RESEARCH REPORT

THE EVOLVING IMPACT OF E-COMMERCE ON CANADIAN HOME OWNERSHIP FINANCE ACCESS AND AFFORDABILITY

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THE EVOLVING IMPACT OF E-COMMERCE ON CANADIAN HOME OWNERSHIP FINANCE ACCESS AND AFFORDABILITY

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ABSTRACT

This study seeks to quantify the potential impacts of e-commerce technologies on the Canadian mortgage industry and ultimately on the Canadian homeownership finance access and affordability. Using interviews with industry leaders in Canada and U.S. mortgage finance markets and extensive secondary research the authors seek to quantify the impacts of the e-commerce and related trends on the mortgage value chain, stakeholders and environment.

The study asserts that the effects directly related to implementation of e-commerce technologies by the mortgage industry will be almost invisible to Canadian consumers between the period of 2001 and 2006. However, the report suggests that e-commerce should be considered to be both a magnifier and enabler of trends already affecting the market. E-commerce could facilitate a more disintermediated model of mortgage offering in Canada – thus moving away from a vertically integrated service delivery model of today to an outsourced model involving multiple specialist service providers throughout the value chain.

However, dependent within the logic of this assertion is the development of leading edge mortgage service providers in the sales, operations, technology and funding areas. While private industry is expected to lead the development, there may also be a role for government in the funding arena in particular, to foster competition in the marketplace and to promote stability, transparency and service efficacy in the Canadian mortgage industry.

The findings for this study were based on blind interviews with over 50 industry participants and secondary literature sources.

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Introduction

E-commerce describes the process of conducting trade via Internet-enabled technologies. E-commerce makes the computer and the Internet network central to the processes of communication and collaboration between trading parties. In relation to mortgages, e-commerce describes the hardware, software and network applications that allow stakeholders in the mortgage process to share and collaborate electronically to originate, close and service a consumer mortgage online.

The focus of this study is to understand how the processes and stakeholders within a mortgage offering may be affected by e-commerce technologies and to examine the impact of these changes on Canadian home ownership finance affordability and accessibility in the period to 2006.

To date, the mortgage industries in Canada and the United States have emphasized e-commerce development differently. Therefore with the intent of understanding broader trends in the Canadian mortgage market, the report compares and contrasts U.S. and Canadian mortgage provision models and stakeholder roles in order to understand the effects of e-commerce technology on the mortgage industry structure and ultimately on the Canadian consumer.

Methodology

The findings are based on an extensive primary and secondary research effort comprising:

- Over 170 documented articles, journals and Web sources; and,
- Over 50 interviews conducted in 2001 with industry stakeholders in the U.S. and Canada, including executives of traditional and Internet banks and monoline mortgage lenders, third-party service providers, consulting firms, regulators, mortgage insurers, and real estate law professionals.

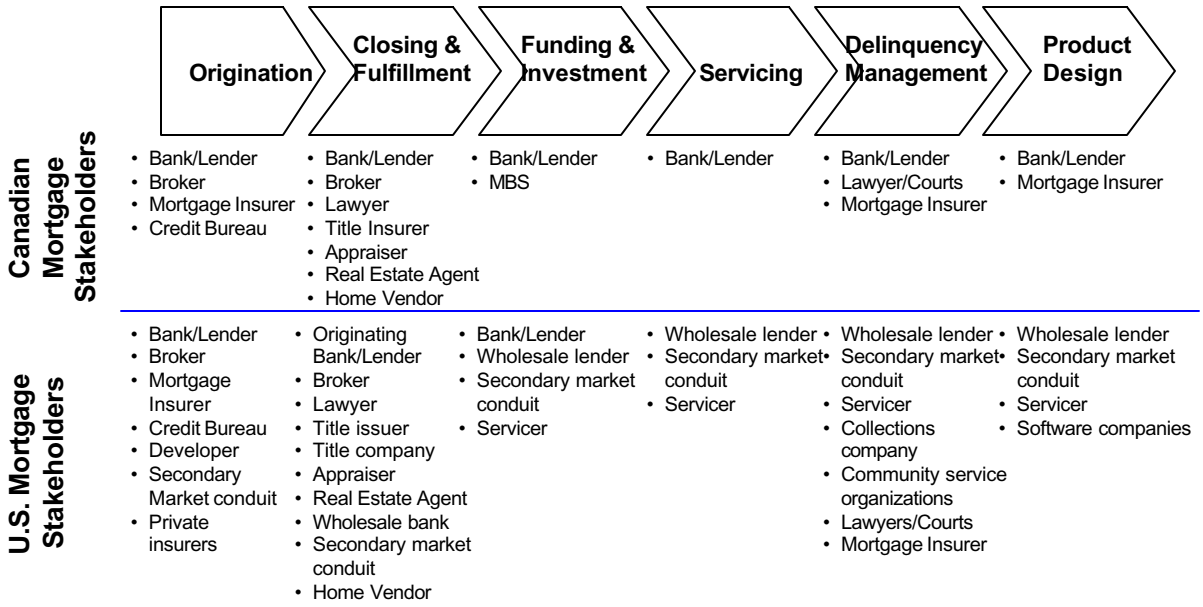
The research focused primarily on institutional responses to e-commerce technologies. The author's findings reflect the views of the opinion leaders in the Canadian and U.S. mortgage industries and related policy bodies. Because of the competitive nature of the mortgage market in Canada and the U.S., these insights are not directly attributed in the report. The study and findings were extensively reviewed by interview participants and other industry leaders in draft form to validate information, assumptions and conclusions.

Background

A mortgage describes a complex series of risk assessment, legal and financial processes involving multiple private and public stakeholders. The report uses the conceptual tool of the value chain (see Figures 1 and 18) to investigate the impact of e-commerce within the mortgage industry. The mortgage value chain is comprised of six key processes:

- Origination,
- Closing & Fulfillment,
- Funding & Investment,
- Servicing,
- Delinquency Management, and
- Product Design.

Figure 1 - Summary Mortgage Value Chain Process & Stakeholder Roles



Source: Organic, 2001

These functions are common to the mortgage process in both Canada and the U.S., although the study found that the role of various stakeholders within the mortgage value chain differed significantly, as explained below. These differences in roles were found to account for differences in industry structure and economics, and ultimately in the anticipated impact of e-commerce technologies.

The structures of the Canadian and U.S. mortgage services industries are quite different. In Canada, financial institutions tend to be large, national, self sufficient entities which, as a rule, do not look to external service providers to provide substantial components of their operations. Instead, Canadian financial institutions have tended to build proprietary mortgage processing and handling solutions within their corporate structure. The large scale and broad scope of these companies gives them economies in terms of processing and investment. Therefore, it is more likely in the Canadian scenario that a mortgage process is owned by the financial institution, as are the funding and computer systems supporting the mortgage process.

U.S. financial institutions have evolved differently given differences in regulatory and competitive structures. The U.S. mortgage services industry is comprised of about 100,000 companies. As a result the way the industry attempts to achieve economies of scale is through their suppliers. U.S. financial institutions, as a rule, tend to outsource significant components of their mortgage processes to other companies (eg. computer systems and work-function outsourcing). U.S. mortgage products are comprised of a series of outsourced components. Therefore, in the U.S. model, it is not unusual for the mortgage, while bought from one bank, to be serviced by a specialist servicing company and funded by another financial intermediary. This model is commonly referred to as a multi-party model.

The multi-party stakeholder environment in the U.S. mortgage banking system carries through also to related processes, such as title registration. The U.S. mortgage and title processing environment is significantly more complex, given the larger number of potential parties involved in the transaction there than in Canada. The U.S. system is also more flexible, sustains a wider range of competitor types and is suspected to better support innovation.

The smaller number of mortgage industry competitors in Canada, however, indicates neither a lack of economies of scale (which are accomplished through bank size and vertical integration) nor a lack of competition for consumers (as there is competition with regard to both price and non-price mortgage features).

In regard to e-commerce, many interviewees expressed the view that it is often the smaller and newer companies that are the most innovative. Such companies are much more common in the U.S. mortgage industry than in the Canadian industry.

Findings

Many interviewees expect E-commerce technologies to enable and strengthen trends already present in the market. While there has been considerable hype about e-commerce technologies in the popular media, the conclusion of this report is that e-commerce technologies, of themselves, are not a significant change agent in the Canadian mortgage industry through 2006. The effects of e-commerce are expected to be modest over this period, acting to strengthen the impacts of both previous technology advances made by the industry and other underlying trends in the market, such as outsourcing.

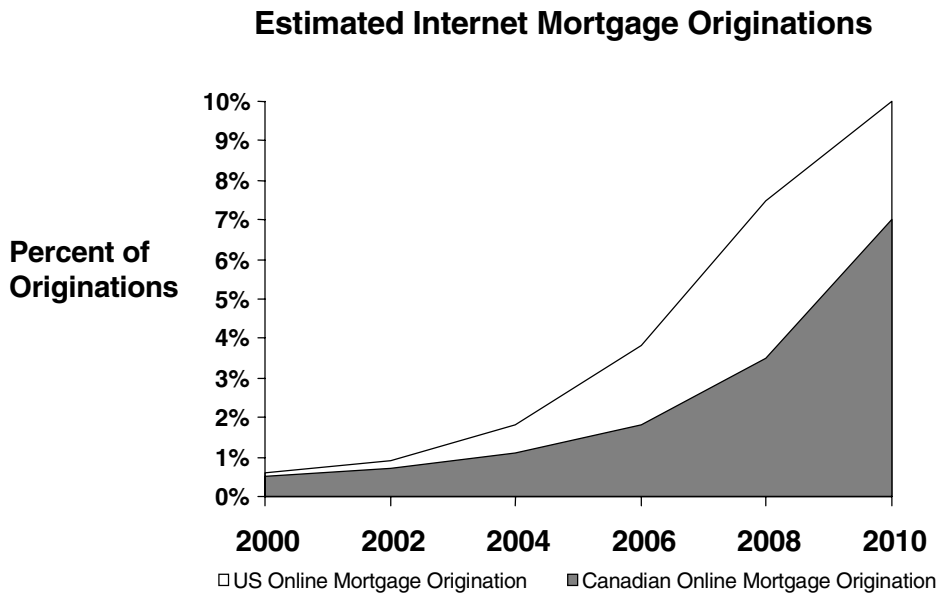
Mortgage industry firms will take different approaches in implementing e-commerce technologies. Interviewees generally indicated that most banks and other lenders in Canada and the U.S. are taking an incremental approach to implementing e-commerce solutions in their infrastructure. While a few interviewees indicated that they were considering going ahead with pilot projects of specific applications of e-commerce methodologies in their mortgage environment, respondents generally suggested that most significant e-commerce efforts in Canada are on hold until there are clear software or operational solutions in the market, as currently there is lack of clarity in the market about standards, capabilities and compatibility with existing work processes.

The most significant effects of e-commerce technologies are not expected to be felt in the Canadian market until after the 2006 timeframe. However, some changes in the Canadian mortgage industry, such as implementation of electronic documentation and workflow technologies, are expected to be enabled by technology between 2001 and 2006, and the effects of the changes enabled by e-commerce technologies are expected to be substantial in the long term beyond 2006. Several respondents noted that the impacts of these changes in time may encourage the Canadian mortgage industry to evolve toward a multi-party model – although they suggested that the Canadian multi-party model would likely not be as extreme as the current U.S. industry model in terms of scope and size.

The consensus of the respondents is that online originations will remain limited in the 2001 – 2006 timeframe in both Canada and the U.S. Online mortgage originations are expected to increase from approximately 0.5% in 2001 in both countries, to 2% in Canada and 4% in the U.S. by 2006. Given differences in structure and brand appeal, U.S. online originations are expected to grow earlier than in Canada, which remains well serviced by branch and broker structures. The research indicated that consumers in both countries currently overwhelmingly prefer dealing with humans for mortgage

transactions given the relative importance and perceived complexity of the transaction. Thus, early prognostications of online lender dominance have not been borne out in the market. Consumer willingness to transact mortgages online may change slowly as people become more familiar and more confident in online transactions generally.

Figure 2 - Online Mortgage Originations 2000 – 2010: Canada and United States



Sources: Morgan Stanley Dean Witter, Organic Interviews

Based on the research, the author concluded that e-commerce technologies such as electronic data interchange may hasten an evolution in Canadian mortgage services between 2001-2006, away from vertically integrated mortgage fulfillment processes (i.e. where a lending institution manages most components of a loan), towards a multi-party processing structure involving a number of third-party providers in operations, technology and funding roles. The forces driving this change, already contained in the current market, include:

- continuing pressure for cost management;
- increased interest in outsourcing to service providers to improve cost management in the mortgage services industry in general and specifically for mortgage sales, technology and operations; and,
- blurring boundaries of stakeholder roles resulting in potential competition among more stakeholders (eg. lawyers could compete online with mortgage brokers and realtors).

The ability of e-commerce to foster work collaboration between otherwise unrelated stakeholders suggests that it could become economic for the Canadian mortgage industry to increasingly rely on multiple outsourced service providers across more functions involved in the mortgage process. If this occurs, the Canadian market would increasingly resemble the American industry with strong supplier level competition at various stages of the mortgage process.

New mortgage entrants (i.e. specialist mortgage providers, small banks, etc) are at a significant profit disadvantage compared to integrated financial institutions in the current Canadian environment. In addition to pricing strategies, the lack of an available outsourcing environment was also identified as a significant hurdle to entry in the interviews. The lack of readily available processing, technology and funding component offerings from third parties means that new entrants would have to heavily invest in developing their own mortgage processes, thus consuming scarce technology, intellectual and investment capital. Further, smaller entrants have to continue to invest as new technologies and the competitive environment dictates. Thus, in combination with the pricing environment, the lack of an outsourcing environment will continue to contribute to market and product dominance of the existing large lending institutions. Finally, the role of the banks as primary wholesale lenders to other mortgage originators also means that smaller lenders will always be in a strategically vulnerable position as their main competitors are also their suppliers of funds.

This is a significant difference compared to the U.S. market where the monoline mortgage companies have led product, process and pricing innovation. The research and the interviews indicate that product, pricing, and technology innovations are being driven by non-banking lenders in the US. Industry leaders in the U.S. are making significant investments in e-commerce technology across their operations. Smaller companies like LendingTree and Quicken have also driven industry thinking through their unique distribution and marketing models. In Canada, it has been the large banks that have driven mortgage e-commerce innovation, but that innovation has been conservative, iterative and contained. In light of this, the impact of e-commerce on the consumer is predicted to be more substantial in the U.S. than in Canada, as market forces and competitive dynamics fuel innovation in the U.S. mortgage market.

A move to move toward a multi-party mortgage model in Canada may address several perceived cost impediments to entry for new monoline mortgage companies in the Canadian mortgage market at the present time. In particular, the lack of readily available outsourced solution providers in mortgage

operations, technology and support services currently limits the ability of a new or foreign lender to enter the Canadian mortgage market. Many of the interviewees felt there was a lack of sufficient additional people with specialized skills to staff new firms and support innovation; the existing relatively small industry talent pool is contained within the existing large financial institutions. However, growth in e-commerce enabled software and operations suppliers will eventually create the groundwork for improved accessibility to emerging Canadian and U.S. based mortgage lenders.

The immediate environment for investing in e-commerce technology in Canada is tempered by low returns. The lack of expected direct return of mortgage process investments and an increasingly flat revenue environment suggest that Canadian mortgage managers will increasingly face cost cutting pressures. Given that there are few other areas where savings can be accrued in the current environment, savings are likely to be sought in technology related spending. Thus investments in mortgage related technology will be made only if there is a significant and demonstrable short-term return related either to cost savings or revenue generation. This short-term focus on cost management may place Canadian lenders in a precarious position in the future, should an aggressive player make a breakthrough vis-à-vis the cost of processing. However, this is a relatively unlikely scenario in the 2001-2006 timeframe given the current market environment.

Most interviewees anticipate that e-commerce technologies have the potential to reduce lender one-time and ongoing process costs. However, there was a wide range of views as to the timing, magnitude and incidence of cost savings directly attributable to e-commerce, given differences in individual firm infrastructures and technology strategies. Depending on infrastructure and technology choices; the impact is expected to be reductions of up to one-third in one-time costs and one-quarter in annual operating costs; however, these potential process cost reduction estimates do not take into account any costs, such as infrastructure capital and training costs, of implementing e-commerce. Such implementation costs will vary by firm. Given the competitive mortgage lending environment in Canada, many respondents suggested that a significant portion of these cost savings, if they are realised, may be passed on to consumers.

Figure 3 - Impact of E-Commerce Technologies: Summary of Potential Process Cost Savings by 2006.

Value Chain Item	Estimated Cost Impact
One Time Costs	
Origination	- 10%
Closing & Fulfillment	- 40%
Annual Costs	
Funding & Investment	- 15%
Servicing	- 40%
Default Management	- 60%
Product Design	- 10%

Expected impact on Canadian mortgage lenders:

- One-time costs could be reduced by up to one-third
- Operating costs could be reduced by up to one-quarter
- Note: Does not take into account costs, such as capital costs, of implementing e-commerce

Source: Organic, 2001

Lender profitability is directly related to way the Canadian industry handles one-time charges and fees for mortgage origination. As noted above, the internalization of one time costs (i.e., origination, closing and renewal) by Canadian lenders are a significant part of mortgage line of business contribution differences between U.S. and Canadian lending institutions and therefore consumer pricing differences. Interviewees expect that Canadian lenders will gradually move to cost-sharing models with consumers, based on product features, service and channel choices, risk criteria and other related costs associated with the origination and closing of the mortgage. As a result, direct consumer fees are expected to increasingly become prevalent at the origination and closing phases of the mortgage based on consumer choices of product features and delivery channels. However, there were several interviewees who did not share this view, given the current competitive environment; they did not foresee much change from the status quo.

Some respondents suggested that, contingent on general market competitiveness, fees for broker services would likely be introduced in the 2001 – 2006 time period, especially given the relative growth of broker originations. However, with the payment of fees, consumers would also presumably obtain greater product and service flexibility, lower interest costs and improved choice of providers. As a result, Canadian mortgage consumers would pay less for specific mortgage product features and the ancillary services they require. However, the implementation of fees in the consumer market would likely be mitigated by competitive and consumer pressures – particularly if the lenders act to introduce fees without demonstrating cost reductions in mortgage rates.

Ultimately, the implementation of e-commerce technologies in Canada will largely be justified on the basis of cost savings, rather than as a revenue generator, for lenders. In part, this rationale is based on the relative ease of quantifying cost savings versus accurately predicting attributable incremental revenue within the lender business structure. The cost savings potential identified is based on the existing extensive document management structure that could potentially be digitized in order to facilitate collaboration and communication between banks and stakeholders like lawyers, appraisers and agents. The five key e-commerce technology trends that lenders and stakeholders are expected to explore between 2001 and 2006 are outlined in Table 1.

The core functions performed within the existing mortgage value chain will continue in the 2001-2006 timeframe; however, the roles played by individual stakeholders are expected to evolve slowly over time as individual companies and lenders seek to alter their cost structures or expand their value. E-commerce will alter the mortgage workflow as the technology:

- standardizes electronic data transfer between stakeholders,
- eliminates latent barriers to information transparency in the market, and,
- automates value creating activities that are otherwise performed manually.

Table 1 - E-Commerce Technologies and Their Impact on Canadian Mortgage Environment

	Technology Use	Current Use(s)	Expected Impacts 2001-2006
Electronic Documents	• Converting paper based forms to electronic data and processing	• Canadian lenders have a relatively high penetration of electronic data in mortgage operations but paper is still used to communicate to non-lender stakeholders.	• Canadian lenders will focus on proprietary technologies to improve their interface with consumers and stakeholders (eg. lawyers).
Personalized Selling	• Improve online sales functionality through predictive modeling and proactive suggestions.	• Several lenders are exploring how to use these technologies but generally the applications are still under development. • Consumer privacy and annoyance concerns still limit use of that technology.	• Lenders will incrementally invest in building databases and integration points with call centres and branches to follow up online activity with a timed call from a mortgage representative
Risk Management and Pricing Technologies	• Heightened ability to quantify risks and thus reduce risks associated with account default and funding management.	• High penetration of risk technologies within individual components of value chain but processes not integrated. • Lenders are actively migrating risk technologies to e-commerce platforms. • Credit bureau data and scoring mechanisms are inconsistent and non-transparent.	• Risk applications will be extended throughout the value chain in order to give lenders real time risk data. • Risk data will be shared with involved stakeholders within the lender's mortgage process. • Risk data and scoring will become standardized in the industry.
Mortgage Broker Technologies	• Improve ability of the broker to sell mortgage products via sales management tools that allow brokers to access and compare mortgage product information.	• Canadian lenders are investing heavily in building tools that allow brokers to sell. Brokers are generally on the accepting end of lender decisions and software choices.	• There will be friction between lenders and brokers on software capabilities and functions – with lenders seeking to contain brokers and brokers looking to expand their value proposition across the value chain (i.e. funding or servicing)
Application Service Providers and Outsourcing	• Internet accessible software solutions and/or Internet accessible operations solutions	• Canadian lenders are not generally heavily invested in outsourcing operations. If they are, current arrangements tend to be black-box outsourcing (i.e. collaboration between stakeholders is minimized)	• Canadian lending community increasingly looking to augment proprietary software and operations solutions with third-party offerings.

All stakeholders will be forced to look to their core offerings and defend them against new entrants as e-commerce technologies reduce the barriers for entry. As a result, the power structures and relationships between various existing stakeholders are expected to ultimately move away from being bank-centric to being consumer-centric. Canadian mortgage consumers should benefit from this transition in terms of increased competition, lower costs and more flexible product offerings.

Likely winners will be low net-cost or high value providers. Pressure for cost savings means that every supplier in the mortgage value chain will look to how they can add value to their offering and maintain their revenue streams. The respondents indicated that this will likely alter current supplier-provider stakeholder relationships, as individual companies seek to broaden their product and service offerings in order to create value for their customers (see Table 2). Given that multi-party workflow involves the co-ordination of a number of processes and information flows, there is significant value in creating and controlling key value activities – that is, activities that can exist independently or on which other stakeholders rely. As a result it is expected that stakeholders in the mortgage process (individually and as segments) will jockey for such valuable positions in the value chain. Further, the existing strategic positions in the Canadian mortgage process (eg. lenders, lawyers, etc) are open to competitive forces of peripheral stakeholders (i.e. brokers, title insurers and software companies) who are more willing and able to innovate and reduce the net costs of service.

Stakeholders who are slow to adopt key technologies and standards, those that do not create value above being an information broker, and high cost contributors will likely be losers. Already noted is the expectation that the Canadian mortgage industry will move to outsource closing and servicing operations to third-party specialists. Likewise, stakeholders such as lawyers may increasingly feel competitive pressures from title and software companies, although they too may increasingly move into the mortgage brokerage and real estate sales functions.

Table 2 - Summary: Canadian Mortgage Stakeholders Winners and Losers 2001 - 2006

Value Chain Segment	Trends	Winners	Losers
Origination	▪ Consumer movement to "Clicks & Bricks" channels. ▪ Low interest in Internet only offerings ▪ Increased market share for brokers	▪ Brokers ▪ Niche mortgage players ▪ Real estate agents ▪ Lawyers ▪ Monoline low cost lenders	▪ Financial institutions with high retail channel costs ▪ Internet lenders
Closing & Fulfillment	▪ Automation of closing processes	▪ Specialist providers ▪ Economies of scale operations environments ▪ Electronic registry providers/ title insurers	▪ Property appraisers ▪ Lawyers
Funding & Investment	▪ Larger role for secondary markets ▪ Increased automation of risk management processes and information sharing	▪ Low cost lenders ▪ Brokers ▪ Investment funds ▪ Sub-prime lenders	▪ High-cost providers
Servicing	▪ Outsourcing of servicing operations to specialist providers	▪ Lowest cost providers ▪ Software companies ▪ Consultants	▪ High-cost providers ▪ Late adopters of risk monitoring technology
Delinquency Management	▪ Introduction of risk identification technology ▪ Automated delinquency process management systems	▪ Economies of scale providers ▪ Foreclosure process specialists	▪ Lawyers (whose role is reduced by automated systems)
Product Design	▪ Outsourcing of product systems ▪ Introduction of componentized technology products	▪ Application service providers ▪ Consultants ▪ Software specialists	▪ In-house IT departments

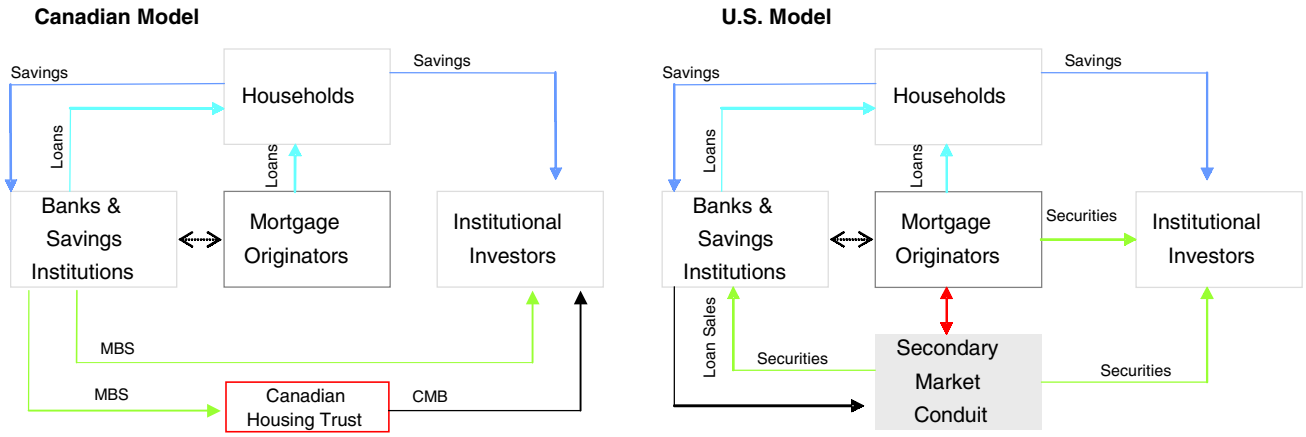
E-commerce may facilitate an evolution of the Canadian mortgage market toward the U.S. multi-party model. In the U.S., secondary market conduits (see Figure 5) are organizations such as Fannie Mae, Freddie Mac and Ginnie Mae (often referred to as Government Sponsored Enterprises, or "GSEs") that act as middlemen between the secondary investor market and the primary mortgage origination market. By buying mortgages at the time or origination and turning mortgages into liquid investment securities (mortgage backed securities, or "MBS"), the conduit attracts capital from institutional investors and directs it into the mortgage market. That these securities are traded on financial

markets helps to stabilize the secondary market investment environment. Each secondary conduit use e-commerce to electronically assess the mortgage and to confirm that it has met its criteria and that it will purchase the mortgage at the time of origination from the originator (bank, mortgage broker or online lender).

