10% of credit card charge volumes) but growing quickly. Card issuers earn roughly the same interchange from debit card usage as from credit card. As such, debit cards represent a threat to monoline credit card issuers. Banks that offer both credit and debit cards should not face a risk. Up until now, there has been little incentive for consumers to use debit cards. However, banks are starting to adopt incentives and rewards programs similar to those in the credit card industry to encourage increased debit-card usage. As an example, Chase recently created a co-branded debit card with Continental Airlines.

The debit card deducts funds from a checking account rather than creating a receivable balance. Visa and MasterCard offer debit cards through bank issuers that work through their existing networks. There is some uncertainty as to what interchange fee issuers and associations will be able to charge from debit card use. Major retailers like Wal-Mart have sued the associations over their attempts to force acceptance of debit cards and charge the same interchange rates for offline debit transactions as they do for credit. After all, retailers currently pay no fees for checks (although there are some indirect costs), which are also debited from consumers' accounts, or so the argument goes.

Figure 4-2

Debit Card Volume Is Taking Off

(\$ Billions)



Source: *Faukner & Gray's Card Industry Directory, 1999*

Could the Internet Threaten the Dominance Of the Card Payment System?

Theoretically, the Internet could make it feasible for merchants and issuers to connect on the Web, without the need for a private network. The average 2% discount that merchants pay is in many cases quite high relative to their margins. Internet merchants pay even higher discounts (up to 5%) because of fraud and other issues. We estimate that there are around 40 basis points in profit for card issuers out of the 2% discount. So there's an incentive for entrepreneurs to develop new technologies that can match transactions at a lower cost. However, new systems face a significant chicken/egg problem: Credit cards are already popular with consumers and widely accepted by merchants.

We don't see much threat to the dominance of credit cards at this time, although we'll clearly have to monitor new technologies that might threaten the status quo. We've heard anecdotally of schemes to develop payment systems that would bypass the associations and reduce the discount merchants have to pay. In general, we view the threat to credit cards as low, because we don't think there is a great deal of fat in the distribution chain. Out of the 2.1% average discount, 0.4% goes to the merchant bank for underwriting merchants and providing them accounts, a function that we envision remaining necessary for the foreseeable future. The card issuer earns a considerable 1.0–1.5% of sales as its interchange fee. But most of this (anecdotally, 0.5–1.0% of sales) is spent on affinity endorsements and rewards programs, a cost that new systems will face if they are to have any hope of generating consumer interest. There could be some excess in the associations' fees (0.2% of sales). But this isn't a large window, given the popularity of the current card system. And, to match the associations, alternative systems would have to provide security, routing, clearing services, rapid response time, currency conversion, and insurance.

The development of electronic cash will probably capture some volume of e-commerce in coming years. However, we believe that consumers will use electronic cash for small-ticket transactions, just as they use cash in the offline world, and continue to use credit cards for bigger purchases, so as to maximize rewards program benefits. The industry has not yet agreed on a standard technology for

electronic cash. And consumer acceptance is a long way off, in our view.

Paperless checks aren't a major threat, in our view.

Some companies are working to develop technology that would allow consumers to write paperless checks to pay for purchases over the Internet, using the ACH clearing system. Citigroup will offer this option in its e-wallet. For many transactions, this system requires the generation of a paper check, which can take up to 7 days to arrive in the mail and then clear, thus delaying the shipment of products. Also, consumers don't get rewards program benefits from checks, nor can they dispute their payment in the event of poor quality of goods or services received or be reimbursed in the event of fraud. As a result, we don't think this payment method will build much momentum in the near term.

“Online” debit card transactions (which are approved through proprietary regional networks) are much less costly than “offline” (which run through Visa's and MasterCard's networks.) Online transactions average only 2 to 15 cents per purchase compared to around 2% of the sale for Visa and MasterCard processing. However, online processing requires that the card be physically swiped and that the consumer enter a PIN. Two vendors, Innovonics and UTM Systems, are developing low-cost card readers that banks can issue to online customers that will allow Internet merchants to accept debit cards online. Nonetheless, we believe that widespread consumer acceptance is a long way off, even more so if one-click purchasing through e-wallets takes off. Also, we note that some debit card issuers are raising offline processing fees in a bid to encourage greater use of offline debit cards, which provide them with higher interchange revenues.

Some technology analysts have suggested that e-merchants like Amazon.com should create their own credit card and loyalty programs to capture the 2% discount for themselves. If Amazon.com decided to offer a private-label credit card (one that works only for Amazon.com purchases) or a co-branded card, then it would likely partner with one of the existing card issuers, rather than attempt to create its own credit card issuing and servicing infrastructure. Private label and co-branded cards are already common products, and we think the online profit dynamic will be similar to offline deals.

Smart Cards Don't Change the Strategic Balance

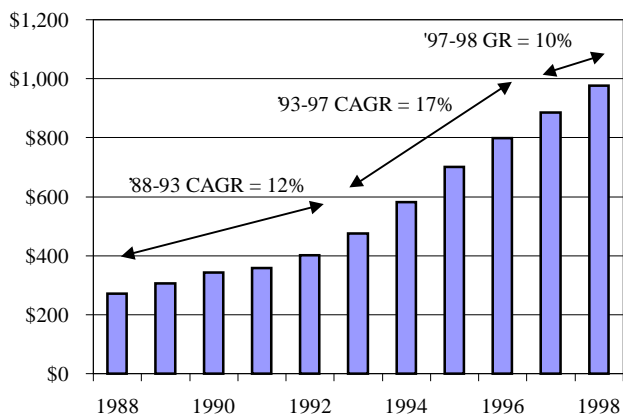
Down the road, we'll begin to see more developments in the smart card arena, although we don't think smart cards will have a dramatic impact on credit card spending in the U.S. If widely adopted, smart cards might replace a small percentage of cash payments. In some instances, smart cards will be credit and/or debit cards with embedded chips (replacing the magnetic stripe) that offer greater functionality than traditional plastic cards.

Smart cards are plastic cards with microchips that can process various types of information. These cards can be used for single functions or multiple applications. Most smart cards in the U.S. offer stored-value features, which allow customers to pre-load money onto a card and perform small payment transactions that directly reduce the value on the card. These cards are most often used in coin-operated machines, like laundromats, vending machines, or for public transit.

While the number of smart cards issued in the U.S. totals no more than a few million, there are over 1 billion smart cards in circulation internationally. Outside the U.S., smart cards have taken on greater importance, especially in societies where: 1) credit is relatively hard to obtain, often for cultural reasons; 2) inefficient or expensive telecommunications networks make instant authorizations difficult;

Figure 4-3

U.S. Charge Volume — Approaching \$1 Trillion (\$ Millions)



* Includes transaction volume on American Express charge cards.
Source: Faulkner & Gray's Card Source Directory

3) currencies are unstable; or 4) government sponsorship has facilitated adoption. Germany has implemented one of the largest stored-value and debit smart card programs, with over 42 million GeldKarte cards outstanding. In Spain, over 35 million smart cards are tied to the country's social security program, enabling people to access benefits electronically. And in Japan, Visa and MasterCard are testing multi-application, chip-based cards that can be used for offline and Internet purchases.

Recently, American Express announced the licensing of its multi-application framework to major players involved in the development and implementation of smart cards, including MasterCard, Visa, Microsoft, IBM, Sun Microsystems, and Proton World. Because of support from its competitors, American Express's framework is likely to become the industry standard, allowing for global and open interoperability of smart cards, which will pave the way for future smart card development. Smart cards will work especially well in travel and entertainment, where they can facilitate electronic booking and ticketing of travel reservations by storing information, like corporate policies and individual profiles (seat preference, hotel accommodations, etc.) — an application that American Express is currently pursuing. Smart cards might also support sophisticated security systems, allowing consumers to authenticate their identity even when accessing the Internet from different locations.

We See Double-Digit Growth for Charge Volumes

We anticipate healthy 15% growth in charge volumes over the next five years, thanks in part to the ongoing gradual transition from cash and checks to plastic spending, and in part to the Internet and e-commerce. Interchange income accounted for 35% of card industry net revenues in 1998 and grew at a 14% average rate over the last five years, before slowing to a 10% annual rate since 1997. Not only will the fee income from interchange activity help make up for shrinking margins on loans, but the strategic position of the industry — which controls an important payment system — will remain strong. The Internet has already contributed to interchange revenues in a modest way (less than a 1% boost in 1998). We expect exponential growth from these levels, with the wave really starting to hit in 2002.