In the Canadian environment, there is no such secondary conduit that directly purchases mortgages at the time of issuance, serving as a wholesale funding agency to originators who do not have their own source of mortgage funding. The large financial institutions issue MBS to securitize their mortgages. (CMHC performs a guarantor role for banks issuing MBS, and for the Canadian Housing Trust which purchases MBS and issues mortgage backed bonds, referred to as Canada Mortgage Bonds or "CMB".)

There is thus a significant difference between U.S. and Canadian mortgage models. For example, when U.S. originators look for funding for originating loans, they have a choice between secondary market conduits and other wholesale lenders. In Canada, originators such as brokers do not have direct access to secondary market capital and as a result must originate a loan through an existing (and, likely competing) lender.

Figure 4 – U.S. and Canadian Mortgage Market Financing Models



Source: International Union for Housing Finance, Organic 2001

To the extent that e-commerce facilitates unbundling of mortgage industry processes in Canada and entry into the Canadian mortgage market, secondary markets could become more important primary origination market funding mechanisms, meeting increased demand for funding from brokers, small banks and new entrants wanting a mortgage funding source other than the big lending institutions with which they are competing.

The impact of e-commerce on home ownership finance accessibility should be positive. In addition to potentially reducing costs, e-commerce is expected to enable lenders to cost effectively improve mortgage choices or features for consumers. There is already a very high level of mortgage finance access provided to consumers by existing Canadian lending institutions.

Conclusion

The immediate impact of e-commerce will be initially modest and incremental but the effects will be cumulative. Not surprisingly, the report expects the evolution resulting from e-commerce technologies to continue beyond 2006. The mortgage industry in Canada has undergone significant evolution over the last 25 years. Changing consumer demographics, increased consumer mobility and an evolving structural transformation are all pressuring the

mortgage industry in Canada. The net effects of these trends will have considerably more impact on the Canadian mortgage industry than the anticipated effects of e-commerce technologies alone.

Nevertheless, e-commerce is expected to improve business communications and workflow, fuelling competitive trends already present in the financial services sector. E-commerce technologies have the longer-term potential to facilitate an evolution in the Canadian mortgage industry from large, vertically-structured companies toward an American-style multi-party mortgage industry structure reliant on a number of competing outsourced operations, technology and funding providers.

The development of an extensive outsourcing community in Canada could dramatically lower the cost impediments to entry into the Canadian mortgage market and increase competition at all levels, benefiting consumer choice and affordability. Although these changes may begin in the market within the 2001-2006 period of focus for this report, the largest effects, if they materialize, will take place beyond 2006.

Résumé

Introduction

On entend par commerce électronique le processus du commerce au moyen des technologies de l'Internet. Dans le commerce électronique, l'ordinateur et le réseau Internet deviennent les éléments centraux du processus de communication et de collaboration entre les partenaires. En ce qui a trait aux prêts hypothécaires, le concept de commerce électronique englobe le matériel, les logiciels et les applications réseau que les intervenants du processus de prêt hypothécaire utilisent pour échanger de l'information et collaborer électroniquement pour constituer un dossier, conclure un prêt hypothécaire et le traiter en ligne.

La présente étude a pour objet de comprendre comment les technologies du commerce électronique peuvent influer sur les rouages et les intervenants du processus hypothécaire, et d'examiner l'incidence de ces changements sur l'abordabilité et l'accessibilité du financement en matière d'accession à la propriété pour les Canadiens jusqu'en 2006.

Jusqu'ici, les industries du financement hypothécaire du Canada et des États-Unis ont développé le commerce électronique différemment. Le présent rapport veut comprendre les grandes tendances du marché hypothécaire canadien. Il compare les modèles américains et canadiens de prestation de prêt hypothécaire et les rôles des intervenants pour saisir les effets de la technologie du commerce électronique sur la structure de l'industrie du prêt hypothécaire et sur le consommateur canadien en bout de ligne.

Méthode

Les constatations sont fondées sur une large base de données primaires et secondaires :

- Plus de 170 articles documentés, extraits de revues et de sources du Web.
- Plus de 50 entrevues effectuées en 2001 auprès d'intervenants de l'industrie des États-Unis et du Canada, y compris des cadres des banques traditionnelles et des banques Internet, des prêteurs hypothécaires spécialisés, des tiers fournisseurs de services, des sociétés d'experts-conseils, des organismes de réglementation, des assureurs hypothécaires et des spécialistes du droit immobilier.

L'étude a focalisé principalement sur les réactions des établissements aux technologies du commerce électronique. Les conclusions des auteurs reflètent les points de vue des guides d'opinion des industries canadiennes et américaines du prêt hypothécaire et des organismes directeurs. À cause de la nature compétitive du marché hypothécaire au Canada et aux États-Unis, ces témoignages ne sont pas attribués directement dans le rapport. Les personnes interviewées et les autres leaders de l'industrie ont revu à fond la version préliminaire de l'étude et des constatations pour valider l'information, les suppositions et les conclusions.

Contexte

Un prêt hypothécaire est une série complexe de processus légaux, financiers et d'évaluation de risque touchant une gamme d'intervenants des secteurs public et secteur privé. Le rapport utilise l'outil intellectuel de la chaîne de valeur (voir les Figures 1 et 18) pour examiner l'incidence du commerce

électronique dans l'industrie hypothécaire. La chaîne de valeur hypothécaire est constituée des six étapes clés suivantes :

- Constitution du dossier de prêt
- Fermeture et exécution
- Financement et investissement
- Traitement
- Gestion de la défaillance
- Conception du produit

Figure 1 – Résumé du processus de la chaîne de valeur hypothécaire et des rôles des intervenants

	Constitution du dossier	Conclusion et exécution	Financement et investissement	Traitement	Gestion de la défaillance	Conception du produit
Intervenants hypothécaires au Canada	Banque/Prêteur Courtier Assureur hypothécaire Bureau de crédit	Banque/Prêteur Courtier Avocat Assureur du titre Évaluateur Agent immobilier Vendeur de la propriété	Banque/Prêteur Titre hypothécaire	Banque/Prêteur	Banque/Prêteur Avocat/Tribunaux Assureur hypothécaire	Banque/Prêteur Assurance hypothécaire
Intervenants hypothécaires aux États-Unis	Banque/Prêteur Courtier Assureur hypothécaire Bureau de crédit Promoteur Intermédiaire du marché secondaire Assureurs privés	Banque/Prêteur de constitution du dossier Courtier Avocat Émetteur de titre Compagnie de titre Évaluateur Agent immobilier Banque de gros Intermédiaire du marché secondaire Vendeur de la propriété	Banque/Prêteur Prêteur en gros Intermédiaire du marché secondaire Administrateur hypothécaire	Prêteur en gros Intermédiaire du marché secondaire Administrateur hypothécaire	Prêteur en gros Intermédiaire du marché secondaire Administrateur hypothécaire Compagnie de perception Organismes communautaires de service Avocats/Tribunaux Assureur hypothécaire	Prêteur en gros Intermédiaire du marché secondaire Administrateur hypothécaire Compagnies de logiciel

Source : Organic, 2001

Ces fonctions sont communes aux processus de prêt hypothécaire du Canada et des États-Unis. Il ressort toutefois de l'étude que les rôles des divers intervenants de la chaîne de valeur hypothécaire étaient considérablement différents, comme on l'explique ci-dessous. Ces différences au niveau des rôles expliquent les dissemblances de la structure et des aspects économiques de l'industrie et, en bout de ligne, les écarts de l'incidence prévue des technologies du commerce électronique.

Les industries canadiennes et américaines des services hypothécaires présentent des structures très différentes. Au Canada, les institutions financières ont tendance à être de grandes entités nationales autosuffisantes qui n'ont généralement pas recours à des fournisseurs de l'extérieur pour offrir des volets importants de leurs activités. Les institutions financières canadiennes ont surtout élaboré des solutions exclusives de traitement des prêts hypothécaires à l'intérieur de leur structure organisationnelle. La très grande envergure de ces institutions leur permet de réaliser des économies de traitement et d'investissement. Au Canada, le processus hypothécaire est plus souvent entre les mains de l'institution financière, comme les systèmes de financement et d'informatique qui le supportent.

Les institutions financières américaines ont évolué différemment à cause des différences des structures de réglementation et de concurrence. L'industrie des services hypothécaires des États-Unis est constituée d'environ 100 000 compagnies. Il en résulte que ces compagnies essaient de réaliser des économies d'échelles par l'entremise de leurs fournisseurs. Les institutions financières des États-Unis ont tendance, en règle générale, à impartir de vastes volets de leurs processus hypothécaires à d'autres compagnies (comme les systèmes informatiques et les fonctions de travail). Les produits hypothécaires des États-Unis sont formés d'une série de volets impartis. Par conséquent, dans le modèle états-unien, il n'est pas inhabituel que le prêt hypothécaire, même acheté d'une banque, soit traité par une compagnie spécialisée et financée par un autre intermédiaire financier. C'est le modèle à parties multiples ou multipartite.

L'environnement multipartite du système américain d'opérations bancaires pour le financement hypothécaire se retrouve aussi dans les processus connexes, comme l'enregistrement du titre. L'environnement américain de traitement des prêts hypothécaires et des titres est beaucoup plus complexe, en raison du nombre beaucoup plus élevé de parties possibles dans la transaction qu'au Canada. Le système américain est en outre plus flexible, il nourrit une plus vaste gamme de types de concurrents et semble mieux supporter l'innovation.

Le nombre moins élevé de concurrents du secteur du prêt hypothécaire au Canada ne signifie toutefois pas un manque d'économies d'échelle (qui sont réalisées grâce aux dimensions de la banque et à l'intégration verticale), ni une absence de concurrence pour les consommateurs (puisque les aspects liés aux prix et ceux qui ne le sont pas font aussi l'objet d'une concurrence).

En ce qui a trait au commerce électronique, beaucoup de répondants ont dit que les compagnies les plus innovatrices sont souvent les nouvelles et les plus petites. Il y a beaucoup plus de ce genre de compagnies dans le secteur américain du prêt hypothécaire que dans l'industrie canadienne.

Constatations

Beaucoup de répondants croient que les technologies du commerce électronique vont habiliter et renforcer les tendances qui existent déjà sur le marché. Si les technologies du commerce électronique ont attiré considérablement l'attention des médias populaires, le présent rapport conclut que ces technologies, en elles-mêmes, ne seront pas un agent marquant de changement de l'industrie canadienne du prêt

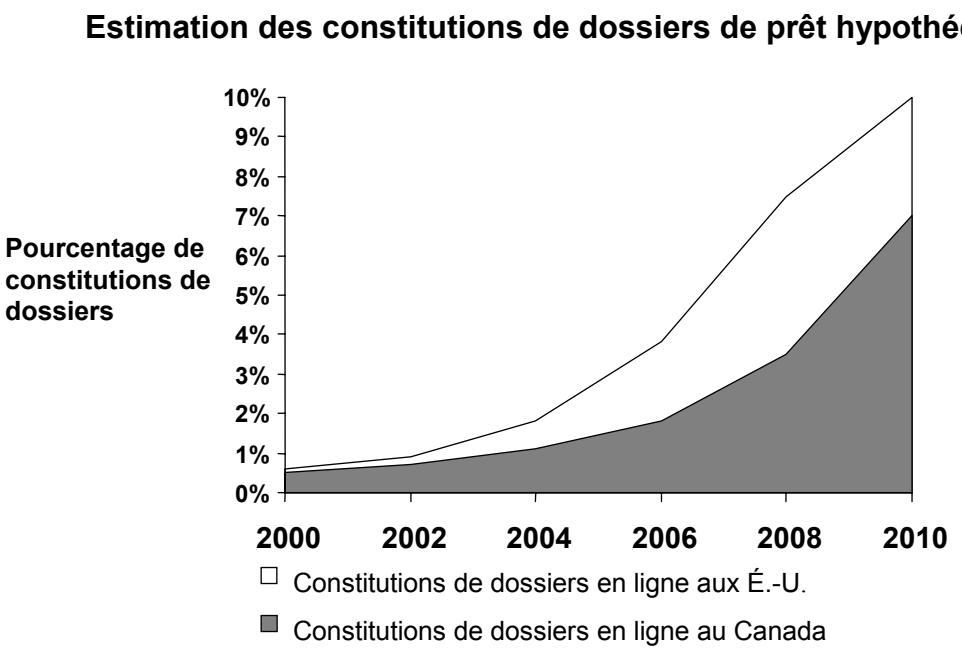
hypothécaire d'ici à 2006. Les effets du commerce électronique devraient être modestes au cours de cette période, agissant de façon à renforcer l'incidence des progrès technologiques antérieurs de l'industrie et des autres tendances sous-jacentes du marché, comme l'impartition.

Les entreprises de l'industrie du prêt hypothécaire vont adopter des démarches différentes de mise en œuvre des technologies du commerce électronique. Les répondants ont indiqué de façon générale que la plupart des banques et des autres prêteurs du Canada et des États-Unis adoptent une démarche de mise en œuvre graduelle des solutions de commerce électronique dans leur infrastructure. Si certains répondants ont indiqué qu'ils envisageaient de donner le feu vert à des projets pilotes d'applications particulières des technologies du commerce électronique dans leur environnement hypothécaire, les répondants estimaient en général que la plupart des efforts marquants de commerce électronique au Canada sont sur la glace en attendant de voir apparaître les bons logiciels ou les bonnes solutions opérationnelles sur le marché, parce qu'il y a actuellement un manque de clarté sur le marché en ce qui concerne les normes, les capacités et la compatibilité avec les processus de travail existants.

Les effets les plus marquants des technologies du commerce électronique ne devraient être ressentis qu'après 2006. Mais certains changements de l'industrie canadienne du prêt hypothécaire, comme la mise en œuvre de la documentation électronique et des technologies de la transitique, devraient être habilités par la technologie entre 2001 et 2006, et les effets des changements habilités par les technologies du commerce électronique devraient être substantiels à long terme au-delà de 2006. Divers répondants ont noté que l'incidence de ces changements pourrait encourager avec le temps l'industrie canadienne du prêt hypothécaire à évoluer vers un modèle multipartite – mais ils croyaient toutefois que le modèle canadien ne serait probablement pas aussi extrême que le modèle courant de l'industrie américaine en ce qui a trait à la portée et aux dimensions.

L'avis général des répondants est que les constitutions de dossier de prêt en ligne vont demeurer limitées au cours de la période de 2001 à 2006 au Canada et aux États-Unis. Les constitutions de dossier de prêt hypothécaire en ligne devraient augmenter d'environ 0,5 % en 2001 dans les deux pays, à 2 % au Canada et 4 % aux États-Unis d'ici à 2006. Compte tenu des différences de structure et d'image de marque, les constitutions de dossier de prêt en ligne aux États-Unis devraient augmenter plus tôt qu'au Canada, qui demeure bien servi par les succursales et les courtiers. L'étude a indiqué que, à l'heure actuelle, les consommateurs des deux pays préfèrent de beaucoup traiter avec des personnes pour les transactions hypothécaires, compte tenu de l'importance relative et de la complexité perçue de la transaction. Ainsi, les premiers pronostics de la dominance des prêteurs en ligne n'ont pas été réalisés sur le marché. La volonté des consommateurs de faire leurs transactions hypothécaires en ligne pourrait changer lentement à mesure que les gens prendront de l'assurance et se familiariseront avec les transactions en ligne de façon générale.

Figure 2 – Constitutions de dossiers de prêt hypothécaire en ligne 2000 – 2010 : Canada et États-Unis



Sources: Morgan Stanley Dean Witter, Organic Interviews

Se fondant sur l'étude, l'auteur conclut que les technologies du commerce électronique comme l'échange de données électroniques peuvent accélérer une évolution des services hypothécaires canadiens entre 2001 et 2006. On délaissera les processus hypothécaires intégrés verticalement (l'établissement prêteur gère la plupart des volets du prêt) au profit d'une structure de traitement multipartite réunissant un certain nombre de tiers fournisseurs d'opérations, de technologies et de financement. Les forces de ce changement, déjà présentes sur le marché, comprennent :

- la pression constante de gérer les coûts;
- l'attrait accru de l'impartition à des fournisseurs de services pour améliorer la gestion des coûts de l'industrie des services hypothécaires en général et particulièrement concernant les ventes de créances hypothécaires, les technologies et les opérations connexes;
- le rapprochement flou des rôles des intervenants qui peut susciter de la concurrence entre plus d'intervenants (par exemple, les avocats pourraient faire concurrence en ligne aux courtiers hypothécaires et immobiliers).

La capacité du commerce électronique de favoriser la collaboration professionnelle entre des intervenants autrement sans rapport laisse croire qu'il pourrait devenir rentable pour l'industrie hypothécaire canadienne d'impartir davantage à des fournisseurs multiples de services dans plus de fonctions du processus de crédit hypothécaire. Si cela devait se produire, le marché canadien ressemblerait de plus en plus à l'industrie américaine en ayant une concurrence forte des fournisseurs à diverses étapes du processus hypothécaire.

La position des nouveaux venus sur le marché (fournisseurs hypothécaires spécialisés, petites banques, etc.) est considérablement moins rentable que celle des institutions financières intégrées de l'environnement canadien. En plus de parler des stratégies de prix, les répondants ont aussi dit que l'absence d'un environnement d'impartition entrave beaucoup l'entrée. Le manque d'offres de services de traitement, de technologies et de financement par des tierces parties signifie que les nouveaux venus devraient investir abondamment dans l'élaboration de leurs propres processus hypothécaires, épuisant ainsi des ressources technologiques, du capital intellectuel et des investissements limités. En outre, les nouveaux venus de petite taille doivent continuer d'investir au gré de l'évolution des nouvelles technologies et de l'environnement concurrentiel. Ainsi, en combinaison avec l'environnement de prix, l'absence d'un environnement d'impartition continuera de contribuer à la domination commerciale des grands établissements prêteurs existants. Finalement, le rôle des banques comme principaux prêteurs des autres intervenants signifie également que les petits prêteurs seront toujours stratégiquement vulnérables du fait que ce sont leurs principaux concurrents qui les financent.

La différence est considérable avec le marché américain où les compagnies hypothécaires spécialisées ont innové dans les produits, le traitement et les prix. L'étude et les entrevues indiquent que ce sont les prêteurs non bancaires qui innovent dans les produits, les prix et les technologies aux États-Unis. Les leaders de l'industrie des États-Unis investissent beaucoup dans les technologies du commerce électronique. Les petites entreprises comme LendingTree et Quicken ont également innové avec leurs modèles particuliers de distribution et de marketing. Au Canada, ce sont les grandes banques qui ont innové dans le commerce électronique hypothécaire, mais cette innovation a été prudente, itérative et contenue. Il ressort que le commerce électronique aura plus d'incidence sur le consommateur aux États-Unis qu'au Canada, parce que les forces du marché et la dynamique de la concurrence favorisent l'innovation sur le marché hypothécaire américain.

La mise en place d'un modèle de prêt hypothécaire à parties multiples au Canada pourrait supprimer certains obstacles de coûts perçus pour les nouvelles compagnies hypothécaires spécialisées qui veulent entrer sur le marché hypothécaire canadien à l'heure actuelle. En particulier, le manque de fournisseurs de solutions imparties d'opérations hypothécaires, de technologies et de services de soutien limite actuellement la capacité d'un prêteur nouveau ou étranger d'entrer sur le marché hypothécaire canadien. Un grand nombre des répondants ont dit qu'il n'y avait pas assez de personnes avec les compétences requises pour doter les nouvelles compagnies et supporter l'innovation; le bassin de talent existant est relativement petit et déjà accaparé par les grandes institutions financières. Cependant, la croissance des fournisseurs d'opérations et de logiciels spécialisés dans le commerce électronique créera la base de l'amélioration de l'accessibilité pour les nouveaux prêteurs hypothécaires du Canada et des États-Unis.

L'environnement immédiat d'investissement dans les technologies du commerce électronique au Canada est tempéré par les faibles rendements. Le manque de rendement direct attendu des investissements dans le processus hypothécaire et les recettes de plus en plus neutres donnent à penser que les gestionnaires hypothécaires du Canada vont subir des pressions accrues pour diminuer les coûts. Comme il y a peu d'autres secteurs où il est possible de réaliser des économies dans le contexte actuel, on tentera probablement d'économiser dans les dépenses d'ordre technologique. On investira par conséquent dans les technologies du domaine hypothécaire seulement si elles produisent un rendement marquant et démontrable à court terme ayant trait à la réduction des coûts ou à la production de recettes. En privilégiant ainsi la gestion des coûts à court terme, on pourrait placer les prêteurs canadiens dans une position précaire à l'avenir, advenant qu'un joueur agressif fasse une percée en ce qui concerne les coûts de traitement. Ce scénario est toutefois relativement peu probable, au cours de la période 2001-2006, dans l'état actuel du marché.

La plupart des répondants croient que les technologies du commerce électronique peuvent réduire les coûts ponctuels du prêteur et les coûts continus de traitement. Les répondants avaient toutefois une gamme d'opinions quant à l'opportunité, à la magnitude et à l'incidence des économies directement attribuables au commerce électronique, compte tenu des différences des infrastructures et des stratégies technologiques des diverses compagnies. Selon l'infrastructure et les choix de technologie, l'incidence devrait être des réductions à hauteur du tiers des coûts ponctuels et du quart des coûts d'exploitation annuels. Toutefois, ces éventuelles réductions de coûts ne prennent pas en considération les coûts de mise en œuvre du commerce électronique, comme le capital d'infrastructure, et les coûts de formation. Ces coûts vont varier selon les compagnies. Dans le contexte concurrentiel du marché hypothécaire au Canada, beaucoup de répondants pensent qu'une portion considérable de ces économies, si elles sont réalisées, pourrait être transmise aux consommateurs.

Figure 3 – Incidence des technologies du commerce électronique : Résumé des économies de coûts possibles jusqu'en 2006

Chaîne de valeur	Incidence prévue sur les coûts
Coûts ponctuels	
Constitution du dossier de prêt	- 10%
Fermeture et exécution	- 40%
Coûts annuels	
Financement et investissement	- 15%
Traitement	- 40%
Gestion de la défaillance	- 60%
Conception du produit	- 10%

Incidence prévue sur les prêteurs hypothécaires du Canada :

- Les coûts ponctuels pourraient être réduits à hauteur du tiers.
- Les coûts d'exploitation pourraient être réduits à hauteur du quart.
- Remarque : Cela ne prend pas en considération les coûts de la mise en œuvre du commerce électronique, comme les coûts en capital.

Source: Organic, 2001

La rentabilité du prêteur est directement liée à la façon dont l'industrie canadienne traite les coûts ponctuels et les frais de constitution des dossiers de prêt. Comme nous l'avons indiqué plus haut, l'intégration des coûts ponctuels (constitution du dossier, exécution et renouvellement) par les prêteurs canadiens est un élément différent marquant des contributions dans les activités hypothécaires entre les établissements prêteurs américains et canadiens et, par conséquent, la différence des prix. Les répondants croient que les prêteurs canadiens vont graduellement chercher des modèles de partage des coûts avec les consommateurs, en fonction des caractéristiques des produits, des services et des réseaux de distribution, des critères de risque et des autres frais associés à la constitution du dossier de prêt hypothécaire et à la fermeture de l'hypothèque. On s'attend donc à ce que les frais directs des consommateurs deviennent de plus en plus courants dans les phases de constitution du dossier et de fermeture de l'hypothèque selon les caractéristiques des produits et les canaux de distribution choisis par les consommateurs. Un certain nombre de répondants ne partageaient toutefois pas ce point de vue, étant donné l'environnement concurrentiel courant; ils ne prévoyaient pas que le *statu quo* allait beaucoup changer.

Certains répondants croient que, selon la compétitivité générale du marché, les frais des services de courtage seront probablement introduits au cours de la période 2001-2006, particulièrement dans un contexte où les courtiers se chargeront davantage de la constitution des dossiers. Or, en payant des frais, on suppose que les consommateurs obtiendraient aussi des produits et des services plus souples, des frais d'intérêt moins élevés et un meilleur choix de fournisseurs. Ainsi, les consommateurs de prêts

hypothécaires du Canada paieraient moins pour des caractéristiques particulières de produits hypothécaires et les services accessoires requis. Cela dit, la mise en œuvre des frais sur le marché serait probablement atténuée par les pressions de la concurrence et des consommateurs, particulièrement si les prêteurs essaient d'introduire des frais sans démontrer de réductions de coût au chapitre des taux d'intérêt hypothécaires.

Au bout du compte, la mise en œuvre des technologies du commerce électronique au Canada sera, pour les prêteurs, largement justifiée par les économies de coûts, plutôt que comme génératrice de recettes. Cela repose en partie sur la facilité relative de quantifier les économies plutôt que de prévoir correctement les recettes supplémentaires dans la structure du prêteur. Le potentiel d'économie de coûts est fondé sur la structure existante importante de gestion de la documentation qui pourrait être numérisée pour faciliter la collaboration et la communication entre les banques et les intervenants comme les avocats, les évaluateurs et les agents. Les cinq grandes tendances des technologies du commerce électronique que les prêteurs et les intervenants devraient explorer entre 2001 et 2006 sont présentées dans le Tableau 1.

Les fonctions centrales exécutées à l'intérieur de la chaîne de valeur existante se poursuivront au cours de la période 2001-2006; on s'attend toutefois à ce que les rôles joués par chacun des intervenants évoluent lentement avec le temps et que les compagnies et les prêteurs cherchent à modifier leurs structures de coûts ou à augmenter leur valeur. Le commerce électronique va modifier la charge de travail hypothécaire au moyen des applications suivantes de la technologie :

- la normalisation du transfert électronique des données entre les intervenants;
- la suppression des obstacles latents à la transparence de l'information sur le marché;
- l'automatisation des activités de création de valeur exécutées manuellement.

Tableau 1 – Les technologies du commerce électronique et leur incidence sur l'environnement hypothécaire canadien

	Utilisation de la technologie	Utilisations courantes	Incidences prévues 2001-2006
Documents électroniques	• Pour faire passer l'utilisation des formules de papier au traitement et aux données électroniques.	• Les prêteurs canadiens font un usage relativement élevé des données électroniques dans les opérations hypothécaires, mais le papier sert encore pour communiquer avec les intervenants non prêteurs.	• Les prêteurs canadiens vont se concentrer sur les technologies exclusives pour améliorer leur interface avec les consommateurs et les intervenants (par exemple les avocats).
Vente personnalisée	• Pour améliorer la fonctionnalité des ventes en ligne au moyen d'une modélisation prédictive et de suggestions proactives.	• Un certain nombre de prêteurs explorent comment utiliser ces technologies, mais de façon générale les applications sont encore en développement. • Des problèmes de protection de la confidentialité et d'irritation limitent encore l'utilisation de cette technologie.	• Les prêteurs vont investir graduellement dans l'élaboration de bases de données et de points d'intégration avec les centres d'appels et les succursales pour que l'activité en ligne soit suivie de l'appel d'un représentant en prêts hypothécaires.
Gestion des risques et technologies des prix	• Capacité accrue de quantifier les risques et de réduire ainsi les risques associés aux cas de défaut et à la gestion du financement.	• Utilisation élevée des technologies de risques par les composantes individuelles de la chaîne de valeur, mais les processus ne sont pas intégrés. • Les prêteurs associent activement technologies de risques et plates-formes de commerce électronique. • Les données des bureaux de crédit et les mécanismes de calcul sont incohérents et non transparents.	• Les applications de risques vont être prolongées dans la chaîne de valeur afin de donner aux prêteurs des données sur les risques en temps réel. • Les données sur les risques seront partagées avec les intervenants concernés dans le processus hypothécaire du prêteur. • L'industrie normalisera les données sur les risques et le calcul.
Technologies des courtiers hypothécaires	• Pour améliorer la capacité du courtier de vendre des produits hypothécaires au moyen d'outils de gestion des ventes qui permettent aux courtiers d'avoir accès à des renseignements sur les produits hypothécaires et de les comparer.	• Les prêteurs canadiens investissent énormément dans les outils de construction qui permettent aux courtiers de vendre. Les courtiers sont généralement de la partie qui accepte les décisions de prêt et de logiciel.	• Il y aura de la friction entre les prêteurs et les courtiers quant aux capacités et aux fonctions des logiciels – les prêteurs chercheront à contenir les courtiers, tandis que les courtiers voudront offrir des produits de valeur pour toute la chaîne de valeur (financement ou traitement).
Fournisseurs de services d'application et impartition	• Des solutions de logiciel Internet, ou des solutions d'opérations Internet, ou les deux.	• Les prêteurs canadiens ne se sont pas généralement lourdement investis dans les opérations d'impartition. S'ils l'ont fait, les ententes courantes ont tendance à être de l'impartition opaque (collaboration entre les intervenants réduite au minimum).	• La communauté canadienne des prêteurs cherchera de plus en plus à augmenter les solutions logiciels et opérations exclusives avec les produits offerts par les fournisseurs tiers.

Tous les intervenants vont être forcés de défendre leurs principaux produits contre les nouveaux venus qui auront vu les technologies du commerce électronique leur ouvrir les portes. Par conséquent, les structures de pouvoir et les rapports entre les intervenants existants devraient en fin de compte devenir moins centrés sur les banques et plus sur les consommateurs. Les consommateurs de prêts hypothécaires du Canada devraient profiter de cette transition qui augmentera la concurrence, diminuera les coûts et fera naître des produits plus souples.

Les gagnants seront probablement les fournisseurs dont les coûts nets seront faibles et qui offriront une valeur élevée. Les pressions pour réduire les coûts signifient que chacun des fournisseurs de la chaîne de valeur hypothécaire va chercher à bonifier ce qu'il offre et à maintenir ses recettes. Les répondants ont indiqué que cela transformera probablement les rapports courants entre les intervenants fournisseurs, à mesure que les compagnies individuelles vont chercher à élargir leur gamme de produits et services afin de créer de la valeur pour leurs clients (voir Tableau 2). Étant donné que la charge de travail d'un environnement multipartite comporte la coordination des processus et du flot d'information, on obtient une valeur marquante en créant et en contrôlant des activités capables d'exister indépendamment ou dont les autres intervenants ont besoin. On prévoit donc que les intervenants au sein du processus hypothécaire (individuellement et en segments) vont se bousculer pour occuper des positions aussi intéressantes dans la chaîne de valeur. En outre, les positions stratégiques existantes du processus de prêt hypothécaire canadien (prêteurs, avocats, etc.) sont ouvertes aux forces concurrentielles des intervenants périphériques (courtiers, assureurs de titres et compagnies de logiciels) qui sont plus disposés et capables d'innover et de réduire les coûts nets du service.

Les perdants seront probablement les intervenants lents à adopter les technologies et les normes clés, ceux qui ne créent pas de valeur autre que d'être courtiers en information, et ceux dont les coûts sont élevés. Il est déjà noté qu'on s'attend à ce que l'industrie canadienne du prêt hypothécaire se tourne vers l'impartition des activités de fermeture et de traitement à des spécialistes tiers. De même, les intervenants comme les avocats pourraient sentir de plus en plus de pressions concurrentielles des compagnies de titres et de logiciels, bien qu'ils pourraient eux aussi devenir de plus en plus des courtiers hypothécaires et immobiliers.

Tableau 2 – Résumé : Les gagnants et les perdants du marché hypothécaire canadien 2001 - 2006

Segment de la chaîne de valeur	Tendances	Gagnants	Perdants
Constitution du dossier de prêt	▪ Mouvement des consommateurs vers les entreprises « clic et mortier » ▪ Faible intérêt envers les produits offerts sur l'Internet seulement ▪ Part accrue du marché pour les courtiers	▪ Courtiers ▪ Joueurs à niche ▪ Agents immobiliers ▪ Avocats ▪ Prêteurs exclusifs à faibles coûts	▪ Les institutions financières avec des coûts de détail élevés ▪ Les prêteurs Internet
Fermeture et exécution	▪ Automatisation des processus de fermeture	▪ Fournisseurs spécialisés ▪ Environnements d'opérations propices aux économies d'échelle ▪ Fournisseurs de services de registre électronique/assureurs de titres	▪ Les évaluateurs de propriété ▪ Les avocats
Financement et investissement	▪ Rôle plus important des marchés secondaires ▪ Automatisation accrue des processus de gestion des risques et de partage d'information	▪ Prêteurs à coûts faibles ▪ Courtiers ▪ Fonds d'investissement ▪ Prêteurs à conditions abusives (« *subprime lenders* »)	▪ Les fournisseurs à coûts élevés
Traitement	▪ Impartition des opérations de traitement à des fournisseurs spécialisés	▪ Fournisseurs aux coûts les moins élevés ▪ Compagnies de logiciels ▪ Consultants	▪ Les fournisseurs à coûts élevés ▪ Ceux qui tarderont à adopter les technologies de surveillance des risques
Gestion de la défaillance	▪ Introduction des technologies de repérage des risques ▪ Systèmes automatisés de gestion du processus de défaillance	▪ Fournisseurs d'économies d'échelle ▪ Spécialistes du processus de fermeture	▪ Les avocats (dont le rôle est réduit par les systèmes automatisés)
Conception du produit	▪ Impartition des systèmes de produit ▪ Introduction des produits de technologie sous forme de composants	▪ Fournisseurs de services d'application ▪ Consultants ▪ Spécialistes de logiciels	▪ Les services informatiques internes

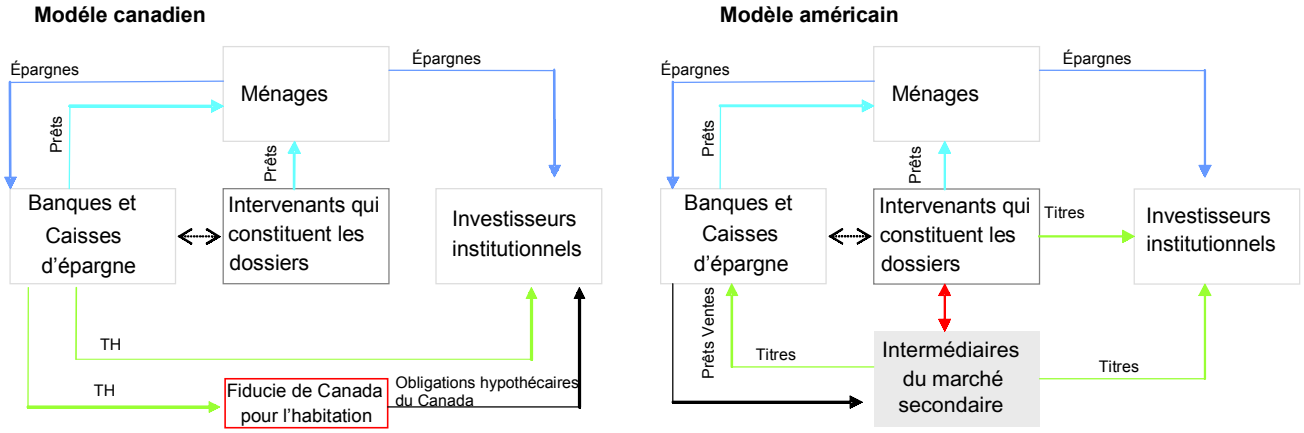
Le commerce électronique peut faciliter l'évolution du marché hypothécaire canadien vers le modèle américain à parties multiples. Parmi les intermédiaires du marché secondaire américain (voir le Tableau 5), il existe des organisations comme Fannie Mae, Freddie Mac et Ginnie Mae (qu'on appelle souvent « Government Sponsored Enterprises », ou « GSE ») qui agissent comme intermédiaires entre le marché investisseur secondaire et le marché principal de constitution du dossier de prêt

hypothécaire. En achetant des prêts hypothécaires au moment de la constitution du dossier de prêt, et en transformant ces prêts en titres de placement liquide (titres hypothécaires, ou « TH »), l'intermédiaire attire du capital des investisseurs institutionnels et le dirige sur le marché hypothécaire. La transaction de ces titres sur les marchés financiers aide à stabiliser l'environnement du marché investisseur secondaire. Chaque intermédiaire du marché secondaire utilise le commerce électronique pour évaluer électroniquement le prêt hypothécaire et confirmer qu'il a respecté ses critères et qu'il l'achètera au moment de la constitution du dossier de prêt par la banque, le courtier hypothécaire ou le prêteur en ligne.

Dans l'environnement canadien, il n'y a pas de tel intermédiaire secondaire qui achète directement des prêts hypothécaires ou moment de leur établissement, servant comme agence de financement en gros des intervenants qui constituent le dossier de prêt sans avoir leur propre source de financement hypothécaire. Les grandes institutions financières émettent des TH pour titriser leurs prêts hypothécaires. (La SCHL joue un rôle de garant pour les banques qui émettent des TH, et pour la Fiducie du Canada pour l'habitation qui achète des TH et émet des Obligations hypothécaires du Canada.)

Il existe donc une différence marquante entre les modèles hypothécaires américains et canadiens. Par exemple, quand l'intervenant qui constitue le dossier de prêt aux États-Unis cherche du financement, ils peut s'adresser à des intermédiaires du marché secondaire et à d'autres prêteurs en gros. Au Canada, l'intervenant qui constitue le dossier de prêt, comme le courtier, n'a pas l'accès direct au capital du marché secondaire et doit donc constituer un dossier de prêt par l'entremise d'un prêteur existant, et probablement concurrent.

Figure 4 – Modèles de financement des marchés hypothécaires des États-Unis et du Canada



Source: International Union for Housing Finance, Organic 2001

Dans la mesure où le commerce électronique facilite le dégroupement des processus de l'industrie hypothécaire au Canada et l'entrée sur le marché hypothécaire canadien, les marchés secondaires pourraient devenir des mécanismes de financement plus importants à l'étape de la constitution du dossier de prêt, répondant à une demande de financement accrue des courtiers, des petites banques et des nouveaux venus à la recherche d'une autre source de financement que les grands établissements prêteurs qui leur livrent concurrence.

L'incidence du commerce électronique sur l'accessibilité du financement pour l'accession à la propriété devrait être positive. En plus d'être susceptible de réduire les coûts, le commerce électronique devrait permettre aux prêteurs d'améliorer de façon rentable les produits hypothécaires destinés aux consommateurs. Les établissements prêteurs canadiens offrent déjà aux consommateurs une très grande accessibilité au financement hypothécaire.

Conclusion

L'incidence immédiate du commerce électronique sera d'abord modeste et graduelle, mais ses effets seront cumulatifs. Comme on pouvait s'y attendre, le rapport prévoit que l'évolution résultant des technologies du commerce électronique se poursuivra au-delà de 2006. Le secteur du crédit hypothécaire au Canada a connu une évolution remarquable depuis 25 ans. La transformation de la démographie des consommateurs, leur plus grande mobilité et la transformation structurelle en cours sont autant d'aspects qui exercent un effet sur l'industrie hypothécaire canadienne. L'effet net de ces tendances aura considérablement plus d'incidence sur l'industrie hypothécaire canadienne que les effets anticipés des technologies du commerce électronique à elles seules.

Le commerce électronique devrait néanmoins améliorer la communication et le flot d'information, alimentant les tendances compétitives déjà présentes dans le secteur des services financiers. À long terme, les technologies du commerce électronique ont le potentiel de faciliter l'évolution de l'industrie canadienne du crédit hypothécaire, composée de grandes compagnies à intégration verticale, vers une structure à parties multiples comme aux États-Unis, reposant sur l'impartition à des fournisseurs concurrentiels d'opérations, de technologies et de financement.

La création d'une grande communauté d'impartition au Canada pourrait réduire considérablement les coûts qui font obstacle à l'entrée sur le marché hypothécaire canadien et accroître la concurrence à tous les niveaux, offrant plus de choix et de produits abordables aux consommateurs. Même si ces changements pourraient commencer à se produire sur le marché au cours de la période 2001-2006 visée par le présent rapport, les effets les plus importants, s'ils se réalisent, auront lieu au-delà de 2006.

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Introduction and Methodology

The primary objective of this report is to examine the impacts of e-commerce technologies on homeownership finance access and affordability in Canada. Within this context, the report seeks to address the questions set out in Table 3:

Table 3 - Project Objectives

Housing Accessibility	Housing Affordability
• How has e-commerce changed consumers' access to housing finance in the U.S. and Canada? • What are the implications of e-commerce for the high-loan-to-value-ratio[1] mortgage market in Canada which may not require mortgage insurance? • What are the major differences between the U.S. and Canada in terms of the impact of e-commerce on access to housing finance? • Is e-commerce expected to further change access to housing finance in the U.S. and Canada, and if so, how, to what extent and over what time frame? • What are the implications of recent changes made to the Bank Act on e-commerce and the Canadian mortgage market?	• Has e-commerce changed housing affordability in the U.S. and Canada, and if so, how and to what extent? • What are the major differences between the U.S. and Canada in terms of the impacts of e-commerce on housing affordability? • Is e-commerce expected to further change housing affordability in the U.S. and Canada, and if so, how, to what extent and over what time frame? • How have mortgage loan risk management practices (that is, credit models) been integrated with e-commerce by mortgage originators, including those not associated with traditional banks, for use in assessing the quality of their loans?

Description of Approach

The report focuses on the effect of the increasing use of e-commerce on three primary constituencies:

I. Consumers access to homeownership finance and housing affordability.

II. Industry stakeholders, including:

- Mortgage lenders
- Mortgage loan insurers

[1] High-Loan-to-Value mortgages refer to consumer mortgages where loan value represents more than 75 per cent of purchase price. These mortgages are not allowed to be held by chartered banks without mortgage insurance or like risk-mitigation. Mortgages that fall under the 75 per cent threshold are commonly referred to as conventional mortgages.

- Mortgage brokers
- Servicers and securitizers
- Securities brokers
- Institutional and individual investors
- Real estate industry
- Developers
- Builders
- Appraisers and inspectors
- Title companies
- Property insurers

III. Government, particularly as related to regulatory and public policy bodies, including those administering:

  - consumer protection and information disclosure
  - financial industry soundness
  - competition
  - taxation
  - cross-border trade
  - land registry

In order to address the issues framed in the report objectives, we will present a value chain for the mortgage industry which depicts the processes, or value-creating activities involved in the industry (see below). The value chain approach facilitates the comparison of the relatively disparate mortgage processes within Canada and the U.S. by breaking down the mortgage processes into distinct components and relationships between stakeholders. By breaking down the process into logical components, the value chain model further allows analysis of how individual technologies will change the economics of processing and the relationships between stakeholders.

The analysis contained in this report is based on roughly 170 articles (see Bibliography), and interviews with 50 industry experts in both Canada and the United States. The interviews were selected based on the findings of secondary research, Organic analysis and suggestions from CMHC project leads. Figure 5 illustrates the distribution of interviews by stakeholder and country, while Table 4 lists the companies or organizations that agreed to participate in the interviews.

Figure 5 - Distribution of Interviews by Industry Segment and Nationality

	Government	Banks	Brokers/ Other Originators	Mortgage Insurers	Secondary Market GSE's	Ebanks/ eBrokers	Industry Associations	Analysts	Technology Providers	Real Estate/ Title	**Total**
Canada	6	6	4	2	0	4	5	2	6	3	38
US	1	2	2	2	1	1	1	1	2	1	14
											52

Organic, 2001

Table 4 - List of Organizations Interviewed

Canadian Organizations		U.S. Organizations
▪ Accenture (Canada) ▪ Bank of Canada ▪ Bank of Nova Scotia ▪ Bank of Montreal ▪ Basis 100 ▪ BCE Emergis ▪ Canada Life ▪ Canada Mortgage and Housing Corporation ▪ Canadian Bankers Association ▪ Canadian Bar Association ▪ Canadian Imperial Bank of Commerce ▪ Canadian Lawyers Network ▪ Citizens Bank ▪ City of Montreal, Housing and Urban Development ▪ Credit Union Central (BC) ▪ Department of Finance ▪ Debt Recovery Network ▪ FILogix, Inc ▪ First Canadian Title ▪ First National Financial	▪ GE Capital Mortgage Insurance Canada ▪ Greater Toronto Home Builders Association ▪ Home Loans Canada ▪ ING Direct Canada ▪ Law Society of British Columbia ▪ MCAP, Inc. ▪ Mortgage Intelligence ▪ Ontario Ministry of Municipal Affairs and Housing ▪ Societe d'habitation du Quebec ▪ Superintendent of Financial Institutions ▪ Royal Bank ▪ Royal Lepage ▪ Title Lawyer ▪ The Mortgage Centre ▪ Toronto Dominion Bank ▪ Toronto Real Estate Board ▪ Teranet	▪ American Land Title Association ▪ Bank of America ▪ Countrywide ▪ Dove Consulting ▪ Department of Housing and Urban Development ▪ Fannie Mae ▪ Freddie Mac ▪ GHR Systems ▪ GMAC Mortgage ▪ LionInc ▪ Mortgage Insurance Companies of America ▪ Morgan Stanley Dean Witter ▪ PMI Mortgage Insurance ▪ Office of the Research Institute for Housing America ▪ Washington Mutual

The Definition of E-Commerce Technologies

E -Commerce describes the process of conducting business transactions via the Internet or related technologies.

The term refers to a series of concepts, standards, and competing technologies that allow companies to more readily share electronic data in the process of conducting trade. As such, the term e-commerce is not specific in terms of an actual technology, but rather refers to a series of technologies that enable communication or collaboration via the Internet.

E-commerce technologies consist of hardware, software, network applications and related concepts grounded in the philosophy of open, pervasive computing – where electronic data is ubiquitously available (open) and readily manipulated throughout the appropriate user community (pervasive).

A core philosophy of the e-commerce is the computer's role as a communication device, rather than just a processing device, within a network of other computers that contain data and applications that are available for common use.

There are six general implications to consider as the industry moves toward an e-commerce model:

- *Pervasive Computing.* The introduction of network computing also infers network-pervasive workflow and supply chains. Given the central role that the network will have in reshaping value and communication, we expect that the computer and networks will assume growing role in consumers' lives and in business.
- *Information Flow is Workflow*. Given that processes and flow of information will be impacted via the use of a network, necessarily the new way of processing information via the internet will necessarily reshape the workflow of the mortgage value chain and the relationship of all stakeholders within the chain. Thus as information flow changes, the relative value of stakeholder roles, the individual actions of employees and even the organization of the value chain must called into question.
- *Information Transparency.* Open and pervasive computing means that information is always available and therefore transparent. Therefore business models that competed on lack of transparency (i.e. information intermediaries, brokers) are at an immediate disadvantage as their value is eroded by the computer's ability to compare features, prices and availability. In order to survive, those businesses must find new value propositions.
- *Value of Information.* As the market moves to theoretic full information transparency, the price for information must move toward zero because only in non-transparent or semi-transparent environments does product information hold value. There is an essential

paradox associated with information value, as information must cost something to produce and therefore is not "free". However, the concept has a number of implications for the industry structure in terms of the role of various existing stakeholders (eg. brokers and appraisers) and for improved consumer choice through ready access to education and counselling information.

- *Heightened Consumer Decision Power.* Given the Internet's communication potential and information transparency, consumers are more empowered in terms of advocacy, choice and product development. Ideally, this means enlarging the number of choices a consumer has both in terms of applicable products and suppliers through improved awareness and accessibility. Likewise, it also raises issues of product comparability, for example Canadian consumer access to U.S. mortgage information via Yahoo! and necessarily the indirect competitive pressures felt by Canadian industry players as a result of that information.
- *Network Effect.* Given that e-commerce is reliant on the Internet, necessarily the applications and data within the process are accessible via a shared network (i.e. the Internet) and as such the value of the software and data is not necessarily contained by a single company but shared through the supplier network. Further, that the product is no longer physical but electronic also can change how a function is delivered and who delivers it. Therefore, e-commerce technologies can fundamentally alter when, how, who and when data can be accessed – away from linear or successive work processes and toward a network-based simultaneous processing model, where more than one stakeholder can process the same data via the network at the same time.

E-Commerce and the Consumer Experience

The current status of e-commerce technologies in mortgage offerings in Canada and the United States

Introduction

How have e-commerce technologies been used to date by the Canadian and U.S. mortgage industries? In this chapter, the report will move to examining the impact on various e-commerce technologies on the mortgage experience – starting with the consumer.

The infusion of the Internet into mainstream culture has affected how Canadians look at the world around them. One of the areas most influenced by the Internet has been the financial services industry. Financial services were one of the first industries to introduce online services into their day-to-day operations and it is as a global tool of finance that the Internet has found one of its greatest functions. Canadian banks have been widely regarded as market leaders in the application of Internet technology. As a result, Canadian online banking penetration ranks among the highest in the world.

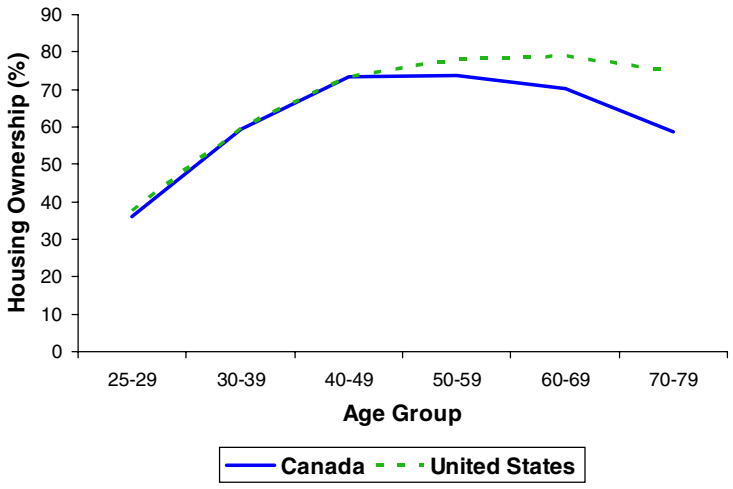
Mortgage and home financing products are among the more recent additions to online financial services with the greatest development in these sectors taking place since 1999. Particularly in the U.S. market, there has been an intense focus on developing the online channel as a primary venue for consumer-focused mortgage and housing finance sales. There remain significant hurdles to online mortgage sales, largely due to consumer emotional reactions and lingering doubts about the efficacy of the Internet itself in terms of privacy and security. As a result, industry results in the U.S. have been mixed. On the one hand, consumer-focused sales levels have been disappointing; on the other hand, the use of Internet technology to facilitate broker sales and to improve the internal efficiency of financial institutions has been resoundingly successful.