Table 4-3

E-Commerce Impact on Credit Card Charge Volume

(\$ Billions)	1996	1997	1998	1999E	2000E	2001E	2002E	2003E	'03/98 CAGR
U.S. Personal Consumption Expenditures (a)	\$5,216	\$5,494	\$5,808	\$6,182	\$6,558	\$6,919	\$7,299	\$7,664	6%
% Change	5.3%	5.3%	5.7%	6.4%	6.1%	5.5%	5.5%	5.0%	
Baseline Credit Card Charge Vol. Forecast (b)	\$798	\$885	\$975	\$1,077	\$1,193	\$1,321	\$1,467	\$1,628	11%
% of Personal Expenditures	15%	16%	17%	17%	18%	19%	20%	21%	
% Change	14%	11%	10%	11%	11%	11%	11%	11%	
Estimated U.S. E-Commerce Expenditures (c)	\$2	\$12	\$34	\$71	\$127	\$214	\$388	\$669	81%
% of Personal Expenditures	0%	0%	1%	1%	2%	3%	5%	9%	
% Change		399%	178%	110%	79%	68%	81%	73%	
Estimated Lift to Credit Card Spending (d)		\$5	\$11	\$28	\$55	\$103	\$187	\$323	96%
Credit Card Charge Vol. Forecast with E-Commerce Lift			\$986	\$1,105	\$1,248	\$1,424	\$1,653	\$1,951	15%
% of Personal Expenditures				18%	19%	21%	23%	25%	
% Change				13%	13%	14%	16%	18%	

Acceleration picks up in 2001/2002

(a) Estimates from MSDW U.S. economists.

(b) Includes personal and business spending volume on Visa, MasterCard, American Express charge and credit cards, and Discover.

(c) Represents total Internet spending paid for online, including personal and business expenditures.

(d) Assumes 40%-70% of e-commerce spending, including personal and business, from 1996 to 2003, respectively, is incremental plastic spending that replaces payments with cash and checks.

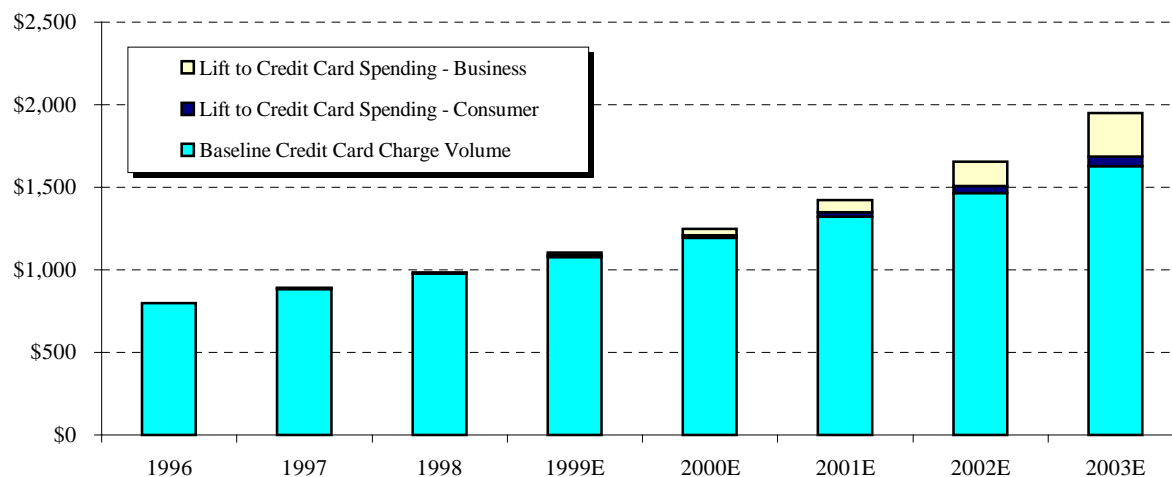
E = Morgan Stanley Dean Witter Research Estimates

Sources: Bureau of Economic Analysis of the U.S. Department of Commerce, Faulkner & Gray Card Source Directory, International Data Corp., TowerGroup, and Morgan Stanley Dean Witter Research.