In light of this, it may not be surprising that the most successful mortgage-related sites have not been financial services sites *per se,* but rather financial services related research, news and education sites. The research indicates that Canadian and U.S. consumers are increasingly looking to the Internet for information about the entire home purchase and finance process. The sites that consumers in both countries are looking to are not lender sites but information portals such as Yahoo!, MSNMoney and AOL.

Home Purchasing Patterns

Canadian and U.S. consumer share home ownership purchasing patterns and therefore and therefore housing financing purchase patterns. Home ownership, and therefore mortgage market, is tied to demand factors such consumer life-stage, and family status; economic factors such income and capital for down payments; and supply factors such as housing availability. As illustrated in Figure 6, U.S. and Canadian consumers share similar home buying characteristics:

Figure 6 - US and Canadian Home Ownership by Age Group[2]



Source: Chiuri & Jappelli, 2000

- As demonstrated in Figure 6, young, single consumers in both countries tend to rent, particularly in urban settings, as they initiate their careers, finish education and establish roots in their community. As a result, there is a relatively low penetration (approximately 35%) of house owners in their 20's in both Canada and the U.S.
- As the consumer matures, however, housing ownership increases. Largely this is a result of market demand from young families, which given the availability of capital, will tend to buy homes. The capital issue is an important consideration of accessibility, as few younger consumers have the 25% down payment available for down payment required for a conventional mortgage. As a result, both U.S. and Canadian policy makers have focused resources on enabling home purchases with less than 25% down payment through mortgage insurance and High-Loan-to-

[2] Maria Concetta Chiuri and Tullio Jappelli. "Financial Market Imperfections and Home Ownership: A Comparative Study". The Centre for Studies in Economics and Finance - Dipartimento Di Scienze Economiche - Università Degli Studi Di Salerno. December 2000.

Value mortgage schemes, such as those provided by the CMHC in Canada and the Federal Housing Authority (FHA).

- Housing ownership peaks when consumers reach their mid-forties in Canada and mid-sixties in the U.S. market.
- Finally, housing ownership drops as consumers age and seeking greater financial and residential flexibility during their retirement. They may opt to either sell their homes or find ways of turning their assets into income properties.

Impact of Demographic Changes on Mortgage Access and Affordability

Another trend not directly related to e-commerce, but which could be potentially influence how e-commerce technologies are implemented, is the general trend of an aging population in Canada.

StatsCan data suggests that the median age of Canada's population Canadians will increase by 2.2 years between 2000 and 2006, from 36.8 to 39.[3] The rise of median age is significant in such a short period of time and indicative of the pronounced effect the baby boom. As a result, Canada is about to see a more pronounced in the 50+ age group by 2006. Given the assumptions on consumers purchasing patterns for mortgages in the first chapter (see Figure), an aging population raises two questions:

- How will the mortgage and housing finance product-mix be effected by this trend, and therefore where will technologies be applied or invested in?
- How will age differences be translated to accessibility for Canadians?

Aging and the Impact on Mortgage Products

One of the expected results as a result of an aging population is a reduction in growth of mortgage debt. The rationale for this assertion is the intuitive recognition that older consumers are both more likely to maintain their homes and be paying down debt; and, also the recognition of the impact of inter-generational wealth transference in Canada, as a result of inheritances and gifts. Based on these assumptions the findings suggest that

[3] Stats Canada, March 2001.

the relative market penetration of conventional mortgages in the market could grow as more consumers are able to put down the 25% required for an uninsured mortgage. Thus, conversely the research would suggest a relative reduction in market size of the High-Loan-to-Value and mortgage insurance markets.

A generally smaller mortgage market and a shift in consumer product will no doubt impact the Canadian homeownership mortgage industry:

- Canadian lender mortgage technology budgets will continue to be restricted, as investor pressures for cost savings will persist during stagnant market growth. Therefore existing market pressures for incremental implementation of e-commerce will continue as banks will not have the capital to invest heavily in technology until it is fully proven in the market.
- Given flattening growth and increased potential competitive pressures in traditional mortgage markets, there may be increased interest and investment by traditional Canadian lenders in alternative housing finance products such as sub-prime, equity and reverse mortgages. The most significant e-commerce investments may be made in the new product areas at the expense of the traditional mortgage systems areas. This may further delay the impact of cost savings discussed previously as a result of e-commerce technologies in the Canadian market.

Aging and Accessibility

The second issue for us to consider is the impact of aging population on accessibility for consumers. An aging population is a double edged sword for accessibility. On one hand, an aging population means lower needs for first home buyers, lower general debt and increased income transference as a result of inheritance. Thus, as a result there should be improved general accessibility for Canadians.

However, there are some potential negative impacts to consider. One such impact is the trend for older Canadians away from home ownership toward other housing sources. Noting the trends presented by Chiuri and Jappelli in Figure 6, and noting the significant aging trends discussed above there is the potential for a reduced overall housing accessibility for seniors as they move from house ownership to other forms of housing. Further, the issues cannot just be thought of in terms of the relatively affluent home owners move into the rental market, but their impact on the supply for younger and less affluent rental market participants. This issue may demand further research and policy thought in its own right.

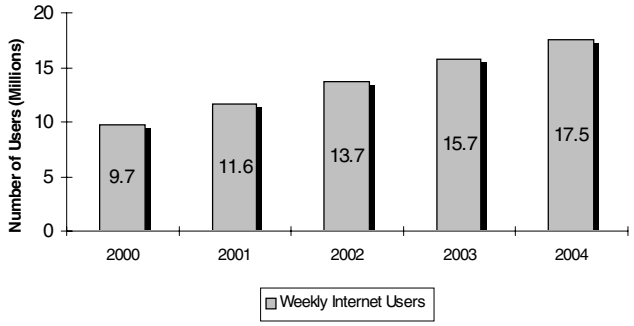
Further, also considered in the analysis was the potential impact of some of the e-commerce enabled lending products such as reverse mortgages and sub-prime loans on aging consumers. This discussion is more fully considered below.

Canadian Internet Usage

Recent figures suggest that Canadians are increasingly going online. In 2001, almost 12 million Canadians logged on to the Internet on a weekly basis (Figure 7) while a further 2.5 million Canadians logged on at least once a month[4]. This suggests that nearly half of Canadians are online on a regular basis.

[4] "E-Commerce Comes of Age". Canadian Bankers Association. April 2000.

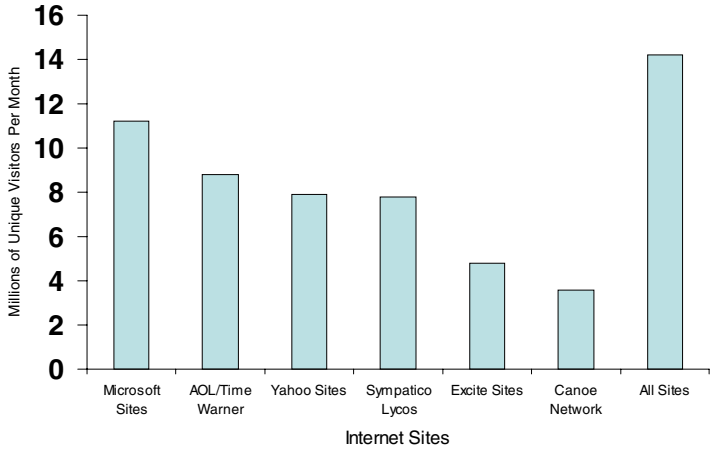
Figure 7 - Canadian Estimated Internet User Population 2000 - 2004



Source: eMarketer, 2001

Web site visit statistics (Figure 8), suggest that the large multi-national Internet portals remain the most popular sites for Canadians, with the exception of the Canadian owned Sympatico (BCE) and Canoe (Quebecor) properties. Nearly two thirds of Canadians going online visited a Microsoft property, and over half visited AOL properties. Further, there remains a trend toward audience concentration directed toward the top 10 online brands. Given that consumers use the Internet for research and advice, particularly financial services advice, these popular online content providers have become de facto sources for product education and price and feature comparison.

Figure 8 - Most Visited Sites by Canadians June 2001

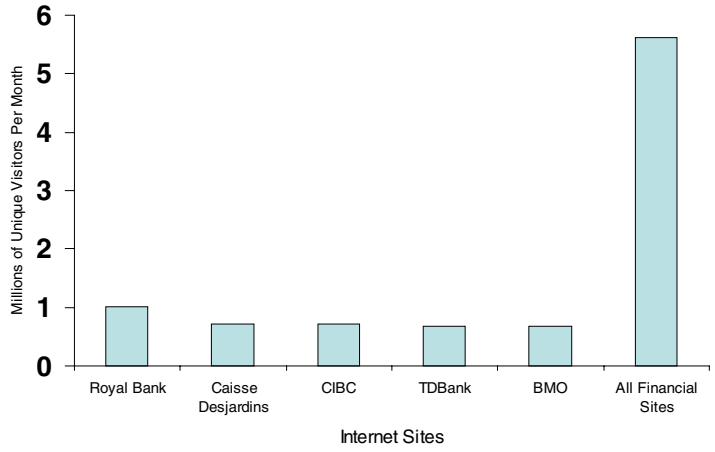


Source: MediaMetrix Canada, June 2001

Site statistics in Figure 9 also suggest that 43 per cent of Canadian online consumers access financial services Web sites, just short of the U.S. financial services penetration rate of 44 per cent[5]. The financial services Web sites of the leading Canadian banking brands receive the largest number of visits, suggesting that historically trusted pre-Internet brands will continue to dominate in the arena of e-commerce.

[5] Jupiter Media Metrix Canada, April 2001.

Figure 9 - Most Visited Canadian Financial Sites



Source: MediaMetrix Canada, April 2001

Canada's position as a physical and cultural neighbour to the U.S. presents a double-edged sword for the development of a Canadian Internet business culture. While Canadians have ready access to the largest market in the world, we are economically vulnerable to the new competitive pressures of a global, yet U.S.- dominated virtual market.

The relatively high penetration of the Internet into the Canadian consumer market has also fuelled significant economic activity in the e-commerce and e-business development arena. Canada ranks second after the U.S. when it comes to Internet-derived revenues. According to the *Canadian E-Business Opportunities Roundtable Report*, in 1999 the Canadian Internet economy was valued at more the $28 billion and was responsible for 95,000 jobs[6].

The Canadian Experience with Online Mortgages

Canadian banks and other financial services companies have been leaders in developing internationally recognized Internet applications. Canadian banks pioneered online, real-time transaction posting for retail accounts on the Internet, as well as access to investment, loan and mortgage accounts.

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[6] Canadian Bankers Association, 2001

The experience with online mortgages also indicates global industry leadership for the Canadian lending banks. All of Canada's largest banks offer online mortgage information and research tools in addition to online applications in various forms. Canadian consumers also have a choice of roughly fifty other online providers of mortgages, including various mortgage brokers, banks, credit unions, insurance companies and other lenders. The research suggests there are two primary elements in the market dynamic in Canada: the size of the lender and their market delivery models. Particularly in the Canadian context, lenders have focused on marketing their own products while new entrants and portal plays have carved out a role as a neutral information sources. These differences can be considered through the prevalent delivery models for retail mortgages online:

- *Direct.* Primarily employed by banks, this model offers consumers product and application information directly from the lender. These lenders are largely seeking to direct sales and applications into the branch or through their online channels.
- *Market.* This model brings together a number of different lending institutions together in a portal-like environment to create an auction-place for lenders. The marketplace is a venue in which a number of lenders can bid for loans. In this way consumers have a greater opportunity to view competitive rate and product offerings and can also save time in filling out applications. Examples include:
    - Lendingtree.ca
    - The Mortgagecentre.ca
- *Portal.* This model uses the power of the sites' information to attract consumers. In addition to advertising revenue based on viewership, the portal businesses are seeking to extract a commission from referrals created by their online site. Consumers value these sites because of the extensive third-party information and tools available to them to assist their decisions. It should be noted that the prevalent names in the portal category are U.S.

based with Canadian content. Likewise many of these portals have links to prevalent U.S. based mortgage suppliers. These portals include:

- Quicken.ca
- MSN Money.ca
- Yahoo Finance
- AOL
- Sympatico.ca
- Canoe.ca

Of these three online mortgage models, the most prevalent by far is the Direct Model. However, with the development of the role of mortgage broker in the Canadian market there has been a move made toward the Market model, as this is precisely the function offered to a consumer if they chose to acquire a mortgage through a broker. Less relevant in the Canadian context is the role of portals, although the report notes their significance in terms of the connection to U.S.-based content sites like AOL and MSN.

The large banks' approach to mortgages (Table 5) on the Internet has differed somewhat: some promote their Internet site as an educational and pre-sales vehicle, others while offer a site that produces applications. These differences speak directly to how the various banks view the Internet channel. TD-Canada Trust, CIBC and Bank of Montreal are actively exploring promoting online applications. The Royal Bank, the Bank of Nova Scotia and Caisse Desjardins use their sites to assist clients to educate themselves but stress the availability of a mortgage specialist or agent on their sites. All six of these are using their site primarily to direct consumers to their own offerings.

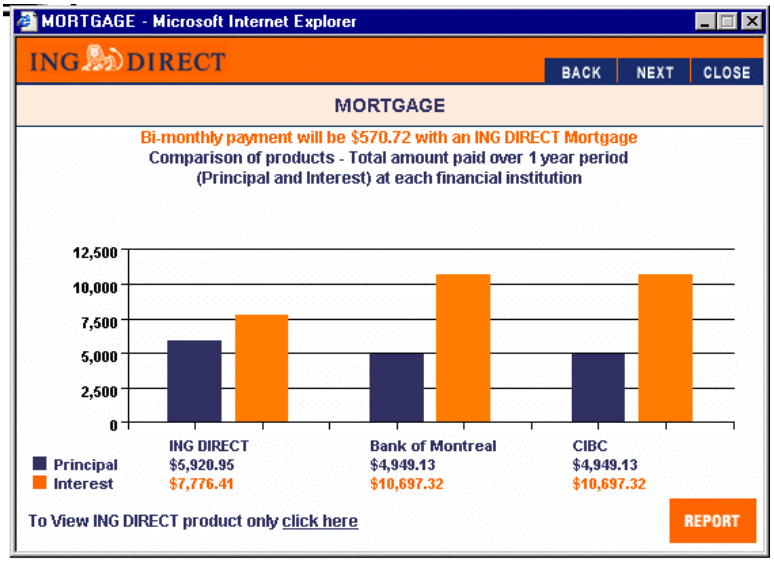
Table 5 - Canadian Large Mortgage Lenders Use of Internet for Mortgage Marketing

	Product Information	Rates	Calculators	Online Pre-Approvals	Home Buying How-to's	Broker /Agent Referrals	Renovation and Equity Loans
Bank of Montreal	●	●		●			
Bank of Nova Scotia	●	●	●			●	
Canadian Imperial Bank of Commerce	●	●	●	●	●		
Caisse Desjardins	●	●		●		●	●
National Bank of Canada	●	●	●		●		
Royal Bank of Canada	●	●	●		●	●	●
TD Canada Trust	●	●		●			

Organic, 2001. As of November 2001.

In addition to our analysis of the bank-based mortgage lenders, the report examined other emerging Canadian mortgage players: Citizens Bank, ING Direct, Lending Tree Canada, Home Loans Canada, The Mortgage Centre and First National Financial. The research indicated that these companies are innovative in using the Internet to attract and service customers and, as with the larger lenders, they use the Internet to generate both applications and sales calls for their brokers and sales specialists. One example of smaller player innovation is the use of the Internet to create comparisons of their products with competitors' rates and product offerings; larger lenders only quote their own rates and product features (see Figure 11).

Figure 10 - ING Direct Canada Mortgage Comparison Calculator



Source: ING Direct.ca

One last difference to be considered is the relative size of the lenders and the impact of their varying technology budgets on the competition for online mortgage origination. The conversations with industry leaders suggest that technology budget allocations will inevitably have an impact on consumer perceptions of mortgage sites. In their current form, the web sites of the large and small mortgage lenders were functionally and qualitatively equivalent (see Table 5). Thus to date, e-commerce has created a level of parity between online mortgage lenders. However, this parity should slowly erode as spending and strategic differences between individual lenders become apparent in site functionality, user experience, information capacity, and more tellingly, through the cost of offerings.

One of the probable reasons for these similarities is that the respective firms have chosen to pursue similar functional developments based on commonly perceived customer needs. Another potential reason may lay in the limited technology spending priorities in a competitive environment and the restricted resources of lenders. Third, and perhaps more

simply, is that the low price point of an Internet site allows smaller lenders to look “bigger” while larger lenders have to struggle to build supporting, but invisible, infrastructure.

Table 6 - Canadian Mortgage Originators Web Screens

Source: http://www.mortgageintelligence.ca

Source: http://www.cibc.com/pl_mortgage_rates.html

Source: http://www.bmo.com/mortgage/

Source: http://www.lendingtree.ca

Interviewees generally agreed that as sales volumes increase there should be an increasingly competitive difference between sites, aided by the capability of enhanced infrastructures that will handle an increased application volume. Several interviewees thought that this would be contingent on organisations committing budget to their web sites. The author concludes that as mortgage application volume from online sources increases, the investments of the larger lenders in infrastructure will likely begin to make a significant difference in customer perception of, and satisfaction with, such a service.

For example, an examination of the screen presentations captured in Table 6 reveals little obvious evidence of originator quality or size. Mortgage Intelligence, for example, is a smaller Ontario based mortgage broker with a site that offers interactive tools, marketing material and applications. The presentation of these offerings on their site is equally compelling as Web sites maintained by many of the larger lenders such as CIBC and Bank of Montreal. In light of this observation it was not surprising that Mortgage Intelligence was purchased by GMAC Mortgage, a large U.S. mortgage lender in April 2002.

Issues Limiting Online Mortgage Originations in Canada

The interviews universally indicated that mortgage lenders perceive that Canadian consumers are reticent to apply for mortgages online. They report that those customers who do apply are largely rate and deal shopping and that these customers use online quotes as a starting reference tool to find or negotiate with mortgage specialists. The interview findings suggest several reasons for consumers' lack of apparent desire to shop for mortgages online. These reasons largely have to do with consumers' general valuation of human intervention in the mortgage process, and also the perception that barriers remain to a full adaptation of the Internet to the needs of the consumer.

The research pointed to several areas to consider in terms of how consumers perceive human interaction as being preferable to online interaction, including the following:

- The home purchase and financing process is an emotional event in most consumers' lives. The interviews suggested that customers still value the direct intercession of knowledgeable professionals, not only to guide them through their choices of finance products, but through the home buying process itself. Thus service differentiation and support remains the purview of trained people.
- There remains a prevalent “negotiation culture” in the Canadian mortgage process. Through the industry’s use of discretionary discounts, Canadian consumers have learned that they can negotiate up to 1.5 percentage points off their mortgage rate for part or full

term.[7] While banks like ING Direct and Citizens Bank are moving to no haggle pricing, by and large the marketing culture plays to consumer expectations for discounts that can only be offered by bank reps in the branch or call centre. To date the discretionary discount is not available online from the large banks. Thus the largest mortgage lenders have created an inherent structural incentive for customers to use offline channels.

- Customers view the individual loan officer/broker as vital to the lender's mortgage decision process. The research indicated that customers still perceive bank managers or brokers as being the arbitrators of customer value or risk. Therefore, even though all Canadian lenders use automated risk assessment tools, there remains the perception that a personal relationship with mortgage officers will enhance the applicant's chance of receiving approval or better rates. The actual decision for offering discounts, however, are largely made based on market environment, market share considerations and competitive pressures in the area and most lenders reported only marginal roles for lending officers in the risk management process.
- Canadian consumers see management of the mortgage application as the job of the banker or broker, not themselves. Thus the research suggests that it would be contentious to ask consumers to perform the work functions associated with the mortgage process, without giving them compensation for it in terms of rate discounts or other incentives. Further, many consumers would be intimidated by the nomenclature, form requirements and administrative tasks necessary to self-fulfill a mortgage.
- Lastly, it should be noted that online applications are not available across the country. For example, current regulations do not allow online and phone-based applications in Quebec[8].

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[7] Discretionary discounts have become *de rigueur* in the mortgage sales and negotiation process. The average discount is between 50 and 75 basis points. Although higher discounts have been seen. One factor influencing discounts is the length of time offered – some discounts last for the duration of the mortgage (full term) while others last six months (part term).

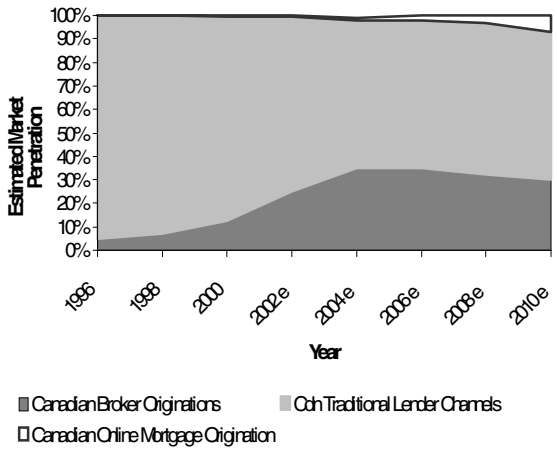
[8] Source: Interviews and TD Canada Trust.com lists a disclaimer on its web site that it cannot accept applications from Quebec. Consumers in Quebec do not directly apply for mortgages as in the rest of the country; instead the negotiation is handled through a solicitor.

In the Canadian context, the mortgage application remains to large degree an in-person mortgage specialist experience.

Also to be considered is consumer interest in, and aptitude for, using the Internet itself. Essentially these issues boil down to perceived consumer concerns over security, privacy and control. While all these issues are real in the minds of the consumers, technology and legislation have already effectively dealt with these issues; in many respects the substance of the issues are less of a concern than in previous, paper based-based eras. And while the interviews noted that security and privacy issues limited customer interest in completing online transactions, there was also a stated opinion that the industry had done a poor job at creating a compelling online experience for consumers: instead of creating consumer-focused applications they had merely enabled existing application processes on the Web. The application form itself, the data needed and the thinking behind help and sales features in today's Canadian mortgage originator sites largely reflect how lenders view the application and do not reflect the consumer viewpoint. This opinion contrasts sharply with those of U.S. consumers accessing U.S. originator Web sites, which have excelled at creating a customer friendly experience in the online application.

None of the bankers, brokers and other industry leaders in Canada expected a significant movement to the Internet channel for mortgage origination. They reported that significantly less than one per cent of applications were processed through the Web. That said, all industry leaders in Canada clearly stated that they thought the Internet channel had the potential to be a significant contributor of leads and referrals, and saw the development of Internet capabilities as much as an immediate defensive necessity as a long-term strategic thrust. The consensus of these discussions is reflected in Figure 11; of course, some interviewees felt that somewhat higher or lower percentages of Internet mortgage origination might result.

Figure 11 - Estimated Canadian Mortgage Originations by Channel



Source: Organic, 2001.

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U.S. Experience with Online Mortgages

The U.S. consumer experience with online mortgages is largely the same as that in Canada with a few variations due to the structural and competitive differences in the provider network.

- As already mentioned, there are fewer obvious barriers to consumer acceptance of unfamiliar brands in the mortgage process as there are significantly more providers in the U.S. mortgage market. The U.S. financial services industry historically struggled with a regulatory regime that favoured regional and strict line-of-business segmentation of the financial services industry, most notably as affected by the terms of the *Glass-Segal* Act. Until the regulatory reforms of the 1997 *Gramm-Leach-Bliley* Act, the U.S. financial system was state-based; even in 2001, there are no truly "national" banks in the U.S. In this context, the Internet was seen by the U.S. financial services industry in the late 1990s as a strategic tool that could create a national presence without investments in bricks-and-mortar channels. As well, because of the lack of barriers to entry, other financial institutions also saw the Internet as way to access new businesses and geographic

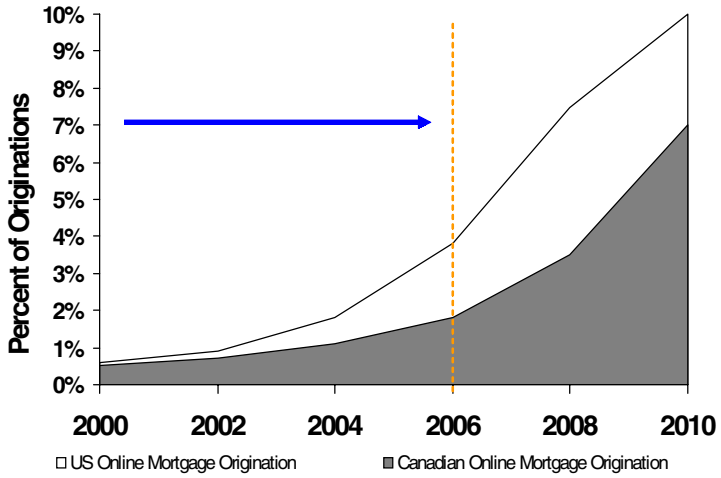
markets. As a result, market entry strategies dominated the thinking of many U.S. lenders in the late 90's with many large banks initiating online brokerage and bill payment businesses and others such as (i.e. Bank One's Wingspanbank.com) using the Internet to create a national banking service footprint.

- Overall U.S. mortgage originations over the Web remain small (Figure 12) less than one per cent of the market in 2001[9]. Consumer online mortgage sites in the U.S. remain primarily a source of marketing and education material, combined with some application capability or broker referral system. However, there is an indication that mortgage renewals and refinancing both hold potential in the U.S. environment as consumers use the Internet to switch to capture rate discounts. It is not unrealistic to suggest that by 2006, five per cent of new mortgage originations and 15 per cent of home related lending products (i.e. secured lines of credit, home improvement loans, mortgage renewals) will be sourced through the Internet. Some forecasts suggest that between 10-20 per cent of mortgage originations will be conducted online by 2010.[10]

[9] Industry sources indicate that 0.6 percent of mortgage originations were derived exclusively from online sources.

[10] Morgan Stanley Dean Witter 2000

Figure 12 - U.S. Online Mortgage Origination Estimates 2001 - 2006



Source: Canada: Organic, 2001; U.S. Dean Witter, 2000.

- Significant issues remain for the U.S. mortgage industry to address. While mortgage companies have made significant investments in online consumer applications, the infrastructure that they use remains largely paper based and regulated by a myriad of local regulations. The extensive reliance on documents and the interdependence of a number of parties within the value chain make it a prime development environment for e-commerce technologies. As a result the U.S. mortgage industry is intently focused on the use of technologies to reduce their costs. Lacking, however, is significant direction and clear software choices in the market.

U.S. research confirms that consumers are using the Internet as part of the home buying process and that the Internet is having an impact on the decisions consumers are making regarding sales channels and conduits.

Industry leaders suggest that online mortgage renewals and refinancing may become key battlegrounds for competing U.S. lenders. U.S. culture and industry structure appears to better support the development of new and or innovative competitive offerings, particularly online. Industry fragmentation, culture and social reasons, together with recent changes in

regulatory structure all play a role in why the U.S. market is more favourable to smaller players in financial services. These lenders invested heavily in developing consumer-friendly and compelling online software solutions, many in conjunction with leading financial software companies such as Quicken, S1 and Financial Fusion. Simply put, mortgage offerings such as U.S.-based Lending Tree, Countrywide and Quicken.com establish the benchmarks for online education tools and content.

The total size and the fragmentation of the U.S. mortgage industry, especially when compared to Canada, is a key indicator of how the two markets have developed their e-commerce technology capabilities and business models. The barriers to entry associated with brand recognition, cost of infrastructure and availability of trained staff are significantly lower in the U.S. because there is less obvious differentiation on size and therefore reliability of the lender. As a result, in the U.S. model it is the small lenders and technology companies that have led the development of online mortgages rather than the large banks as is the case in Canada.

From a consumer perspective, the number of mortgage providers in the U.S. market offers significant options.

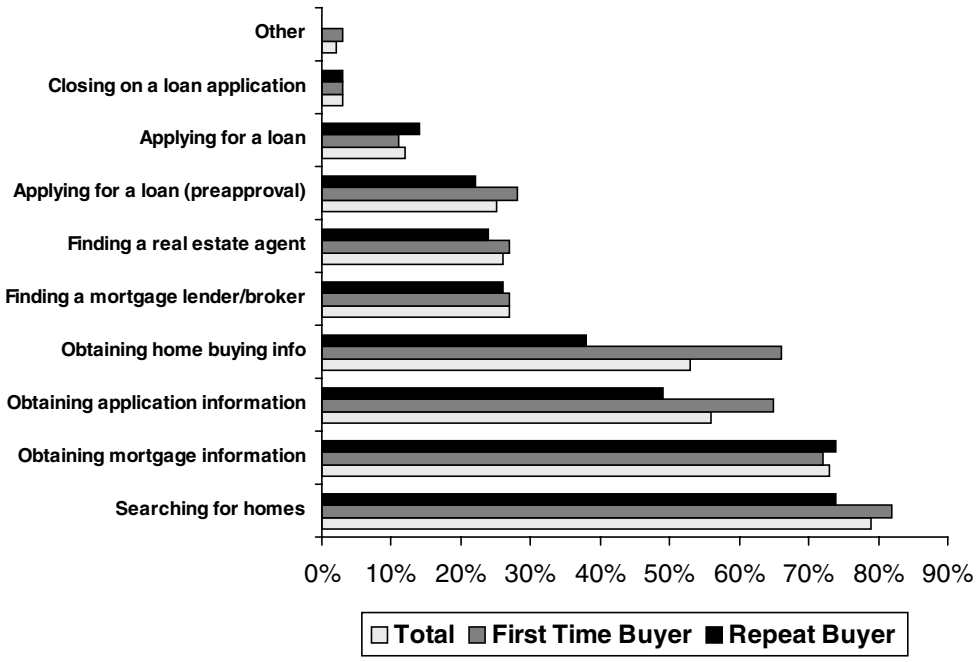
The Internet and the Home Purchase and Financing in the U.S.

Given the industry positioning, it is not surprising to find that the Internet has quickly become an essential tool for U.S. consumers who are buying homes. While the number of U.S. mortgage applications closed on the Internet is expected to remain relatively small, there is a significant trend toward using the Internet as a first point of research, both for new homes and for mortgages.[11]

In fact, U.S. based surveys consistently show that about 60 to 80 per cent of homebuyers are using the Internet during some part of the search process (Figure 13). A recent Mortgage

Bankers Association of America survey also indicates that while transaction activity on the Internet remains low, there is a possibility that both home purchase and mortgage financing will be conducted online in the future, especially by repeat buyers who have a greater understanding of the home buying process. This latter point is important, as research and interview feedback suggested that consumer acquaintance with the online offering is a major determinant in the successful completion of an online application. Therefore, industry experts expect that as more people become comfortable with the online channel for research and education purposes they will eventually become comfortable with the transaction functions. Likewise, this finding was echoed by the interviews with both Canadian lending leaders.

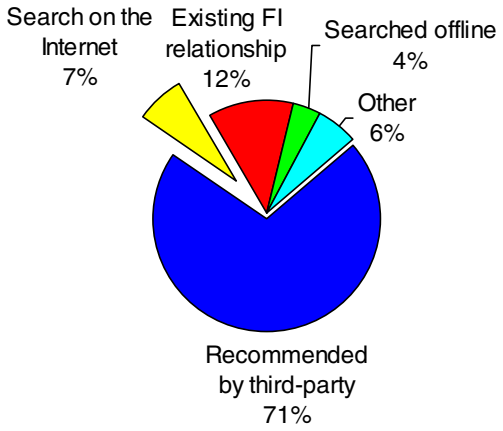
Figure 13 - U.S. Consumer Use of the Internet in Home Buying Process



Source: Mortgage Bankers Association of America Internet Home and Mortgage Shopping Survey, 2001.

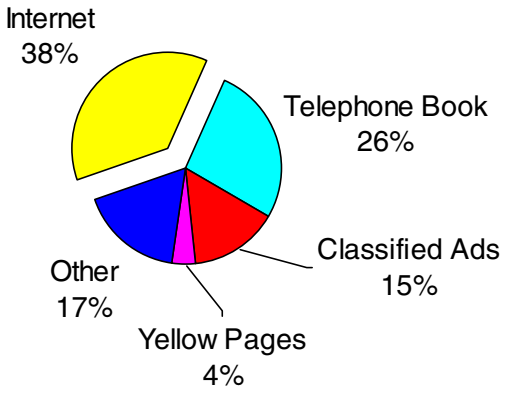
Given the role of the Internet as a research instrument, it is not surprising that U.S. consumers use the Internet to source mortgage products and originating specialists. While the majority of customers are referred to mortgage providers via other stakeholders, seven per cent are referred via Web sources (see Figure 14).

Figure 14 - How U.S. Consumers First Learned about Mortgage Lender



Source: MBAA, 2001

Figure 15 - How U.S. Consumers Found Mortgage Lenders Without Recommendation



Source: MBAA, 2001

For non-referred customers the preferred research and mortgage providing source channel is the Internet (Figure 15). Given that the average consumer will contact two to four lenders in their finance search process, it can also assumed that the Internet is being used to aid in the comparison of competitive products and service providers.

Conclusion

The interviews with industry leaders in both Canada and the United States lead to the conclusion that, from a consumer perspective, the Internet is not likely to become the primary sales-execution channel for most consumers within the 2001 and 2006 timeframe. Instead, the research suggested that Canadian lenders are generally seeking ways to better use the Internet to target marketing materials, particularly for customers engaged in house purchase decisions or those coming up for mortgage renewal.

Furthermore, the research suggests that traditional banks and mortgage providers have become more circumspect in terms of how they see technology becoming engaged to their mortgage processes. These institutions are moving away from their early focus on a direct-to-consumer offering toward a more targeted and instance-specific use of technology to add value to the existing value chain. "E-commerce" has become less a buzz-word, a nebulous concept that invokes fear in mortgage business leaders, and more a platform which existing workflow will migrate toward and adapt to as capital and market conditions allow. In short, e-commerce technologies are making a significant impact on mortgages but not in the way many prognosticators once predicted.

The interviews confirmed that the mortgage industry is moving toward viewing the Internet being perceived as a marketing and information channel with transaction capabilities. The research strongly supported the notion that consumer preferences were governed primarily by service and price considerations, but it was also learned that given the complexity and emotional issues involved in buying a home, consumers also expected education and a degree of personal emotional support through the process. Furthermore, the size and importance of the transaction meant that consumers expected both a high degree of service and perceived confidentiality from their service providers. That the Internet is being used to increasingly aide and enable the purchase of housing and housing finance also suggests that there will over time be increased consumer comfort with the online environment and new frameworks involving both human and online services will have to be constructed.

The question is then, if consumers are for the most part not ready to use the Internet for online purchases of housing finance, where will the principal effects of e-commerce be felt? For that we need to look to the mortgage value chain and its stakeholders to understand how value is created and where savings from improved collaboration can occur.

The Mortgage Value Chain and Stakeholders

Defining the mortgage industry as a value chain and stakeholder roles

Introduction

This chapter sets the context for understanding how Canadian mortgage access and affordability will be affected by e-commerce technologies through the introduction and conceptual definitions of e-commerce technologies and the mortgage process as articulated through the value chain, and key stakeholder roles.

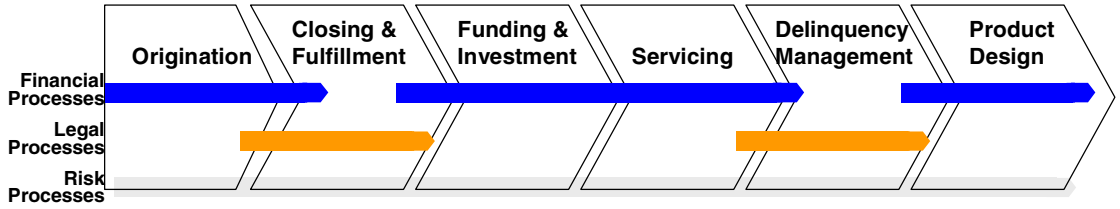
The Mortgage Value Chain

In the simplest sense, a mortgage is a contract between a lender and consumer, which sets the stage for a consumer to purchase a home via a secured (often long-term) loan. In theory, the most efficient mortgage is a direct contract between the consumer and the investor. For example, should an investor with $150,000 available deal with a consumer with a need for a $150,000 mortgage they would negotiate a repayment schedule and interest rate. This relationship would be mutually beneficial as the investor would not share profit and the consumer would not need to pay extra interest in order to compensate other stakeholders. In practice, however, this form of direct mortgage is inefficient for both the lender and the consumer, particularly when one considers such factors as risk assumption, access to investment capital, agreement on terms, and scale advantages. In short, middlemen facilitate the practice of lending by creating scale in operations, funding and distribution and by sharing risk. Thus in the current consumer environment, a mortgage involves a complex series of processes that serve to acquire customers, evaluate customer risk, determine title, fund the loan, manage funding risk versus potential changes in interest rates, create billing and payment functions for consumers to repay a loan, and, if necessary, manage issues associated with customers' inability to repay loans.

This linked series of sales, operations and risk management functions comprises the mortgage value chain. A value chain is a logical (rather than actual) depiction of the processes, or value-creating activities, that contribute to the creation of a product. Value chains are useful for base-line analytical and comparative assessments because they represent a description of functions within a system or sub-systems.

As a result, the discussion of the value chain must occur in the context of understanding how these three sub-processes individually operate (i.e. their stakeholders, responsibilities and perspectives) as well as how they relate to each other to form a complete mortgage offering.

Figure 16 - The Mortgage Value Chain



Source: Organic, 2001

As illustrated in Figure 16, the mortgage value chain is comprised of six major value creating stages:

- **Origination**
    - Origination describes the steps from the attracting of a customer through to the application and pre-approval of their loan. The origination process involves the customer, broker or bank, a third party lender or insurer, and the credit bureaus. The process involves marketing a product to a customer, accepting their application, deciding on acceptance of the application based on risk exposure thresholds as defined by the lending bank or insurer, and finally, notification of the customer of approval status. The Origination component also drives marketing channel decisions.

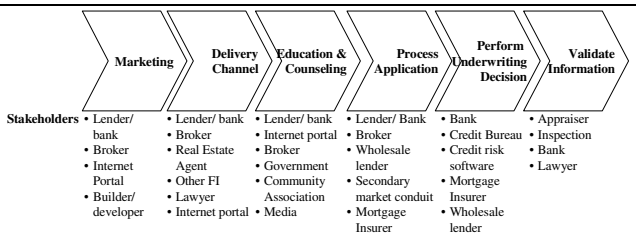
- **Closing & Fulfillment**
    - This relates to all matters pertaining to researching, managing and registering the legal transfer of property between the owner of the property, the bank, and the mortgage holder. The Closing process involves the largest intersection of stakeholders: consumer, lawyer, real estate agent, insurer appraiser, title agent/insurer, originating bank, lending bank, and investor. The Closing process involves managing document flow from purchase agreement through house closing and through to title registry. In the U.S. model, these processes may actually extend beyond the closing of the actual loan (where a cheque is passed from bank to selling party) and therefore involve provisional investment, risk and servicing before a loan has been finally passed on to the lending bank or the securitizer.
- **Funding & Investment**
    - This stage involves the acquisition and management by the lender of the capital to finance the loan. Lenders use internal or borrowed capital to underwrite the mortgage. This can usually be done through two general methods: on-book and off-book. If the mortgage is kept on-book, the mortgage is financed with bank capital, and the asset will count against the bank's capital provisions and the bank will generally manage the funding and interest risk provisions. Off-book loans are generally sold to another lender or securitizer, who then assumes the risk for the loans in the secondary investment market. The Funding & Investment process involves the bank, securitizers, servicers, risk managers and investors
- **Servicing**
    - This describes the ongoing processes employed through the duration of the loan for managing repayment and the risks associated with failure to repay loans. The process also involves making the reciprocal pay-out to investors. The Servicing component may also involve some marketing; the lender will use servicing data in order to sell the customer other financial products, or to position itself for the time when the mortgage term expires and the mortgage is renewed.

- **Delinquency Management**
    - Mortgage accounts occasionally fall delinquent – that is the repayment of interest and principal will have not been paid for an extended duration. Delinquency Management involves the procedures lenders' use to manage late, delinquent or problem loans through to resolution (payment) or through to foreclosure. The process involves the servicer of the loan, who acts as the first point of contact for customers, bank risk managers, collections companies, and, potentially, government or third party credit counsellors. While the objective is not foreclosure, should it be necessary the process also involves the bank's legal department, the customer's legal representation, the courts, property managers, and real estate agents; culminating in the sale of the property and the settlement between the lender, investor and insurer (if applicable).
- **Product Design**
    - This component concerns the creation and management of the financial product, both at the consumer level and at the funding and management level. For the most part Product Design is controlled by the lending institution; however, the growing use of third-party suppliers in operations, software design and risk management suggests that an increasing number of stakeholders will be involved in the product creation process in the near future, as is the case in the US. The key elements of this phase are centred on creation, validation and implementation of product requirements, with implementation being the area involving the most work. Implementation generally refers to the system's design. Given limited resources and the time required to implement system changes, a special focus is placed on which product enhancement receives priority. Many system enhancements are in development for years before being implemented.

Figure 17 - Summary Mortgage Value Chain Process &Stakeholder Roles

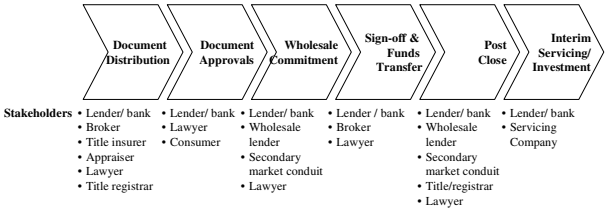
Origination

- *Describes the processes for marketing mortgage loans and processing the application approval.*



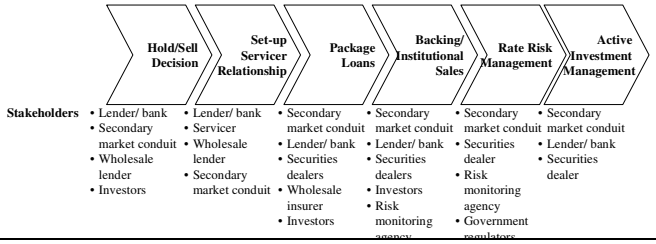
Closing & Fulfillment

- *Describes the legal processes for transferring and registering property ownership.*



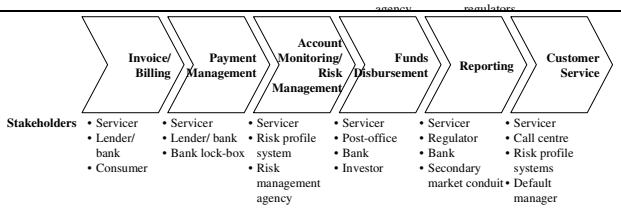
Funding & Investment

- *Describes the processes for managing initial and ongoing risks of managing capital used to finance the mortgage.*



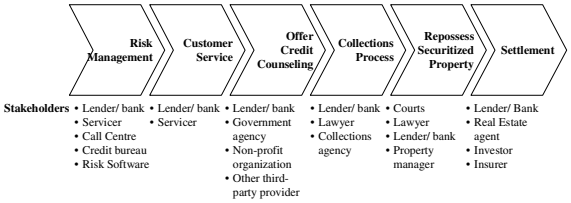
Servicing

- *Describes the processes associated with the ongoing operational management of the repayment of the mortgage and investors.*



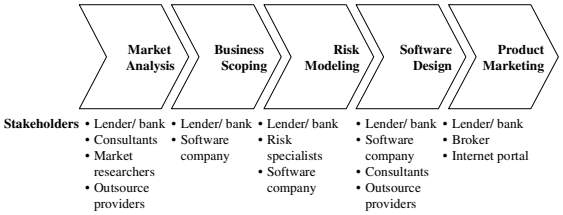
Delinquency Management

- *Describes the processes associated with late or lack of repayment of the mortgage.*



Product Design

- *Describes the processes associated the development of new mortgage features, product capabilities and pricing.*



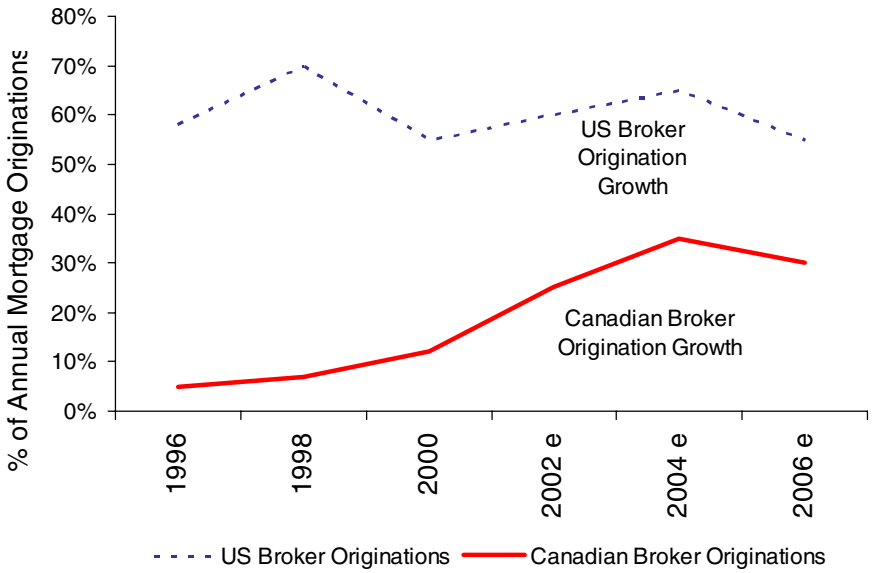
Mortgage Value Chain Stakeholders

The mortgage value chain involves a number of contributing stakeholders. The role and relationship various stakeholders play in relation to the value chain is summarized in Figure The following stakeholders are involved in the mortgage value creation processes:

- *Appraiser* is a person or company that evaluates the proposed purchase-property (or, applicable records) to determine its market value. The appraiser works in the Origination and Closing value chains. The appraiser's role is largely to prevent fraud, for example, where someone might take out a $500,000 mortgage on a $100,000 property. However, the appraisal process is largely subjective and has been open to abuse. The existing appraisal method is also costly; there has been a significant movement to introduce drive-by appraisals or tax-roll checks to validate house worth and area worth.
- *Builder/Developer* is the lead constructor/investor/manager of new properties and homes or alternatively the owner of the condominium property. Strictly speaking they are not part of the mortgage value chain; however, they both influence customers' decisions and in the U.S. have increasingly begun to offer finance products directly to consumers. Developers build and sell the home to the customer and, sometimes play the role of real estate agent. Developers play only a small role in the housing finance process unless they offer mortgages to consumers directly or have made alliances with lenders and mortgage brokers in order to facilitate housing financing.
- *Credit Bureau/Scorer* is a private or public company (depending on function and jurisdiction) that keeps and provides credit data on consumers. Credit bureau data is derived from bank, credit and other billing information. The data and scoring methodology provided by the credit bureaus are an in information resource essential to underwriters in scoring consumer credit risk.
- *Mortgage Broker* is a person or company that independently sources and sells lender mortgage products to the consumer. Brokers are involved almost exclusively in the origination value chain and act as agents for the customer by dealing with a number of potential lenders to find the best product fit. In exchange for this service they earn a

commission, which, in Canada is paid by the lender. Brokers add value for consumers because their independent status facilitates transparency and comparison of lender offerings. The role played by brokers in the United States and Canada has increased in recent years because of streamlined application procedures and advances in the technology that allows product comparison, and because of Lenders' desire to improve sales through alternate channels. As illustrated in Figure 18, brokers are expected to account for roughly half of the new originations in the U.S. market and one-quarter of those in Canada. In both the U.S. and Canadian markets broker originations are expected grow through 2004 but will begin to diminish in the 2006 timeframe as the impact of channel fees and availability of alternative channels compete with the brokers core value proposition.

Figure 18 - Broker Based Originations 1996 - 2006: U.S. and Canada



Sources: Morgan Stanley Dean Witter, 2001 & Organic Interviews

In the U.S., the broker commission is between 0.4 per cent and 1 per cent of mortgage face value but is paid by the consumer directly. In Canada the broker is paid a one-time

commission by the originating lender of between 0.5 and 1.5 per cent of the face value of the mortgage.

- *Lender/bank* is involved throughout the mortgage value chain. Depending on the jurisdiction and product, several Lenders can work together to provide a mortgage. In Canada, banks act as lenders, funders and servicers of their loans. In the U.S., there may be both an Originating Lender which markets a loan to the customer and a Wholesale Lender which funds the mortgage and eventually takes over the account.
- *Investor* is the person or entity that, purchase mortgage-backed securities from banks, thus providing money which lending banks use to capitalize their mortgage loans. Investors then receive interest and principal repayments. Investors can be other banks, government agencies, pension funds and even individuals. In the past mortgage investors were tied to a specific loan; if a mortgager defaulted the investor was placed at risk. Investors are now exposed to less individual risk and have increased liquidity due to the use of, and secondary market for, mortgage-backed securities or mortgage-backed bonds. Where these have been insured, investor risk is eliminated.
- *Lawyer* plays a variety of roles in the mortgage transaction, depending on the geography, regulatory environment and complexity of the transaction. The lawyer is involved primarily in the closing and fulfillment process. Typically, the lawyer works on behalf of the customer to steer the title process between the bank and other numerous closing stakeholders. The lawyer's other key role is to counsel and advise the customer on all available options during the purchasing and closing process. At a minimum, lawyers are involved as both researcher and notary in the transfer of deed and title. In many jurisdictions, the use of legal assistance is not a requirement; still, they continue to be employed widely by consumers, particularly in Canada.
- *Mortgage Insurer* insures banks against losses resulting from mortgage default. Mortgage insurance is generally purchased in cases involving higher risk clients and loans, most notably high-loan-to-value-ratio loans thereby increasing mortgage accessibility to a larger number of consumers. To over-simplify, mortgage insurance enhances consumer affordability by reducing the bank's risks and thus reducing the rate charged to the

customer[12]. Even outside the high-loan-to-value mortgage product range, lenders have been increasingly using insurance in order to reduce costs of financing or increase the attraction of mortgages in the investor market. Securitizers also use mortgage insurance to change the risk characteristics of their loan pool. Mortgage insurance is provided by both private and government agencies in Canada and the United States. In Canada, there are two insurance suppliers: the privately-held GE Capital and the federal Crown corporation, Canada Mortgage and Housing Corporation. In the U.S., private companies such as GE Capital, Republic Mortgage, PMI Group, Radian Group and MGIC Investment provide conventional mortgage insurance. In addition, U.S. consumers also have conditional access to mortgage insurance through the government-backed Federal Housing Authority.