Figure 4-4

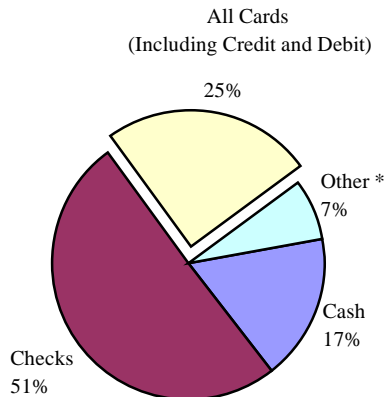
The Potential Lift to Charge Volume Is Significant

(\$ Billions)



Source: Morgan Stanley Dean Witter Research

Figure 4-5

Card Share of 1998 Personal Expenditures

* Money orders, travelers cheques, food stamps, preauthorized and remote payments.

Source: Visa USA

Growth in charge volumes starts with personal expenditures. Card spending is a function of total personal consumption expenditures, which amounted to \$5.8 trillion in 1998. Growth in personal consumption expenditures has exceeded 5% over the last several years and should accelerate to over 6% in 1999 and 2000, according to MSDW's U.S. economist, Richard Berner, thanks to the strong U.S. economy, low interest rates, low unemployment, and high consumer confidence.

Credit cards are gaining over cash and checks. Visa estimates that 25% of all personal spending in the U.S. was done with plastic in 1998 (Figure 4-5), up from 19% in 1994. We estimate that the percentage of spending on credit cards will increase by around 1 percentage point per year, largely driven by the benefits of rewards programs.

The Internet could boost charge volume growth from 11% per year to 15%. Our assumptions are laid out in Table 4-3. U.S. e-commerce spending, both personal and business-to-business, totaled a modest \$29 billion in 1998. By 2003, however, it could top \$500 billion, and international e-commerce could equal or exceed volumes in the U.S. by that time. As much as three-quarters of online spending could be incremental to credit cards for consumers and small businesses. After all, consumers use cards for only 25% of spending today, with checks still account-

ing for over 50%, and card penetration of the small business sector is even lower. But credit cards account for almost 100% of online spending, according to surveys. To be conservative, our forecast assumes that initially only 40% of e-commerce spending is incremental to credit cards. We model this ratio rising to 70% in the outer years of our forecast.

Very little spending by businesses involves credit cards today, but we believe large corporations will increasingly use procurement cards to help manage their spending. And small business owners will likely use cards for the rewards. Our forecast suggests that a wave of incremental charge volume will hit the credit card sector in 2001 or 2002, pushing annual growth rates up into the high teens or beyond.

American Express is the No. 1 issuer, measured by U.S. charge volume. Market share at Citibank and MBNA has increased from 11% to 14.5% and 6% to 8.4%, respectively, over the last two years. Bank One has moved to the No. 3 position with 9.3% share because of internal growth and the merging of the card portfolios of First USA, Bank One, and First Chicago. In total, issuers of Visa cards have captured the leading share of cardholder spending, with nearly half of total charge volume. Visa's expanding market share over the last 10 years came largely at the expense

Table 4-4

**Credit Card Market Share
Ranked by Charge Volume**

	1998	% Share
1. American Express (a)	\$165.6	17.5%
2. Citibank (b)	136.7	14.5%
3. First USA/Banc One (c)	87.6	9.3%
4. MBNA America	79.8	8.4%
5. Discover	58.0	6.1%
6. Bank of America (d)	54.0	5.7%
7. Chase Manhattan	46.8	5.0%
8. Household Bank	35.0	3.7%
9. U.S. Bancorp	30.5	3.2%
10. Capital One (Estimated)	25.3	2.7%
Top 10 Industry	\$719.3	76.1%
	\$944.9	100.0%

(a) 1998 includes Banc One and First Chicago.

(b) 1998 includes Travelers Bank

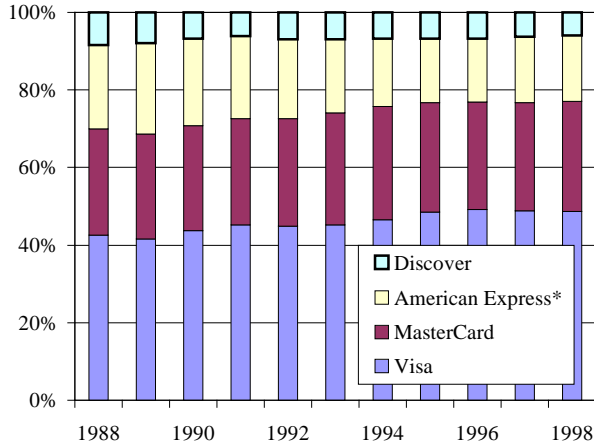
(c) Includes AmEx charge cards

(d) 1998 includes NationsBank.