- *Real Estate Agent* sells the property to, or on behalf of, the consumer. The real estate agent is primarily involved in the origination value chain, although their role does extend into the closing value chain. The agent generally also acts as the customer's lead advocate and counsellor up until the time that the bid for the house has been accepted. The real estate agent will also refer customers to lawyers and mortgage providers, guiding them through the selection process. Real estate agents receive a commission for selling the home and have been known to generate additional fees by referring consumers to mortgage originators, brokers, appraisers and lawyers.
- *Securitizer* buys individual mortgage securities from banks and repackages them in pools to sell to investors, effectively altering the risk and investment characteristics of the mortgage security. The securitizer improves the efficiency of the market by making funds more accessible to lenders. Securitizers primarily function in the Funding & Investment value chain. In the U.S., the most prominent securitizers are Fannie Mae, Freddie Mac and Ginnie Mae. In Canada, many of the large financial institutions act as their own

[12] Bank treatment of insured capital reserve works differently depending on whether the insurance is from private or sovereign insurer. Sovereign insurers, meaning those owned by or backed by a government such as CMHC and the FHA, are treated by the industry and regulatory bodies as extensions of the state. Therefore their debt obligations are equivalent to other sovereign debt obligations. As such banks are given full capital relief and therefore they do not have to maintain a capital reserve. Private insurers, because they are private entities, could go bankrupt. Therefore banks using private insurers must account for this risk through the application of reserve. As noted later in the document the issue of capital reserve is not inconsequential to housing affordability.

securitizer for mortgage securities. They may purchase from CMHC a timely payment guarantee.

- *Securities Broker or Investment Dealer* is a trader, investment banker, and others who buy and sell investment products for themselves and for investors. Securities brokers facilitate the investment process by acting as middlemen in the packaging and sale of mortgage securities from lenders to investors. Given the increased role and prominence of securitizers, securities brokers have focused primarily on the sale of securities to investors.
- *Servicer* is a company (or, in the Canadian context, a department in the lending institution) that is a specialist provider of mortgage account servicing. Their services range from sending bills to consumers, accepting payments, monitoring account status, handling customer service requests and payments to investors. Servicers generally maintain the ongoing relationship with the consumer when the mortgage is repackaged to a wholesale or secondary market lender. As such, servicers may also be involved in broader financial services marketing campaigns on behalf of the designated lender or other companies given their ongoing relationship with the client, and are important elements of the mortgage renewal campaign.
- *Software Developers/Implementers* are becoming increasingly important to the interrelationship of mortgage stakeholders, because data communication is increasingly done electronically. These companies enable stakeholder businesses on the Web, and the selection of developers and software solutions also influences the products offered to the consumer. The professional services companies that specialize in the implementation of software, are important advocates and influencers in lender strategy. Software developers are potential competitors to other mortgage stakeholders, both in for intellectual capital and because software that increasingly can replace and change the roles incorporated within the value chain.

- *Title Registry Company* in the U.S., manages the title registration process for lawyers and financial institutions, offering insurance in order to mitigate the risks for all stakeholders and using title databases and service agents (including completely separate database management). Title and registry are the most significant cost components of the Closing & Fulfillment value chain. The title process seeks to determine whether property is:
  a) owned by the selling party, and if not, by whom;
  b) clear of liens or other actions (outstanding bills, taxes); and
  c) newly registered with the correct information.

  The risk of title in the Canadian context is different than the U.S., in that provincial governments register title and therefore play a much stronger and more cohesive role in the accurate and timely registration of properties.
- *Provincial Title Registry* differ between various provinces as to how they handle this task. Among issues identified by the research: various levels of record automation and record keeping; differences in provincial and municipal authorities; and, general public accessibility to title records. In light of this, the role of the title company is different in Canada in that it is primarily concerned with the rapid facilitation of the title search process and the insurance of the same. There have been significant efforts made to digitize the title process in Canada by various provinces, which has significantly reduced the overall cost, time and risk associated with registry. However, researching, analyzing and recording title remains laborious, time consuming and involves substantial risk if incorrectly managed. Title insurance, while apparently redundant in most cases, has become increasingly popular with lenders in the market.
- *Title Insurer* plays a similar role in Canada and the U.S. The title insurer works together with the lawyer in order to underwrite title clouds or defects, which are otherwise revealed by a search of title. In addition, title insurers are also able to insure against unknown defects and items such as fraud and forgery, which are traditionally not covered in a lawyer's opinion. Over and above the indemnity benefit provided by the policy, title insurers also have a duty to defend the insured title in the event that a claim is made.

The costs incurred in the defence of title do not diminish the indemnity benefit under the policy. Title insurance protects both owners and lenders while significantly reducing the time required to manage the research and register a property.

Conclusion

A mortgage describes a complex series of risk, legal and financial processes involving multiple private and public stakeholders rooted in entrenched in and extensive history and a legacy of structure. Before investigating how the introduction of e-commerce technologies will impact the mortgage value chain, we need to consider how U.S. and Canadian consumers use mortgage financing and reciprocally how markets have structured their systems and to what effect. In the next chapter the report will examine how the U.S. and Canadian mortgage industries have implemented the value chains, how these differences affect industry structure and competitiveness, particularly stakeholder roles and relationships.

Structural Differences in the Application of the Value Chain

An analysis of structural differences in the mortgage value chain in Canada and the U.S.

This chapter seeks to understand how differences in stakeholder roles in Canadian and U.S. mortgage industry affect industry structure, regulatory environment and industry economics.

Overall, the findings from the research and interviews indicated that Canadian and U.S. mortgage systems are largely comparable from a product and consumer perspective. Where the systems differ significantly is in structure and in the roles of stakeholders generating the mortgage offering. This is largely a result of the systemic choices made: how the workflow is integrated within the individual company structures. The differences are defined by the relative size of the markets, the competitive concentration of the players, historic regulatory choices and by the availability of third-party choices in the market.

These models are expressed throughout the financial services sector in terms of how individual banks create revenue, allocate cost and otherwise function. Even casual observers will note differences in how U.S. and Canadian financial services firms function when they opt to purchase a mutual fund or in this case a mortgage. In Canada, large national banks serve in every jurisdiction of the country and provide proprietary products and services universally through their network. In the U.S., while a larger number of financial services companies exist, fewer serve the entire U.S. population. When a consumer walks into a U.S. bank, they are more likely to see product advertisements from other financial services companies. Further, offerings will differ within the financial services company by state. These differences are reflective of different regulatory and competitive histories between the two markets – but also reflect fundamental differences in how the respective industries have chosen to organize their industry.

Why do Canadian and U.S. financial services structures differ?

The market organization biases of the U.S. and Canadian financial services industries are doubtless a reaction to respective market needs. There are five factors affecting U.S. and Canadian mortgage industry structure:

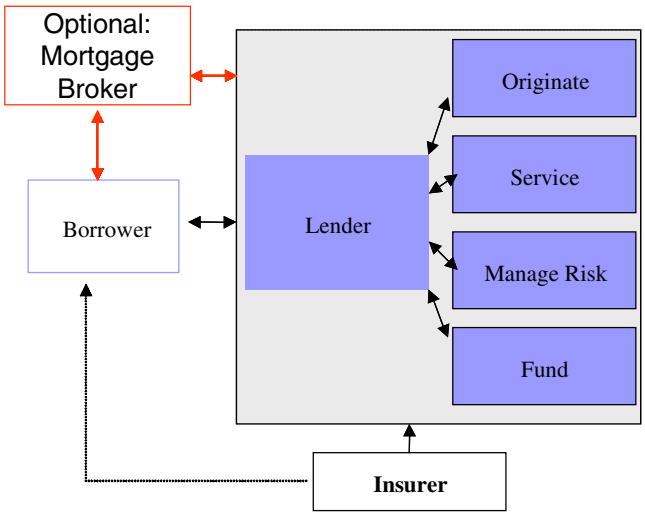
- Organizational models
- Market size
- Concentration of players
- Supplier roles and choices for third-party sourcing
- Competition and barriers to entry.

We investigate the impact of these variables in the following sections.

Organizational Models

In the Canadian model, banks are likely to organize themselves so that all operations, funding and marketing practices are internalized within their own corporate structure. As such the Canadian financial services industry is considered Vertically Integrated (Figure 19). The U.S. model is more likely to integrate a number of third-party companies into the overall bank offering. Alternatively, the U.S. bank may outsource significant components of the mortgage process to various best-practice leaders in the market. Thus, the U.S. financial services industry is considered an example of the Multi-Party model (Figure 20). As will be shown, this difference sets the groundwork for understanding how the U.S. and Canadian mortgage systems function and differ – and forms the basis for a general hypothesis on how e-commerce technologies will impact Canadian mortgage industry structure and consumer access and affordability in the future.

Figure 19 - Vertically Integrated Mortgage Lending Model



Source: International Union for Housing Finance

- Vertically Integrated Mortgage Model (Canada)

  Typically, vertically integrated lenders perform all or most of the functions of mortgage lending value-chain: origination, servicing, risk management and funding. As compared to the multi-party model, the most obvious hallmark of the integrated model is the apparent direct relationship between the lender and the customer. Simply, the customer only deals with one apparent entity for a mortgage loan.

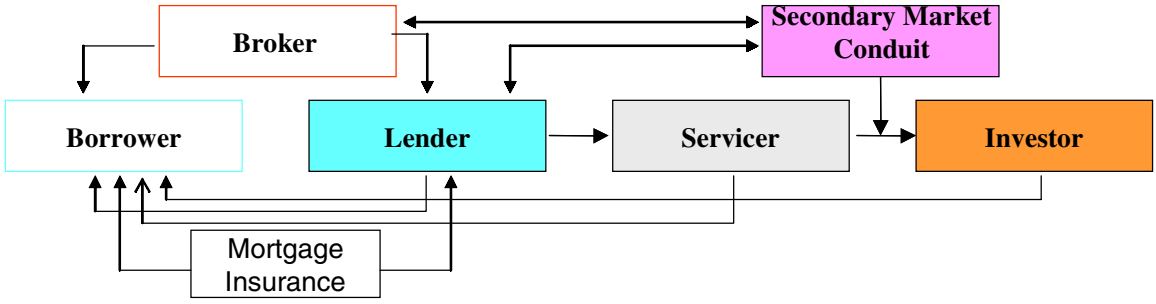
  However, beyond the brand relationship there is both a process and a funding strategy that differentiates the integrated model. From a process perspective, the workflows and technologies used to support the value chain is largely internalized, therefore there are entrenched costs, infrastructure and technology that are effectively fixed.

  Another standard feature of the integrated model is that funding is largely driven from their own sources, namely consumer deposit accounts, savings and or street funds (i.e. short-term borrowing) as opposed to external capital sources such as the secondary market. The use of internal capital provides two key advantages for lenders. First, the use of internal capital supports other lines of businesses (eg. in a bank, deposits and savings are loaned to the mortgage group and the spread is used to demonstrate contribution by the business unit) by providing a higher return on their investment. Second, internal

capital historically is generally a less expensive than external capital. Therefore, a vertically integrated lender should be able to accrue both a higher spread on mortgage funds and provide internal business units with a higher rate of return. However, the historical disadvantages of the integrated model are substantial too, namely artificial subsidization of one business unit at the expense of another, higher integrated process costs, heightened risk exposure, reduced capital management flexibility, and lastly reduced investor transparency.

Another issue to consider is the role of industry model and barriers to competition. Given that the vertically integrated model means that the mortgage infrastructure and intellectual capital is largely contained within the entrenched lenders, the model inherently creates a barrier of entry for new competitors. Therefore, new entrants seeking to enter Canadian mortgage market need to create the infrastructure, systems, operational workflow, regulatory, and funding mechanisms to manage mortgages process given the absence of viable non-competing suppliers in the market. Because of these investments and because of lower volumes moving through similar infrastructures, smaller integrated players will always have a cost disadvantage compared to the scale operating environments of the larger players.

Figure 20 - Multi-party Mortgage Lending Model



Source: International Union for Housing Finance

- Multi-party Mortgage Model (U.S)

  The Multi-Party Model of housing finance describes a system in which the various functions (origination, servicing, risk management, funding) are unbundled and managed by specialized, presumably best-practice entities. Further, these entities will have direct responsibilities for consumers who will have a variety of direct brand relationships through the life of the loan with them.

  Another feature of the Multi-Party model of housing finance is the availability of third party funding sources, generally through a secondary mortgage market wherein mortgage loans are sold and securitized. Loan sales may come from traditional mortgage lenders or mortgage companies that specialize in the origination and servicing of the mortgage assets. Mortgage companies may operate on a retail basis (dealing directly with the borrowers or brokers) or on a wholesale basis (buying loans from other lenders, packaging them and re-selling or securitizing them).

  The primary advantage of the multi-party model is to move away from fixed cost allocation towards a variable cost allocation model (i.e. paying for services used rather than maintaining cost of infrastructure). This is particularly advantageous for lenders without scale in mortgage processing, as infrastructure and technology costs are significant and thus require scale to support.
  Further, a degree of heightened flexibility exists in the multi-party model as service providers can be replaced or augmented. Together, improved flexibility and reduced infrastructure costs improve lender profitability and accounting transparency for investors. These are major considerations in the US market where investor and capital market consideration are key drivers in determining capital availability and investment attractiveness.

  Another significant advantage with multi-party models is that they reduce barriers to entry for mortgage lenders seeking to enter a market. In the U.S. market, numerous providers of outsourcing services exist. This means that new entrants (i.e. start-up mortgage lenders) do not have to invest as much in infrastructure or in developing

intellectual capital as both are prevalent outside of competitor confines. Particularly as the intellectual capital, software and operational expertise is readily available new entrants can leverage existing industry knowledge without having to significantly invest in acquiring or developing that expertise internally.

The interviews with industry sources in both Canada and the US indicated significant fluidity and flexibility of thought within lending institutions as to how to structurally organize to maximize profit and customer service. The interviews also indicated significant openness on the part of mortgage lenders on both sides of the border to look at options to maximize profitability. Therefore it is important to characterize these models as a bias, rather than an absolute, of how the market manages itself; there are integrated lending institutions in the U.S. and multi-partied models functioning in Canada.

Interestingly, our research indicates that players from both systems are looking to their neighbour's models to help them gain further efficiencies and returns. The research indicated that Canadian mortgage banks are looking to the role of outsourcing in the servicing and closing and servicing functions and will no doubt move toward a multi-party structure. Lastly, increasingly there are multi-party player choices in Canada which offer outsourcing choices to mortgage smaller providers. These trends will be discussed later in the document.

Market Size

With a population of 31 million, Canada has about one tenth the population of the U.S. The size of the Canadian mortgage market is about one twelfth the size of that in the U.S. in terms of spending (see Table 7).

By year-end 2000, roughly $435 billion outstanding mortgage loans in existed Canada, of which $100 billion was originated during the year. In the same year, the size of the U.S. mortgage loan outstanding market was $4.5 trillion, $1.2 trillion of which were new mortgages. The size of the market affects a number of variables within a value chain structure, such as:

- number of sustainable competitors in the market;
- value creation capability of third-parties in servicing or call centres; and,
- level of choice and transparency in the market.

Table 7 - Estimated Mortgage Industry Spending 2000 - 2005

	2000	2005	% Change 2000-2005
Canada	$7.83 bn	$8.45 bn	8%
U.S.	$102 bn	$121 bn	19%

Sources, Morgan Stanley, 1999. U.S. Mortgage Finance, 2000. Organic Analysis, 2001. These figures include cost of funds and profit. Canadian Dollars (US dollars converted to Canadian at 1.39).

Concentration of Players

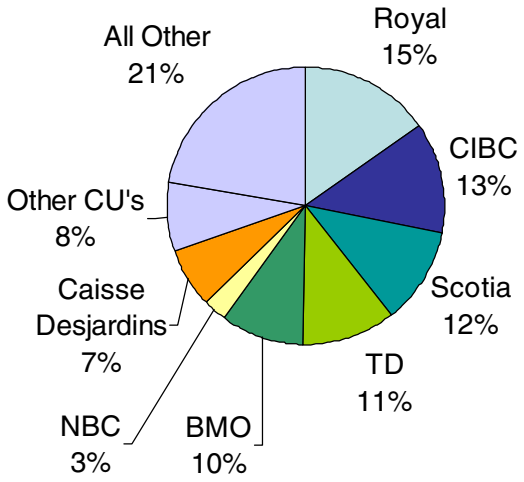
Industry concentration affects the ability of one or a few players to be leaders within a competitive market. In the Canadian context, industry concentration is demonstrated by the consumer market and wholesale dominance of the large banks and credit unions in mortgage lending. The large banks and Quebec's Caisse Desjardins originated or underwrote over 70 per cent of the total mortgage debt in Canada in 2000 (see Figure 21)[13]. These lenders are also the largest deposit, payment and commercial finance institutions in the country. Therefore, it is likely that consumers will already have significant business relationships with their lender of choice prior to the mortgage application.

Further, these organizations dominate industry technology spending and development of intellectual capital. As a result, vendor and software industry market models are not geared towards outright competition but instead geared to a symbiotic relationship. Further, that the commercial success of these vendors and other third parties is driven by less than 10 companies also points to a significant dynamic in the Canadian market structure.

[13] Figures derived from annual reports. TD and Canada Trust reported figures were combined to represent their merger in 2000.

Specifically, the degree of innovation in the Canadian vendor community is limited to the degree of innovation of the large lenders. Finally, given the small community and reliance on lender strategies, vendors in the Canadian context are less likely to stake a significantly competitive position with the large lenders because as the interviews suggested there is a significant business risk to being isolated in the Canadian industry.

Figure 21 - Canadian Underwritten Mortgage Market Share



Source: Organic, 2001

There has traditionally been low industry co-operation and supplier co-dependence within the mortgage market in Canada, particularly in the Servicing, Origination and Investment components of the value chain. Canadian mortgage have tended to internalize the mortgage value chains within a self-contained systems and operations environment based on 30-year-old architecture. Because Canadian mortgage industry computer systems remain mainframe-based, the systems are difficult to enhance in a timely fashion and it is difficult for bank systems to dialogue with those of their suppliers. On the other hand, the mainframe systems and operations environments are highly efficient and Canadian banks have historically

enjoyed lower systems operating costs on average than have the U.S. players.[14] There is increasing pressure to amend the internal nature of these processes in the Canadian market particularly as a result of U.S. investor and capital market pressure on Canadian banks to increase profitability and conform to investment analyst expense, reporting and organizational models.

The interviews with industry leaders indicated that to varying degrees, Canadian banks have begun to embrace third-party players throughout the mortgage value chain. Notably, almost all Canadian lenders look to independent mortgage brokers to augment their sales channels. Further, there has been significant movement by banks to outsource closing and fulfillment operations to title companies, particularly in the case of mortgage renewals. Industry interviews also suggested that Canadian lenders were increasingly interested in seeking partners for selected origination and default management roles. Given scale and system modernization requirements, respondents expected Canadian banks to begin to outsource and merge servicing environments, as they have done with both their payments operations and merchant credit card processing systems.

Concentration plays a different role in determining U.S. value chain characteristics. One obvious difference is the size of the vendor and lender community as in 2000 there were over 100,000 companies involved in mortgage businesses. Further, industry concentration in the context of the U.S. mortgage market first needs to be considered, both in terms of geographical market concentration and across functional roles within the value chain. The regulatory legacy governing the U.S. market means that different states have significantly different structural and competitive make-ups. As a result there are significant consumer information and lender coverage gaps as a result of localized banking structure that more readily supports market and brokerage structures. Further, these localized structures suggest varying levels of mortgage access for consumer based on the availability of national or local funding pools. For example, from a national market perspective the U.S. market shares some

[14]Abera, Alula. "2001 Mortgage Loan Origination, Processing and Servicing Benchmark study". The Corporate Executive Board. 2001. Page 12.

characteristics with the Canadian market, in that the largest players control the lion's share of the market. The top 10 lenders underwrite over 40 per cent of all mortgage loans and the top 10 brokerage houses account for 52 per cent of all brokered loans. State by state, however, these numbers vary widely. In New England one bank dominates, whereas in the mid-west, regional and local banks still dominate. In the U.S. model we also have to consider the market power of non-bank mortgage specialists such as Countrywide and GMAC Mortgage.

Supplier Roles and Choices for Third Party Sourcing

Another factor to consider when comparing mortgage value chains is the role of third-parties. As already mentioned, in the U.S. it is commonplace to outsource entire components of the mortgage process to third-party suppliers whereas in Canada it is more common for the originators to perform almost all value chain functions themselves. The implications of this difference can be felt when it comes to competition, costing and system flexibility.

From a competitive perspective, the availability of a robust supplier network creates lower barriers to entry for mortgage originators; they can enter the market by piecing supplier solutions together rather than having to build an entire systems and operations environment from scratch. A robust supplier network allows for a "virtual production" environment where the product is an assemblage of supplier-produced sub-components. The ability to leverage suppliers enables originators to capitalize on the knowledge and intellectual capital contained within the system and this can mitigate the marketing and processing risks associated with such a complex value offering as a mortgage.

From a cost perspective, a healthy supplier network creates scale opportunities within an industry, particularly if multiple vendors can use a common supply chain. Given the number and range in size of mortgage players in the U.S. market, the supplier network enables smaller providers to compete with larger providers on a cost basis. This is particularly the case in capital markets and servicing, which require significant infrastructure but not specific localized knowledge (unlike closing and fulfillment, which require local specialization).

Another cost advantage offered by suppliers is the ability of mortgage lenders to link supplier costs directly to revenue, thus switching from fixed to variable costs. This is a significant advantage for smaller players who cannot (or, do not want) to cover the fixed infrastructure costs associated with offering mortgages on their balance sheets. A further cost advantage offered by a thriving supplier network is the reduced cost of capital required for system and product upgrades, as these costs are either internally amortized by the supplier or shared by the customer group.

When flexibility in the marketplace becomes a consideration, a flourishing supplier network gives lenders the choice of competitive offerings. Should one supplier not match the needs of a lender, another supplier can replace that supplier with minimal interruption to the function of the system as a whole. However, the ability of a lender to change suppliers painlessly is often dictated by their own product and systems features, as well as by their specific role within in the mortgage offering process. Changing core systems often is not feasible given the complexities of these systems and interdependencies involved; it is not as simple as a straightforward switching of outbound call centres, as an example. A deciding factor in the level of flexibility available to lenders is the data standard used by these companies and their existing or prospective suppliers; if these are common and documented then component replacement is dramatically simplified. However if they are proprietary, then transformation involves significant time, resources and project-risk.

Several disadvantages exist with a supplier-based mortgage industry. First, as supplier-based systems tend to encourage lowest-common denominator products, all customer lenders tend toward the same product set. Secondly, there is less control of overall system and operational efficiency and quality. Lastly, the operations of the individual lenders become subject to the management decisions of one or more suppliers and the differing perceptions of issues, problems, and how best to resolve these, as they arise.

The interviews with industry leaders in Canada indicate that there is strong interest at both the lender and the supplier levels in devolving the internal mortgage operations and systems

structures within the Canadian banks to U.S.-styled multi-party models. In the opinion of many of the of respondents, it is unlikely that the Canadian mortgage industry will complete the transition to a multi-party model by 2006 given concerns about competitive positioning and infrastructure costs.

Competition and Barriers to Entry

The U.S. and Canadian mortgage industries operate in quite different competitive environments. The U.S. market is noticeably more competitive than is Canada's, if judged by the number and types of providers in the marketplace. Furthermore, the U.S. environment supports a wider range of players, from multi-national lenders to individually-run companies, something that is also indicative of the U.S. financial services industry structure as a whole. As well, there seem to be fewer psychological barriers for consumers in the U.S. as far as intangibles such as brand identification and social stigma, so there is a greater tendency to support smaller, less well known lenders.

In the context of U.S. mortgage lender expansion into the Canadian market, the interviews suggest that the financial service competitive environment in Canada is significantly more hostile towards new players. Large, well-capitalized institutions competing for market share dominate the Canadian financial services market. As a result, retail financial services products tend to be priced comparatively lower and offer less profit potential compared to similar offerings by U.S. banks. Lenders that have attempted to enter the Canadian market have found that consumers are less trusting of new providers and less willing to borrow, much less deposit money with them.

Furthermore, Canadian regulatory policy has tended to encourage larger, more stable institutions as opposed to start-ups and entrepreneurial ventures. The effects of these barriers to entry are evidenced, in part, by the retreat of many of the Schedule II retail banks in the

1980s and 1990s[15]. As a result, many of the names that operate in the mortgage community, with some exceptions, are those of the large Canadian banks.

In terms of the supplier environment, the U.S. model has witnessed a larger turnover in players and offerings. The rise and fall of Mortgage.Com and other e-commerce providers exemplifies the entrepreneurial nature of the U.S. mortgage industry. Similarly, the increase in the role of brokers– once thought of as lenders of last resort – in Canada has led to an increase in the number and type of players in the Canadian market, both physically and online. Driven in part by the growth of brokers, a number of smaller lenders have been successful at building a book of business in the mortgage market; however, these players account for significantly less than 10% of the mortgage market. It remains to be seen whether the growth of new and small lender originations is temporary phenomenon or an indication of broader market changes

Regulatory Environment

Both Canada and the U.S. have actively incorporated government agencies and government-backed corporations into the mortgage value chain. Housing has traditionally been a key issue for both governments, as housing market growth is important for economic growth, not to mention servicing basic shelter requirements. Consequently, both countries use similar instruments to reduce costs of mortgages, including:

- *Mortgage Insurance*. Mortgage insurance products encourage accessibility and affordability by reducing the risk to lenders should the consumer default. Further, mortgage insurance increases accessibility to mortgages by letting banks into the High-Loan-to-Value (HLV) market.

[15] It should be noted, however, that much of the reason for the failure of the Schedule II banks were a result of the economic conditions, specifically in the real estate markets in the early 1990's. These conditions also impacted a number of larger trust companies (RT), banks (CCB & Northland) and credit unions. However, our interviews did indicate Canada's small market size, entrenched costs and significant competition did create barriers to success for foreign lenders, particularly in the context of U.S. lender interest in entering the Canadian mortgage market. Further, the recent retreat by Charles Schwab from the Canadian banking and investment markets further illustrates the competitive difficulties faced by foreign entries looking for substantial short and medium-term returns. Canada's small and geographically spread-out population coupled with positive brand preference for established players make for substantial barriers for all but the most patient banks.

- *Securitization and Capital Liquidity.* Securitization or capitalization of mortgages refers to the sale and/or purchase of wholesale mortgage debt in the form of Mortgage Backed Securities (MBS) and/or Mortgage Backed Bonds (MBB). Securitization enables lenders to reduce the cost of capital and therefore encourages lenders to reduce the price of loans while being able to lend to more consumers.
- *Investor Insurance/Assurance*. Governments and their agencies may also use a variety of insurance and guarantees to improve market liquidity and investor risk. One form of assurance is for the government to guarantee the obligations of the secondary market conduit (eg. such guarantee is implied for Fannie Mae and Freddie Mac) and the mortgage instruments, effectively giving them the same low risk profile as government bonds. Alternatively, government agencies may choose to insure the pooled debt, commonly referred to as wholesale insurance, therefore improving the risk profile of the securities for investors. Each of these moves reduces the risks associated with the investment and therefore reduces the rate needed for the security to sell in the marketplace. With a reduced risk environment, the consumer pays less and the investors have improved trade liquidity.
- *Subsidies/Program Allocations.* Governments and regulators have at times chosen to directly engage themselves in direct (program spending, grants) and indirect (taxes, home ownership plans) funding or subsidization of housing finance to encourage ownership and development. This is particularly the case in the U.S. market where there are income federal and state tax incentives for home ownership for lower income groups and where urban development, veterans housing and minority finance access are considered high priority policy initiatives.

In Canada, housing-related activity occurs at the national, provincial, territorial, and municipal levels. Governments have varying degrees of authority for environmental, financial, social, and economic issues associated with housing. They facilitate or complement the action of the private sector and other stakeholders through land use planning,

lending, tax policy, building standards, infrastructure provision, and supportive instruments and programs.

The Government of Canada influences the housing sector in many respects, both through its high-level management of the economy through fiscal and monetary policy, as well as more generally through legislation affecting banking and finance and its role in income support and social security programs. More specifically, through its department and agencies, it is involved in areas such as energy efficiency, technical research and building codes, as well as the development, funding, and operation of an array of housing initiatives.

The mandate of the Canada Mortgage and Housing Corporation, a federal Crown corporation, as stated in the National Housing Act is "to promote the construction of new houses, the repair and modernization of existing houses and the improvement of housing and living conditions"[16]. CMHC sells mortgage loan insurance, primarily in the high-loan-to-value market to approved lenders, mostly banks and credit unions. In fiscal 2000, CMHC insured over 461,000 units for a total insured coverage of $42.8 billion[17]. CMHC also funds and insures multi-family and non-profit rental properties. In addition, CMHC works with approved issuers in the secondary market as a guarantor for $47 billion worth of mortgage backed securities.

The ten provincial and three territorial governments are responsible for the regulation of urban and rural development in most areas through planning legislation, and the regulation of building and housing standards through building and health codes. Most jurisdictions have laws and regulations in place which govern property transactions and landlord-tenant relationships. Provinces also administer land title and registration systems. Provinces and territories have primary responsibility for social housing, similar to other areas of social policy such as health, social services and education, and indeed, administer directly or indirectly most existing social housing programs.

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[16] Canada Mortgage and Housing Corporation. 2000 Annual Report.

[17] Ibid

The provinces have at times become directly involved in single family housing finance through grants, programs or direct mortgage offerings (eg. in the high interest periods of the 1970s).

Municipal governments in Canada are established by provinces and territories which exercise jurisdiction over them. In the main, municipalities have considerable regulatory powers related to land use zoning, land and housing development, and transportation. They are also generally responsible for the provision of infrastructure (eg. local roads, water, and sewer lines). Municipalities also develop and administer bylaws governing the maintenance and occupancy of the housing stock, designed in part to promote health and safety. Municipal governments typically do not involve themselves in single family housing finance.

By contrast, the U.S. housing policy, regulatory and specifically funding infrastructure is significantly more diverse than Canada's. Generally speaking, housing policy in the United States is centralized in the department of Housing and Urban Development (HUD). The department's mandate since the 1960s has been to promote housing ownership within visible minority and low income constituencies and to revitalize certain urban areas through HUD home ownership programs. The direct financial arm of HUD is the Federal Housing Authority (FHA), which was started in the mid-1930s as a stopgap for depression era failures of private mortgage insurance companies.

The FHA provides mortgage insurance to home buyers in the U.S. market. While not a insurer of last resort, the FHA expects consumers to have exhausted private mortgage insurance channels prior to applying to FHA for mortgage insurance. Therefore, FHA has traditionally been focused on higher risk insurance offerings, specifically for individuals who fit their social mandate and who cannot be serviced through private insurance offerings. Together with other organizations, the FHA has an active social agenda. It works with other government agencies such as the Veterans Administration, Ginnie Mae and other focused subsidy organizations to ensure funds are targeted towards target social segments -- particularly minority groups. In addition to these organizations, two government sponsored

enterprises are also involved in socially derived mortgage funding – namely Fannie Mae and Freddie Mac. Together with Ginnie Mae, Fannie and Freddie are active in the primary (origination) and secondary market. However, while Ginnie Mae serves to fund only government sponsored loans, Fannie and Freddie act as wholesale lenders to the entire U.S. mortgage market. As such the scope and size of their franchises are substantially larger than any other lender in the U.S. market. Because they both underwrite, score and approve individual consumer mortgage funding applications, Fannie and Freddie should be thought of as direct players in the origination space, even though in actuality their role is much more akin to a wholesale lender. As explained by Adrian Coles and Judith Hardt, these agencies play a substantial role in defining the U.S. mortgage finance environment.[18]

> In the US central government agencies play a central role. They buy individual packages of mortgage loans from lending institutions and either hold them on balance sheet or securitize them, selling them into the secondary mortgage market. There are three such agencies active in the secondary market in the US. The Government National Mortgage Association, otherwise known as GNMA or Ginnie Mae, guarantees pools of loans originated by mortgage banks. The loans are insured by the Federal Housing Administration (FHA) and are targeted toward lower and moderate-income home buyers. Ginnie Mae is backed by the full faith and credit of the U.S. government, which guarantees the timely receipt of principal and interest. U.S. institutions buying Ginnie Mae mortgage securities do not need to allocate capital to back these purchases, *as Ginnie Mae paper enjoys a zero percent risk weighting, the same as U.S. Treasury bills* [ed: authors italics]. There are two other federal agencies active in the market, the Federal Home Loan Mortgage Corporation, FHLMC or Freddie Mac, and the Federal National Mortgage Association, FNMA or Fannie Mae. In many cases it can be advantageous for a lending institution to sell loans to one of the federal agencies and repurchase credit-enhanced securities backed by the original loans.
>
> These agencies enjoy an implicit U.S. government guarantee; there is a belief, so far untested, that if the agencies failed they would be bailed out, in one way or another, by the U.S. government. They are, however, in other respects, conventional shareholder-owned institutions, with widely traded equity. Bonds and mortgage-backed securities issued by Freddie Mac and Fannie Mae *carry only a 20% risk weighting for U.S. banks, compared to the internationally agreed 50% weighting for conventional residential mortgages*. Fannie Mae holds about 17% of all outstanding mortgages (and therefore about 34% of securitized mortgages), Freddie Mac holds 14% (28%), and Ginnie Mae, about 13% (26%). About 8% of outstanding mortgages (20% of securitized loans) are in pools issued by private conduits, not backed by the federal agencies. (This gives us some idea of why the secondary market in the United States is so large and attractive.)

[18] Coles, Adrian and Judith Hardt. "Mortgage Markets: Why US and EU markets are so different". Housing Finance International. 2001. http://www.hypo.org/speeches/comp-us-eu.pdf

> In effect, the secondary market is government backed, enjoys implicit government guarantees and therefore *provides cheaper sources of funding than other mechanisms*. Informal estimates suggest that the federal backing for Fannie Mae and Freddie Mac, for example, *reduces their funding costs by about 50 basis points*. Moreover, the sheer size of the institutions allows them to develop significant scale economies. Also, the *agencies are allowed to operate with significantly lower capital-to-assets ratios than banks*. They did not become subject to specific capital adequacy regulation until the mid-1990s.[19]

The potential for a Fannie- or Freddie-like secondary market direct conduit to lenders in the Canadian context is examined below.

It should be noted that there has been significant resistance to their activities from private lenders who regard Fannie and Freddie as competition. Despite this resistance, the interviews with U.S. lenders and regulators suggested that many of the large, entrenched players in the U.S. banking and mortgage space also see them in a positive light, particularly as the use of Fannie's and Freddie's technology reduces the cost of funds to banks and costs of administration throughout the industry. Another positive cited by most lenders is the degree of stability and transparency that Fannie and Freddie have created after a number of crises in the U.S. financial services market over the last 20 years. However, it should be noted that there have been casualties in the market as Fannie and Freddie's business models have forced a number of wholesale and banking lenders out of the U.S. mortgage market, most notably GE Mortgages in 2001.

Aside from the Federally sponsored activity in housing policy, state and city governments also play a large role in determining U.S. housing and finance policy. State governments in particular govern many facets of the states' mortgage and banking laws. Many state and city governments have been particularly aggressive in enforcing community reinvestment within their jurisdictions. Community reinvestment refers to the federally mandated responsibility of deposit taking institutions to serve and lend to geographic areas and minorities within their jurisdiction. This is a fairly substantial issue because race, credit availability and economics are tightly coupled to geographic and demographic distribution of the population and banks. Under the Community Reinvestment Act, U.S. banks must apportion loans equally to the

[19] Ibid.

jurisdictions they service with deposit services – effectively forcing banks to service previously poorly served urban areas. There are also stringently enforced federal and state guidelines on fair lending to minorities, especially in the sub-prime market. Racial and geographic accessibility to mortgage funding is a significant issue for U.S. regulators, particularly in relation to sub-prime lending.

Conclusion

The Canadian and U.S. mortgage systems are largely comparable from a product and consumer perspective. Where the systems differ significantly is in structure and in the roles of stakeholders generating the mortgage offering. This is largely a result of the systemic choices made: how the workflow is integrated within the individual company structures. The differences are defined by the relative size of the markets, the competitive concentration of the players, historic regulatory choices and by the availability of third-party choices in the market.

The Canadian financial system's bias towards vertical integration allows individual players to achieve economies and efficiencies. Benefiting from larger proportional market share, individual lenders in the Canadian model have made significant investments in operations, technology and risk management. As a result, individual lenders mortgage operations in Canada are on a par with leading U.S. providers, but because these functions are proprietary, the existing mortgage lenders have a significant cost and product advantage over smaller lenders or new entrants. The "big five" banks tend to dominate the Canadian market because the hurdles at the operational, funding and consumer levels are difficult for new entrants to surmount.

The U.S. system's bias towards multi-party lending models allows the individual companies to capitalize on scale specialist-providers in the market. These providers work throughout the value chain to reduce costs, but are particularly efficient in the servicing and funding areas to create substantial cost savings, so a variety of individual lenders can capitalize on shared infrastructure and common expertise. Because of the multi-party environment, the U.S. model has significantly lower barriers to entry for new mortgage entrants. The impact of greater competitive choice and differentiation by size, focus and geographic coverage in the consumer market, is significant as brand preference and the role of banks in people's everyday lives differ to a great extent in the U.S. and Canada.

Finally, these competitive differences lead to a further distinction between the U.S. and Canadian mortgage industries, notably the contributions of mortgages to income. These differences are accounted for in the market competitive structure, fee structure and capital market demands of individual companies within the system. U.S. lenders do not need the scale and level of investments needed in the Canadian market to remain competitive.

As we shall see in the next chapter, these differences have had an effect on the consumer experience to date, whereby the U.S. market leaders in e-commerce have been new entrants, while in Canada, the e-commerce offerings have been largely lead by the existing market leading lenders.

The Future Impact of E-Commerce Technology

Identifying key technology trends their anticipated impact on the mortgage value chain in Canada and the United States.

Introduction

This chapter discusses the ways in which e-commerce technologies are affecting the homeownership mortgage value chain and what net impact is expected by 2006.

While there has been significant activity in both Canadian and the U.S. markets to use e-commerce technologies to improve the economics and customer experience of getting a mortgage, the results to date have been disappointing. The so called new business models have in fact not created a differentiated offering because the technologies largely focused on the origination component of the value chain, leaving much of the complexity and cost of mortgages unimproved.

This report now turns its attention on how e-commerce technologies, integrated throughout the mortgage value chain, will affect homeownership mortgage finance accessibility and affordability in Canada. Further, given the overall hypothesis that e-commerce technologies are enablers of change, rather than the agents of change, this report focuses on how the various technologies will affect the value chain and, individual stakeholder roles, and on the economic and structural implications of these changes.

In considering the impact of e-commerce technologies, it may be worth considering the definition of e-commerce (described in the first chapter) as a series of competing technologies to aide communication and collaboration of companies involved in trade via the Internet. As will be explored below, these technologies do not refer to specific vendor solutions. Rather, the purpose is to articulate general areas of impact of the key trends espoused by e-commerce on the mortgage value chain and key stakeholders, specifically:

information transparency, information value, heightened decision power, network effects, workflow modification and pervasive computing.

With this in mind, the research identified five key technology trends expected to affect the mortgage value chain between 2001 and 2006.

- **Electronic Documentation Management Technologies**

  Electronic Documentation Management technologies are targeted primarily at lenders and other stakeholders in the mortgage value chain. The technology itself refers to a family of electronic form, data interchange and related workflow technologies that transfer data to an electronic format, and this includes signatures and approval workflow most commonly found in the Origination, Closing & Fulfillment (see **Error! Reference source not found.**), and Default Management value chains. These technologies will be implemented throughout the mortgage value chain, but will have a particular effect in the Closing & Fulfillment value chain.

  The electronic documentation technologies are important for three reasons:

  - The technologies reduce costs of transaction processing through improved efficiency, reduced physical transportation fees and reduced error rates by avoiding the transmission of data via paper between various stakeholders. This reduction in paper transactions reduces the level of human involvement in the mortgage process, the most significant area of expense for lenders.
  - By changing the form of the data, stakeholders can effectively change the mortgage process that was dependent on the previous media. The order and dependencies of the value chain and stakeholders therein are also then affected. Thus, where the industry once had to wait for a series of linear processes to approve a single mortgage document to validate to all parties that sufficient actions had been taken, with an electronic form, processes can be run in parallel thus allowing for a wholesale realignment of the value-chain.

- The intermediary role that many stakeholders play within the value chain is expected to a significantly threatened from the efficiencies gained through the automated transmission of data within the value chain and the realignment of the components of the value chain itself.

Electronic document technologies have already had a great effect on the market in areas like appraisals. It was formerly the law in both Canada and the U.S. that properties had to be appraised by a registered appraiser. Recently, regulators have realized that electronic reference checking is not only less expensive but potentially more accurate than the appraiser valuation. In Canada, CMHC has pioneered the development of a housing database in conjunction with their **emili™** product.

In the U.S., companies have pioneered technologies to reduce the need for appraisals by looking to tax roles, property sales and other recorded data on the property to come up with a likely appraisal value. The electronification of data, while causing some disintermediation of the process, also may create new value opportunities based on the value of the data itself. Another example of the potential for electronic document technologies is technology which enables real estate lawyers to more effectively communicate with lenders and other stakeholders in the closing process in Canada. Such technology attempts to electronically standardize one segment of the document process for mortgages.

The adoption of electronic document management technologies will potentially be limited by the form of data electronification taken by different individual players in the industry. In order for electronic documentation to provide savings all stakeholders within the value chain need to possess the ability to access the same data electronically. This entails consideration of market issues associated with connectivity and promulgation of standards. It remains a significant question in the market as to how and when, given the divergent needs and individual choices of the disparate industries represented in the value chain and stakeholder community, the various parties will seek to establish common data exchange agreements.

One U.S. based group attempting to deal with this is the Mortgage Industry Standards Maintenance Organization (MISMO). However, the interviews indicated significant divergence of opinion as to whether the MISMO standard would become a long-term solution in the U.S. market, with many interview participants looking to private industry and software companies for the eventual solution. As such, it is also unlikely the that the MISMO standard will be embraced by Canadian lenders.

- **Personalized Selling Technologies**

Personalization technologies are geared toward consumers who are, or who will be, looking for housing finance. Personalization technologies are an arrangement of Customer Relationship Management software and databases, combined with complex Web software and business rules that can identify customer behaviour on a Web site in conjunction with product life-stage, and proactively offer likely suitable products, either through email offerings, online advertising or other targeted communications. These technologies will be most commonly found in the Origination and Servicing Value chains that support mortgage renewal customers, where the purpose is to sell other products and services to mortgage customers. The technologies enable lenders to better identify and market to customers being considered for new or renewal home financing, thereby improving the effectiveness of the lenders' marketing budgets.

The efficacy of personalization technologies needs to be examined in the context of the short consideration window allowed by consumers looking to purchase home finance. The interviews and research suggested that customers are fairly immune to lender marketing of mortgage products outside of the period of 90 days before home purchasing or renewal of a mortgage. Therefore, it is important to know when customers are considering a mortgage product. Ascertaining customer interest is then the defining feature of value between offerings and could combine data from renewals, real estate sites, portals and other areas where the customer has shown interest.

The concept of personalization technologies is not new. Many of the technological concepts are actively being explored by lenders in both Canada and the U.S. The interviews suggest, however, that the development and implementation of these concepts will be ongoing through the 2006 timeframe. The interviews suggested that there is a significant gap between the visualization and implementation of personalized selling technologies. Among the hurdles faced by the industry is the availability of data, the development of business rules and logic, and not the least important consideration, a reticence about the effect of these technologies on consumer privacy and trust. Therefore, the research suggests to expect a considerable period of trial and development in the market before these technologies have been perfected and the hurdles addressed.

From an industry perspective as a whole, there is a question of quantifying the return on these technologies, especially given the context of the emotional concerns governing mortgage sales.

- **Improved Credit/Risk Analysis Technologies**

Credit/Risk technologies may have the broadest impact on the mortgage value chain. The business of lending is simply the pricing of capital given the timeframe and ability of the client to pay, coupled with the cost associated with the risks that the capital will change value over time. Lending, therefore, is risk management. Risk management technologies could serve six objectives in the mortgage environment:

  - Reduce the number of bad loans accepted and therefore reduce the loan losses accrued by the bank;
  - Reduce the number of loans rejected and therefore, increase the potential revenue normally missed through faulty appraisal of risk;
  - Improve the ability of a bank to price a loan according to risk and therefore improve pricing, product options and mortgage accessibility;
  - Reduce the cost of managing risk through increased efficiency and accuracy;

- Reduce the exposures to capital risk through hedging and other offsetting products; and,
- Improve customer service and ability to identify customer needs and thus improve customer retention and revenues.[20]

The primary market for these technologies are the lenders, investors and securitizers directly involved in the monitoring and pricing of risk. The technologies build on the existing automated underwriting and risk management technologies, particularly in the use of data and computer applications. These technologies assist in the tasks of accurately evaluating the price of risk on a mortgage application by application basis; managing treasury and interest rate exposure associated with funding; and. assessing the portfolio risk associated with the cumulative exposure of a lender to a certain geography. Risk technologies aim to fulfill the need for more efficient allocation of costs to actual areas of risk, leading to reduced costs associated with unaccounted risk or extra capital allocation, and therefore reduced pricing on average.

There are several examples, garnered from our interviews, of ways in which risk technologies can be used to create savings within the mortgage value chain:

- One example is by the early identification of customers who might be in risk of default and, in these cases, the proactive use of counselling, education and other measures to address that risk, thereby dealing with customer risk prior to the default stage. The use of proactive risk management may be best felt in the mortgage insurance arena, as their customers by definition are in a higher-risk category for default.
- In the Canadian model, there is also a significant potential for risk based capital allocation, or the use of technologies to reduce the capital reserve that banks must use for conventional mortgages.

[20] Lebowitz, Jeff. "Technology and Mortgage Banking in the United States". Housing Finance International. www.housingfinance.org

- U.S. mortgage industry literature suggests that lenders are exploring the use of risk-based mortgage pricing for the general consumer market[21]. However, our interviews with U.S. lenders indicate that this trend may be overrated, as low consumer interest and lender infrastructure capabilities negates a lender's ability to effectively price risk based on consumer credit scores. Further, interviews with Canadian lenders indicated that they did not anticipate implementing full risk based pricing, although several lenders indicated that *de facto* risk based pricing may be implemented through the use of risk-based discretionary discount offerings discussed further in Chapter 8.

In each of these cases, we see the improved and expanded of use of information to better identify and quantify all potential risks through the life of the account and therefore more accurately determine the premium asked for by the bank.

- **Mortgage Broker Technologies**

Mortgage broker technologies are targeted to both brokers and lenders. The purpose of this technology is to make the broker a more effective distribution agent. These technologies are geared toward giving brokers better sales and product comparison tools to assist them in matching customer needs to lender offerings. As a result, the technologies may replicate many of the value creation processes of the banks and give brokers more tools and greater negotiation tools to deal with various lenders and investors. As such, these tools may immediately heighten the competitive capabilities of independent brokers.

An example of how these technologies could work can be seen in a current U.S. offering which combines sales tools, risk management and rate market technologies that offer brokers immediate and transparent access to mortgage financing and investors. In effect, the desktop gives brokers and other agents immediate access to the latest rate, lender and investor offerings. As a result, the technology eliminates some of the barriers to matching

[21] Morgan Stanley Dean Witter. 1999.

investors and borrowers due to geographic coverage or lack of transparency in the market.

These technologies could enable some brokers in the future to begin to develop their own infrastructure to become competitors to the entrenched Canadian lenders. Thus, by redistributing the value created by stakeholder relationships the technology may cause substantial structural change: fuelling needs for servicing and closing outsource offerings directly from brokers, creating a market for direct secondary market funding and by further pressuring lenders into product and service commoditization. This would mark a substantial shift in power both from a relationship perspective and value creation perspective. However, there are relevant examples of increased broker role in the value chain, as demonstrated by the rise of "Super Brokers" in the U.S. market.

The future development of the capabilities of these broker technologies is dependent on who will be the dominant developer and client of the software companies. In the Canadian context, the largest banks remain the dominant technology purchasers and decision makers, and the strategy for broker software development is based on lender needs and not on broker growth. Making the assumption that the U.S. model is an example of the future direction of brokers in Canada, then we should expect to see an industry where brokers are independent of the other value chain providers and are actively involved in building technologies and systems that create value. Therefore, the research suggested a future when brokers are independently building infrastructure to service customer needs and as such becoming weightier stakeholders within the mortgage environment.

- **Application Service Providers & Outsourced Service Bureaus**

  Given that development of e-commerce technologies are expensive, many mortgage stakeholders will not be able or willing to invest in the development of tailored solutions. Likewise, many stakeholders may see the operation and integration of these technologies

within the corporate environment burdensome. As such, the research indicates a trend towards the use of third party software, technology and infrastructure.

Within a general outsourcing trend the report has pointed to two specific trends Application Service Bureaus and Outsourced Service bureaus. Unlike the other technologies, Application Service Providers (ASP) and Outsourced Service Bureaus refer less to specific technologies than to how they are rendered. Both involve the use of contracted providers to augment or replace functions within the overall value chain.

Application Service Providers specifically refer to Internet-accessible software solutions and services hosted by a third party. Clients interact with the software via the Internet. As such the client does not have to integrate the solution within their own infrastructure, further the cost of integration is minimal as the network connection costs are minimized.

Likewise, Outsourced Service Bureaus provide services to mortgage companies such as servicing, payments, or call centre operations that would otherwise have to be provided internally. In both cases, the providers of these services build the infrastructure that is shared between a number of mortgage companies. As a result there is less of a focus for these firms to create custom processes or software solutions than on reducing cost through the use of common offerings and standard data interfaces.

Outsourcing Service Bureaus and ASPs share the same characteristic function of lowering entry barriers for new and smaller entrants in the market by sharing the cost of infrastructure--or in the case of ASPs, the cost of development--among several clients. As a result, smaller players can compete on a cost basis with the larger lenders. Further, these smaller players can focus on what they do best: largely customer sales and relationship building.

Challenges in Adopting New Technology

As with all industrial transformations there are challenges and barriers to the mortgage industry as it looks toward implementing e-commerce technologies, including:

- *A Chaotic Environment.* The term "e-commerce" describes a series of competing ideas or principles of collaboration, which are individually translated by a number of different software companies. The software companies not only differentiate their user interface, but also have different approaches to managing data. This is an essential concern because without an ability to share data between systems, maximum savings cannot be obtained. Therefore the discussion of standards in the mortgage industry is neither arcane nor irrelevant. Rather, it speaks to the entire nature of being able to communicate electronically, effectively or at all.
- *Consumer Demand/Interest.* Another factor impacting mortgage industry thinking is consumer interest in electronic mortgages. The consumer factor affects three issues:
    - Are consumers interested in originated loans online?
    - What is the effect of technologies on consumer recourse and service efficacy?
    - How far can technologies be extended without negative competitive repercussion?