Source: CardWeb, Morgan Stanley Dean Witter Research

Figure 4-6

Market Share of U.S. Charge Volume



* Includes transaction volume on American Express charge cards.
 Source: Faulkner & Gray's Card Source Directory

of American Express. However, in more recent years, American Express has experienced an uptick in its market share of transaction volume, from approximately 16.5% in 1995 to 17.5% in 1998. This improvement has been driven by the company's multiple card strategy (launched in 1996) and its focus on improving merchant spending coverage (which has increased from a low of 74% by dollar volume to over 94% today).

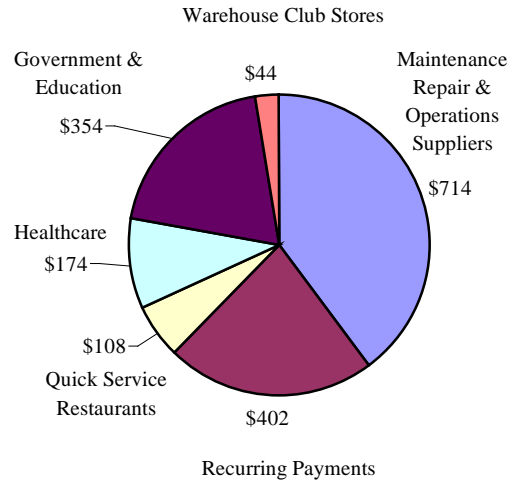
New outlets for credit card spending are emerging.

Visa International estimates a \$1.8 trillion opportunity in what it calls new and emerging markets, i.e., areas where consumers and businesses have not historically used cards as payment vehicles (see Figure 4-7). Sales volumes associated with these opportunities totaled approximately \$43 billion in 1998 (only 2% penetration). Visa projects that credit card usage in these segments will increase 32%, to \$57 billion in 1999. Rewards programs as well as convenience will likely motivate increasing usage of cards in many areas. Figure 4-8 shows a breakdown of personal consumption by category, including durable goods, non-durables, and services categories. Categories like medical care spending (15% of total) represent largely untapped markets for credit cards.

Figure 4-7

New & Emerging Market Opportunities

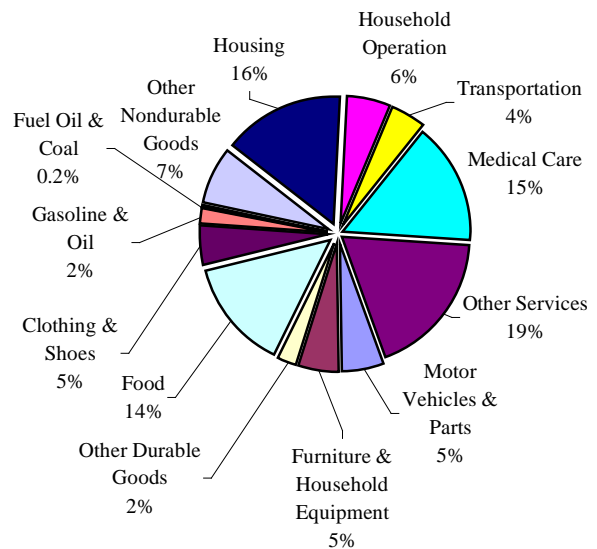
(\$ Billions)



Source: VISA International

Figure 4-8

Breakdown of Personal Expenditures



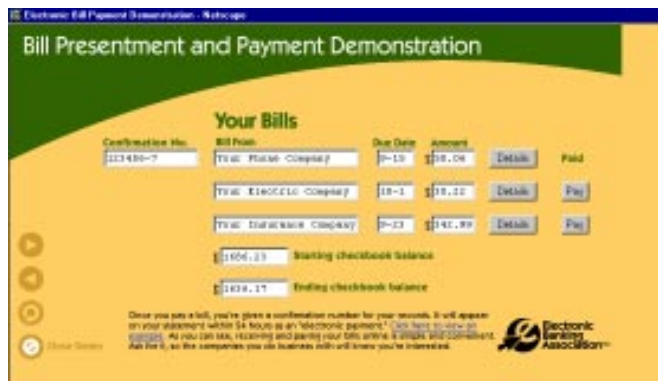
Source: Bureau of Economic Analysis

Bill payment/presentation could be a huge opportunity for credit card issuers — but banks are more likely to be the winners. Electronic bill presentation delivers bills to consumers electronically, instead of on paper through the mail. Today, consumers can pay bills electronically; bill presentation would let them receive them electronically as well. Billers obviously would benefit by reducing or eliminating printing and postage costs. Consumers would presumably find it more convenient to check bills electronically and pay them with a click of the mouse, rather than having to open envelopes, write checks, and file papers.

Bill presentation could take place over the Internet in a variety of fashions. For one, billers could simply send consumers bills via e-mail. Alternatively, bills could be presented at the billers' own websites. The process would be most convenient for the consumer if all bills were presented at a single website, either that of the consumer's bank, or perhaps at the financial services page of a popular portal. If the consumer wanted to go through the details, a click of the mouse could easily transport him or her back to the biller's website for additional information. This is called the "thin consolidator" model. CheckFree has signed up a large number of bill payers and financial services firms to its bill presentation/payment model. Microsoft and First Data are developing a bill presentation/payment system through a joint venture called Transpoint, and certain banks are developing this capability internally or through partnerships.

Figure 4-9

Sample Bill Presentation Screen



This screen shows how a consumer would see new bills presented electronically at a website. By clicking on the appropriate button, the consumer can see the details of the invoice (as the next figure shows) or electronically pay the bill.

Figure 4-10

Sample Bill Detail



Widespread adoption will likely take some time. Jupiter Communications forecasts that online households will receive (and pay) on average 3-4 bills per month in 1999, 4-5 in 2000, and 8-10 in 2002. They're projecting 60% penetration of online financial services households by 2002, equivalent to 25% penetration of online households, or about 12% penetration of total households. Currently, they estimate that 38% of online banking households (or 6.6 million households) pay bills online.

Bill presentation could help stimulate the use of credit cards to pay regular bills. Visa has identified over \$400 billion in recurring consumer payments that it believes are ripe for credit card penetration (see Table 4-5). If credit card issuers can entice consumers to use their websites for bill presentation activities, they are likely to capture a big slice of that additional billing volume and hence additional interchange income worth \$4 billion or more.

Bill presentation is also important because it helps define the customer relationship and because reviewing and paying bills is a time-consuming and hence "sticky" activity, from the perspective of the Web. Whichever firm is the consumer's choice to view and pay bills can target ads or pitch cross-sales of other products while the customer is reviewing bills.

Table 4-5

Bill Payment Opportunity for Credit Card Issuers

Segment	Total 1997 Recurring Consumer Payments (\$billion)	Current Card Acceptance Level
Insurance	\$203.9	13%
Utilities	80.1	20%
Phone companies	66.9	(a)
Cable and pay TV providers	24.1	56%
Subscription merchants	20.0	95%
Membership organizations	19.4	37%
Computer network, info and internet service providers	8.4	NA
Equipment rental and leasing	20.0	51%
Total recurring consumer payments (b)	442.8	52%

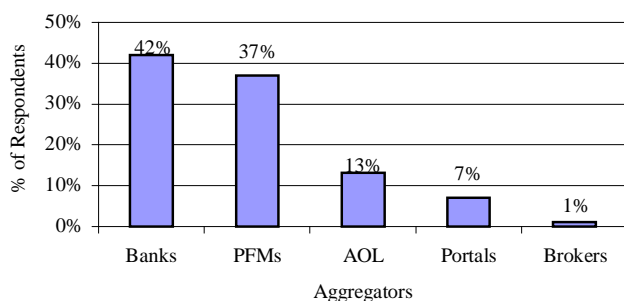
Source: PSI and Custom Research Inc.

(a) Current card acceptance level at cellular phone companies and phone utilities is 86% and 57%, respectively.

(b) Current card acceptance level is average of all segments.

If credit card issuers want this business, they'll have to move fast. Otherwise, electronic bill presentment opportunities will go to banks, in our view. Jupiter's research points to banks and Personal Financial Management (PFM) software programs/websites as having the highest acceptability for consumers as bill presentment locations. Interestingly, some of the card issuers make the point that credit cards already aggregate bills for consumers. For example, American Express can now include AT&T bills on its cardmembers' monthly statements.

Figure 4-11

Consumers Prefer Banks and PFMs for Bill Presentment

Source: Jupiter Communications.

PFM = Personal Financial Management software, such as Quicken or Money.

Business-to-Business Opportunities for Credit Cards Could be Larger than Consumer Gains

Total payments between businesses amount to \$8.2 trillion, according to McKinsey & Co., over 50% greater than the consumer-to-business segment. Issuers are targeting both big business and small business markets through corporate purchase and procurement cards. In addition to extending credit and facilitating electronic payments, procurement cards also provide businesses with valuable data on employee spending patterns and an enhanced ability to enforce corporate reimbursement and spending policies. The Nilson Report estimates total Visa/MasterCard commercial charge volume at \$50 billion in 1998, split roughly evenly between purchasing/procurement cards, small business spending, and corporate charge cards. Even factoring in American Express charge volumes, credit cards would represent under 1% of business-to-business flows.

Table 4-6

Total Payment Flows

(\$ Trillions)

Consumer-to-Business	\$5.4
Consumer-to-Government	1.1
Business-to-Business	8.2
Business-to-Government	1.2
Government-to-Consumers	1.8
Government-to-Business	0.5
Government-to-Government	0.5
Total	\$18.6

Source: McKinsey & Co.

The card industry has made more progress with small businesses. American Express estimates that small businesses spend \$1.8 trillion annually, of which 2-3% (or \$30-\$50 billion) is captured on credit cards — indicating a relatively untapped market, compared to 20%-plus penetration of consumer payments. Cyber Dialogue estimates that small businesses spent \$19 billion in online purchases in 1998, mostly on small-ticket items, and almost entirely with credit cards. We believe this growth will accelerate, especially as business-to-business exchanges facilitate orders of bigger-ticket items online. In focus group interviews, Cyber Dialogue has also found a growing need among small businesses for help in enforcing policies and tracking purchases. This demand bodes well for issuers of purchasing/procurement cards, in our opinion.

Table 4-7

Top 10 Commercial Card Issuers

(\$ Million)		1998
		Volume
1.	American Express (a)	\$24,000
2.	U.S. Bancorp	17,498
3.	Wells Fargo	12,250
4.	Bank of America	4,298
5.	GE Capital	2,456
6.	First USA/Bank One	2,258
7.	Citigroup	2,163
8.	Advanta	1,400
9.	MBNA	1,203
10.	First Union	1,176

(a) Small business only.

Source: The Nilson Report, Morgan Stanley Dean Witter Research

Business-to-business flows could be even more important online. MasterCard estimates 1998 online business-to-business spending at a modest \$14 billion. But it should grow to \$25–30 billion in 1999 and perhaps \$70 billion in 2000. Thereafter, many sources peg it at easily four to five times the size of the online consumer spending market.

American Express is pursuing an aggressive business-to-business e-commerce strategy. The company has entered into alliances making its corporate purchasing card the payment vehicle of new Internet business-to-business exchanges like Ariba and CommerceNet. (Ariba is a leading provider of business-to-business e-commerce solutions for operating resources. Ariba helps automate internal processes at organizations and, through its network, facilitates the online exchange of content and transactions between buyers and suppliers. CommerceNet is focused on facilitating the development of e-commerce on the Internet

by bringing together end-users and vendors and providing services to ensure successful integration.)

American Express has also formed alliances with three e-purchasing systems, Intelisys, Remedy, and Tradex, and is promoting the use of its procurement card to simplify payment and reconciliation without the need for paper invoices and checks. To help market its cards to small businesses, American Express recently signed on as a premier sponsor of the Netscape Small Business Channel. Finally, American Express recently announced the launch of American Express@Work, which will provide desktop business-to-business e-commerce service to help companies with purchasing, travel and entertainment, and expense reporting.

Visa has also developed a relationship with Ariba, while MasterCard has established alliances with Clarus and Microsoft and is exploring a relationship with Ariba.

International markets should also contribute to growth in charge volume for certain issuers. Nearly all of the specialized credit card issuers have ventured outside of the U.S., focusing initially on English-speaking markets, such as the United Kingdom and Canada. American Express and Citibank are the two largest U.S. global issuers of credit cards. The U.S. makes up about 50% of worldwide charge volume, and we expect faster growth in credit card expenditures overseas. However, the absence of credit bureaus with consumer credit data in many foreign countries makes it more difficult to underwrite credit risk and has slowed the penetration of credit products overseas in comparison with the U.S.

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