  These can also be thought of in terms of trading party interest and ability to adapt to new technologies. Given the budget pressure in mortgage banking, few players are able to move to new technologies unless the other stakeholders within a value chain (i.e. customers, outsource suppliers, title registry, lawyers, etc.) are also able and willing to move. This creates a potential for technology choice to become a significant determinant of relationships and competitive choice within the industry.
- *Legacy Dominance.* Until recently, the most efficient manner of sharing information has been through paper; and, the Internet has facilitated the era of electronic document flow. Paper offers three key advantages: including that it is accepted as a legal standard, it allows for the translation (albeit inefficiently) of data between differing computer systems and workflows, and it can be read, stored and transferred without needing a technology to decipher it. Further, legacy needs to be considered from the human perspective or what industry calls corporate or management intransigence. As the organization of paper work is an essentially man-made activity the perceptions that govern workflow, the tasks necessary and the shared learning of the people involved all

place a break on radical redesign of work processes. Thus a key barrier is the managers and employees in the mortgage industry, as they come to grips with the conflict between new thoughts and their perception of their work, the task and therefore themselves.

The challenges to the mortgage industry suggest that the application of e-commerce technologies in the mortgage value chain will be uneven and the process complicated.

Conclusion

E-Commerce technologies are having an impact on the mortgage value chain, but not in the way early prognosticators predicted. The underlying premise of e-commerce technologies is the improvement of the ability to collect, comprehend and share information across physical space, through a common open network and via universally accessible data standards. Early mortgage experiments with e-commerce focused on the retail customer and the mortgage purchase process. The industry sought to find the "killer app" or magic bullet that would dramatically improve the economics of mortgages. However, the industry largely met with failure in trying to sell an unaltered product and businesses themselves did not tune into the power e-commerce could provide, only the hyperbole.

The research indicates that there is a new perception of how to effectively incorporate e-commerce technologies and business models into the mortgage process. The industry is expected to see a more pragmatic, problem-focused application of these technologies in the next five years. Respondents indicate that capital and market restraints dictate that they focus their investments in areas where they can save the most money in the short-term, particularly in Closing and Servicing operations. Furthermore, technology investments over the next five years will set the stage for a more fundamental technology and workflow shift sometime post-2006.

Overall, we see a shift in value chain roles and spending but contend that technology alone will not have a large immediate impact. Instead, we expect to see small, incremental improvements in mortgage efficiency that will spread throughout the industry.

Table 8 - Summary: Key E-Commerce Technology Expected Impacts

	Technology Use	Current Use(s)	Expected Impacts 2001-2006	Expected Impacts
Electronic Documents	• Converting paper based forms to electronic data and processing	• Canadian lenders have a relatively high penetration of electronic data in mortgage operations but paper is still used to communicate to non-lender stakeholders.	• Canadian lenders will focus on proprietary technologies to improve their interface with consumers and stakeholders (eg. lawyers).	• Industry moves to industry standard document management applications and protocols
Personalized Selling	• Improve online sales functionality through predictive modeling and proactive suggestions.	• Several lenders are exploring how to use these technologies but generally the applications are still under development. • Consumer privacy and annoyance concerns still limit use of that technology.	• Lenders will incrementally invest in building databases and integration points with call centres and branches to follow up online activity with a timed call from a mortgage representative	• Personalization applications will become commonplace to the consumer experience
Risk Management and Pricing Technologies	• Heightened ability to quantify risks and thus reduce risks associated with account default and funding management.	• High penetration of risk technologies within individual components of value chain but processes not integrated. • Lenders are actively migrating risk technologies to e-commerce platforms. • Credit bureau data and scoring mechanisms are inconsistent and non-transparent.	• Risk applications will be extended throughout the value chain in order to give lenders real time risk data. • Risk data will be shared with involved stakeholders within the lender's mortgage process. • Risk data and scoring will become standardized in the industry.	• The process for developing shared risk management data and technologies will continue beyond the 2006 timeframe. Standardized risk data will be transparent to consumers and regulators
Mortgage Broker Technologies	• Improve ability of the broker to sell mortgage products via sales management tools that allow brokers to access and compare mortgage product information.	• Canadian lenders are investing heavily in building tools that allow brokers to sell. Brokers are generally on the accepting end of lender decisions and software choices.	• There will be friction between lenders and brokers on software capabilities and functions – with lenders seeking to contain brokers and brokers looking to expand their value proposition across the value chain (i.e. funding or servicing)	• Broker owned software will increasingly give brokers the edge in creating a mortgage product. • Broker will get better access to market of best rates and providers
Application Service Providers and Outsourcing	• Internet accessible software solutions and/or Internet accessible operations solutions	• Canadian lenders are not generally heavily invested in outsourcing operations. If they are, current arrangements tend to be black-box outsourcing (i.e. collaboration between stakeholders is minimized)	• Canadian lending community increasingly looking to augment proprietary software and operations solutions with third-party offerings.	• There will be a move away from "black box" outsource model to multi-party collaboration processing model, though proprietary code and processes will continue to be used by some stakeholders.

Quantifying the Impact of E-Commerce Technologies on the Mortgage Chain

Understanding the effects of key technologies on the mortgage value chain, stakeholders and regulatory environment.

The introduction of e-commerce technologies to the homeownership mortgage industry value chain could in time bring about significant changes in how the mortgage process works, how the economics of its functions are structured and how stakeholders relate in Canada. In time, changes to the mortgage value chain should affect the competitive dynamic in Canada. The questions remaining relate to the time frame and depth of change we expect given current competitive, structural and regulatory constraints.

The following section deals with some of the expected functional and economic alterations to the mortgage value chain in Canada, including those modifications to the interrelationships of the stakeholders within the mortgage process, as a result of the introduction of the key mortgage technologies. We seek to understand the effects of these changes on competition and the impact on Canada's regulatory environment within the 2001 to 2006 timeframe.

Changes brought about by e-commerce should be considered in the context of overall forces modifying the industry. The financial services industry is a highly regulated sector, with entrenched players and significant barriers to entry and exit. The findings indicate that between 2001 and 2006 major transformations in the industry structure are unlikely. Instead, the opinion of virtually all those interviewed was the mortgage market will likely undergo incremental change as a result of e-commerce technologies. Further, the interviews suggested that any dramatic change would likely be the result of non e-commerce related activity such as merger and acquisition manoeuvres, or the development in Canada of an equivalent to the secondary market conduit structures present in the U.S.

Mortgage profitability will be the major factor imposing on the structure of the Canadian mortgage industry[22]. The interviews suggested that Canada's competitive financial services market structure is currently putting downward pressure on mortgage pricing, as the large banks in particular use the mortgages as a loss-leader for other products. An effect of this market strategy is to create an entry barrier for new or emerging mortgage specialists players, such as those in the U.S. market[23]. The interviews indicated that perceived lack of short- to mid-term return on investment reduced likelihood of significant entry of mortgage players in the Canadian market. Lastly, Canadian lender mortgage pricing strategies affect the stakeholders' willingness to invest in technology, particularly in the area of e-commerce where a return on investment is incremental and cumulative, and hard to quantify. While pricing is a real issue from the perspective of competition and industry structure, it is important to recognize that the mortgage business remains a very important contributor to the overall profitability of banks in Canada. We explore the dynamics of this issue below.

The estimates of potential cost savings discussed below and shown in Table 9 do not take into account the costs of acquiring, implementing and maintaining the required technology.

Expected Impacts of E-Commerce on Mortgage Value Creation

In the previous chapter, we outlined five technology trends that would substantially impact the mortgage value chain. These trends include: electronic documents, personalization, risk management, broker and ASPs/outsourcing. In the following pages this report will consider how these trends will affect the development of the mortgage industry in Canada, specifically by discussing the anticipated effects on the mortgage value chain.

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[22] See discussion in Chapter 3.

[23] This is not to say that new entrants to Canada's financial services sector who initially specialize in lending other than homeownership mortgage lending won't ultimately expand into this field, but rather that monoline mortgage lenders on the Canadian scene face profitability challenges.

- Originations

  As summarized in Table 9, the introduction of e-commerce technologies is expected to have a substantial impact on the mortgage value chain, and in particular the risk management processes. In both Canada and the U.S., most of the e-commerce development activity has focused on origination processes. While the number of online originations will increase in the period to 2006, potentially to some five per cent of all new mortgages, the interviews and research suggest that Internet-based mortgage applications and approvals will be remain a niche market offering.

  More substantial change may be created by the introduction of broker technologies. Specifically, the role of brokers is expected to continue to expand as a result of the broker technologies that allow greater product transparency and access to investors. Further, the technologies allowing originating lenders to find investors and quantify risk (through improved access to risk data and underwriting rules) are expected to assist as well other new or smaller lenders to compete more equally in the Canadian market, leading to higher levels of competitiveness at the consumer level. This would force costs down and increase the disintermediation of the sales channels from the large lenders.

  The findings suggest that the impact of e-commerce technologies could reduce the lenders' cost of originations by up to some ten per cent (excluding the costs of acquiring, implementing and maintaining the required technology). Based on the interview feedback, the banks are expected to move to reduce other origination costs, including:

  - *Broker commissions* will be paid for in part or in whole by the consumers as Canadian lenders manage costs associate with a growing number of broker originations;
  - *Discretionary discounts* will be limited to all but the best customers, suggesting a move by the industry moves to posting real mortgage rates rather than negotiation rates; and,

- *Channel pricing* will become the norm, as findings suggest that lenders will increase their use of positive price incentives, thus effectively channelling customers to the lowest-cost delivery channel.

In general, the findings from the discussions with Canadian industry leaders indicates a move toward U.S.-style industry structures, including: broker based mortgages, modest consumer origination and closing fees, and reduction in lender ownership of the customer relationship – implying with it a less strategic role for mortgages in lender account acquisition planning.

It should be noted that there were dissenting opinions on the timing and overall feasibility of lenders charging additional fees for services, given the competitive and political dynamics of the current market. Particularly, several industry leaders noted a perceived "chicken and egg" dilemma associated with surcharging – that is they would gladly embrace surcharges if their competitors did the same, but were unwilling to lose business because of them. This leads to the conclusion that competitive product pricing and fee-for-channel and service surcharges are unlikely to occur until such time as the competitive dynamics in the Canadian mortgage market change, or until mortgage line of business profitability becomes a priority for bank management.

- Closing & Fulfillment

Electronic documentation technologies should have both an immediate and long-term impact on closing and fulfillment costs. The findings suggest that the industry might be able to accrue up to roughly 40 per cent savings on current costs by 2006 (excluding the costs of acquiring, implementing and maintaining the required technology) through the use of the improved communication capabilities of the Internet (electronic document transmission) and through the connection of the various stakeholders to a common system. The primary area of savings will be found in personnel cost. Closing and fulfillment remains one of the last human-intensive processes in the mortgage value chain, and electronic document technologies will allow automation of transmission,

validation and research functions. Further, through the use of applications being developed, other stakeholders will be able to function with higher levels of accuracy and efficiency. Of necessity, there will be increasing pressure for full automation of as many processes as possible.

We also expect that there will be additional savings as individual lenders look to outsource components of fulfillment activities to scale providers. As this process becomes less of a value creator in the mortgage value chain, Canadian mortgage lenders will seek to find third parties to entirely manage the closing and fulfillment process on their behalf. In many respects, this change has already occurred in the mortgage renewal market, where companies like First Canadian Title have assumed an operations and software role in addition to their usual title insurance role.

- Funding & Investment

  Funding and investment functions are anticipated to be positively impacted by improvements in risk management and wholesale market technologies, which should combine to lower the costs of these functions by up to some 15 per cent.

  Further, the findings support a trend toward a more direct relationship between the originating party and investor. While the findings suggest the large banks and credit unions will maintain a leadership position in mortgage funding, there are indications that there could be a disintermediation of the value chain caused by an increased role of brokers and outsourcing, and that this could lead to a U.S. style secondary market conduit, with Fannie Mae and Freddie Mac being the prime examples of envisioned conduit providers.

  Fannie and Freddie perform two distinct functions that could serve as a model for the Canadian mortgage industry. From the investment management perspective, Fannie and Freddie provide stability to the secondary market through product standardization and by heightening risk transparency of the investment instrument (i.e. the mortgage security or bond). From a mortgage origination funding perspective, Fannie and Freddie act as

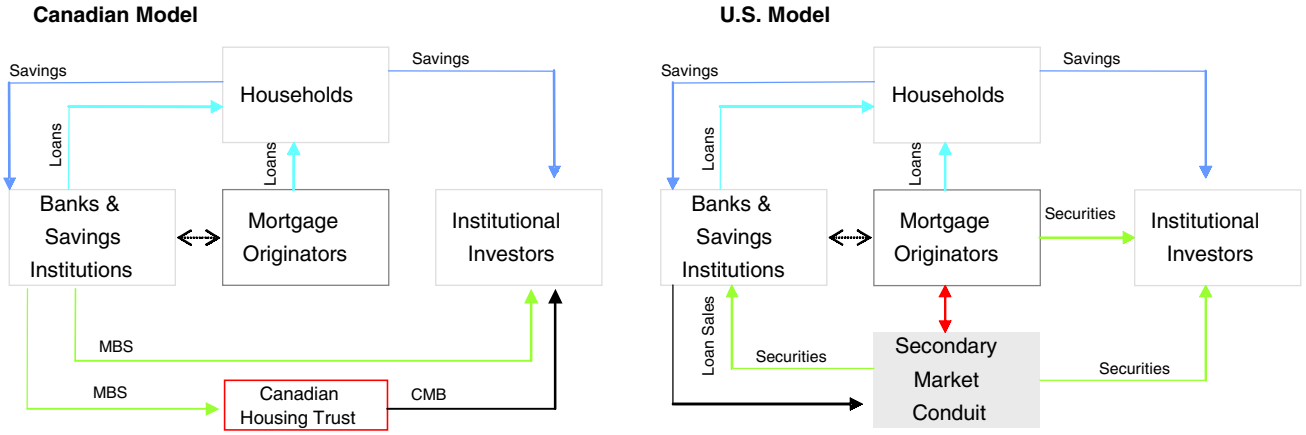
funding conduits, specifically offering originators a wholesale loan funding alternative that is directly managed through their respective underwriting systems. Thus, Fannie and Freddie integrate the investor directly with the mortgage originator through their risk assessment and funding systems, and in effect directly lend to the consumer market. [24]

In the Canadian environment, there is no such secondary conduit that directly purchases mortgages at the time of issuance or serves as a wholesale funding agency to originators who do not have their own source of mortgage funding. The banks and other financial institutions issue MBS to securitize their mortgages. CMHC provides a timely payment guarantee on MBS and on mortgage backed bonds, called Canada Mortgage Bonds, or "CMB", issued by the Canadian Housing Trust (which purchases MBS and issues CMB).

There is thus a significant difference between U.S. and Canadian mortgage models (see Figure 31). For example, when U.S. originators look for funding for originating loans, they have a choice between secondary market conduits and other wholesale lenders. In Canada, originators such as brokers do not have direct access to secondary market capital and as a result must originate a loan through an existing (and, likely competing) lender. The author concluded that in the long term these differences are eventually reflected in relative industry competitiveness, consumer pricing and industry innovation between the two markets.

[24] Fannie and Freddie do not deal directly with the end consumer as would a Canadian bank. Instead, brokers and originating lenders interface directly with them.

Figure 22 – U.S. and Canadian Mortgage Finance Models



Source: International Union for Housing Finance and Organic, 2001

A secondary market conduit in Canada, facilitated by e-commerce, could provide smaller lenders and new entrants with heightened access to funding at the time of origination while improving the general level of competition in the mortgage market. It could also improve investor access to mortgage securities, increasing the size of the market and improving the risk transparency.

The impact of a secondary market conduit on consumer pricing of mortgages is expected to be neutral or to increase prices modestly in the mid-term, and to lower them in the long term, based on the argument made above that the Canadian homeownership mortgage market is intentionally priced below competitive levels. If a secondary market funding conduit entered the market, such a pricing strategy would likely cease. However, in the long term, the rise in consumer prices would likely encourage new entries into the homeownership mortgage market and as a result of heightened competition, consumer pricing for mortgages would likely moderate.

The expectation that secondary markets could become important primary market funding mechanisms in Canada is based on the anticipation of increased fragmentation of the mortgage industry being facilitated by e-commerce and from an anticipated increase in demand for primary market funding as brokers, small banks and new entrants enter the

origination market and seek alternative funding sources. In order for these entities to compete, they will need to find a mortgage funding source other than the big lending institutions.

The research does not suggest that e-commerce technologies will precipitate the development of a secondary market conduit. Rather, the findings suggest that e-commerce is an enabler. There are at least two areas of impact with regard to how e-commerce technologies could impact the development of secondary market funding conduits. First and foremost, e-commerce technologies could play a pivotal role in enabling the conduit to accurately and efficiently ascertain origination and post-origination risk, thus improving investor transparency. Second, e-commerce technologies could positively impact the cost structures of connecting a variety of value chain stakeholders allowing for heightened flexibility, improved product characteristics and ideally reduced net costs of operations. In each case, the task of communicating and collaborating between value chain stakeholders would be simplified and thus the cost hurdles to implementing change would be reduced as a result of these technologies.

- Servicing

  The introduction of electronic documents, improved risk management technologies and outsourcing could have a substantial impact on servicing costs. The interviews suggest that savings might be as high as 50 per cent (excluding the costs of acquiring, implementing and maintaining the required technology). The savings are primarily generated from lower employment costs, the move to outsource processing and system maintenance, and the shift of development costs to more efficient or lower cost third-party providers.

- Delinquency Management

  Delinquency management refers to the processes that take place after a client has been identified as being in default. Delinquency management includes actions up to foreclosure although as explained earlier, it is not a desired outcome for any party. In

comparison to other nations, Canada has a low delinquency rate coupled with a very efficient foreclosure process[25]. As a result, the interviews indicated that delinquency management has not been a significant focus of Canadian lenders. However, given the ever present cost focus, defaults and foreclosures remain an expensive part of the business for mortgage lenders and an area in which e-commerce technologies can be directly applied.

As well, risk and default management technologies are expected to impact other mortgage stakeholders. Specifically, mortgage insurance providers will likely be impacted by these technologies. In Canada roughly 0.4 per cent of mortgage accounts will default and most of these accounts will be insured. If the costs associated with delinquency can be reduced then presumably the consumer price of insurance could be positively effected.

Document management and outsourcing methods as applied to documentation related to delinquency are expected to result in savings of up to some 60 per cent (excluding the costs of acquiring, implementing and maintaining the required technology). The savings are derived from a combination of:

- **improved risk transparency** - more accurate understanding of the risks facing the portfolio, or a particular client, thereby allowing for a more accurate assessment of contingency funds and allocation of costs;
- **improved executional efficiency** –reduction of administration time and costs until a property is sold; and,
- **reduced interest costs** - associated with the shorter periods before properties are liquidated.

[25] Chiuri and Jappelli. "Financial Market Imperfections and Home Ownership: A Comparative Study". Centre for Studies in Economics and Finance. December 2000. Page 22.

Advanced risk technologies will also improve customer service and efficacy. One example cited in the research suggested that the use of risk management technologies to identify consumers on the verge of default, in order to help them in a proactive manner to manage their mortgage commitments. Thus the technology could be used by the bank (or, insurer) to counsel, educate and potentially realign credit commitments before a consumer reaches an untenable payment position and is forced into default.

- Product Development

  As referenced earlier in the document, mortgage product development in the modern sense of the term, is a combination of feature pricing and software design. Simply put, a product is a feature that is business modeled in order to create pricing and the product features are implemented within the lenders' mortgage systems. In each case, e-commerce technologies may have an impact on product development costs by:

  - reducing the cost of implementing changes to product systems;
  - improving time to market through reducing the delays in implementing; and,
  - increasing the accuracy of how a product is modeled and priced.

  One of the issues identified in the research with Canadian lenders was the degree of perceived inflexibility and complacency in regard updating their core mortgage systems. Largely as a result of the age of many of these so called "legacy" systems – with some reported code that's over 30 years old. However, e-commerce technologies are not necessarily less expensive than legacy systems. In fact, in many respects, e-commerce technologies are less technically efficient than the older processing environments they seek to replace. That said, there is a price benefit to the improved flexibility and improved time to market offered by many of the newer programming tools.

  In terms of understanding the impact of e-commerce technologies, we suggest that there will be savings as a result of Canadian lenders looking to the market for software solutions – these software solutions will increasingly replace hard-coded systems with more modular and business friendly interfaces that will allow rapid and flexible change.

The new generation of banking systems allows users to build components and product features without coding. This will allow staff to implement design changes without queuing requests in the I.T. departments. This should result in reduced time to market for product changes and reduced cost of development.

Savings are expected in the ability of lenders to more effectively model the profit and risk inherent in their product offerings in the design phase because of improved risk information and more accurate understanding of program costs. This will serve three purposes. First, it reduces exposure risks associated with releasing improperly modeled products. Secondly, it reduces the risk of failure in the market. Third it will allow lenders to maximize revenue of products through accurate pricing assumptions.

Table 9 - Impacts of E-Commerce Technology on Mortgage Value Chain in Canada

Value Chain Component	Value Chain Activities	Impact of E-Commerce Technologies	Potential savings by 2006[26]
Origination	▪ Market mortgages to consumers ▪ Manage sales channels and costs ▪ Provide mortgage insurance ▪ Acquire and quantify consumer applications ▪ Offer pending approval/decline on mortgages	▪ Improving broker sales tools and access to investment sources ▪ Improving rate and product transparency ▪ Heightened role and use of automated underwriting technology with the improvement of information feeds from credit bureaus, title and tax rolls, and improved underwriting rules ▪ Targeting consumers who are in the housing finance decision stages with specific financing tools and services	Up to 10%
Closing and Fulfillment	▪ Finalize loan approval based on title, appraisal and credit validations ▪ Circulate documents to all stakeholders ▪ Change property registration and title information ▪ Close property purchase ▪ Manage interim funding	▪ Change to electronic document distribution and scheduling management ▪ Introduction of electronic signatures and notarization ▪ Automation of stakeholder roles by technology (title, appraisal) providers and outsource providers ▪ Significantly reduced cycle time – potentially to real time processing	Up to 40%
Funding and Investment	▪ Decide how to fund loan (secondary market, internal funding) ▪ Acquire capital ▪ Manage rate risk differential ▪ Report to regulators ▪ Monitor portfolio risks	▪ Increased small and individual investment involvement due to mortgage backed bond productization, improved investment transparency and improved liquidity in market ▪ Reduced risk exposure due to information transparency and risk notification communicated through value chain ▪ Reduced costs of capital management and reduced barriers to entry for smaller players ▪ Reduced costs/barriers of entry/risk for niche lending, sub-prime and geographic specialization ▪ Movement toward scale-providers and product-liquidity in large investor space	Up to 15%
Servicing	▪ Bill and collect account payments ▪ Pay investors ▪ Monitor account risk ▪ Market other bank product services ▪ Answer customer service queries	▪ Reduced cost of payments and billing as a result of improved electronic payment and electronic bill presentment technology ▪ Better cross-sell and relationship building capabilities through improved customer data and rules ▪ Improved account risk management due to online monitoring technologies. ▪ Improved information feeds and iterative development of business rules. ▪ Increased role for third parties as industry players move to value-creation	Up to 40%
Default Management	▪ Identity potential problem accounts ▪ Identify course of action to correct payment issues with accounts ▪ Pursue education and counselling activities ▪ Pursue collections/foreclosure processes	▪ Earlier identification of problem accounts and/or possible problem accounts ▪ Increased role for third parties in counselling, education and resolution processes ▪ Improved document workflow, scheduling and event management in event of foreclosure as a result of collaboration software	Up to 60%

[26] The estimates of potential cost savings do not take into account the costs of acquiring, implementing and maintaining the required technology.

Product Design	▪ Create new product features and characteristics ▪ Price features according to market and cost factors	▪ Switch to new processing languages and technology to improve time-to-market and product flexibility ▪ Improved modeling and full-picture understanding of the process ▪ Risk modeling affects pricing and feature decisions ▪ Innovative investment productization and international distribution of assets	Up to 10%

Impact on Value Chain Stakeholders

E-commerce technologies will also have a significant effect on the stakeholders in the mortgage value chain as the technologies alter the interrelationships and interdependencies between the stakeholders. Technology therefore will be critical in determining the strategic winners and losers in the market.

The disintermediation and alteration of processes within the value chain necessarily affect the stakeholder accruing value from that activity. An economic adjustment to a value chain item must come at the expense of, or benefit to, one stakeholder or another. Historically, the established roles of individual stakeholders have been conventional and fixed. In a period of technological change, these mandates become less static. The stakeholders' identity in the process becomes less fixed as leaders seek to build positions at the expense of weaker stakeholders or individual entities within a stakeholder community.

While we see some movement in the cost of mortgage provision, the research indicates that the costs associated with other stakeholders will not alter a great deal, except perhaps for the costs of appraisal and document management costs. Each of the stakeholder within the mortgage value chain has a defined role to fulfill, one that has certain obligations that demand the use of paper, and this method will not simply and immediately be replaced with technology. We recognize that stakeholders are seeking to expand their roles to encompass other stakeholder roles; title insurers are, for example, diversifying into the areas of closing operations, and legal-process management software. For a summary of these dynamics, see Table 10.

Table 10 - Impacts on Mortgage Stakeholders 2001 - 2006

Stakeholder	Possible Trends	Impacts
Mortgage Lenders	▪ Internet origination ▪ Broker re-intermediation ▪ New lender entry	▪ Marketing strategy will increasingly seek to differentiate on brand and service values ▪ Direct consumer service fees for non-bank channels like brokers are likely ▪ Heightened competitive forces will force lenders to be low-cost providers ▪ Increasingly use Internet to target price-sensitive consumer
Mortgage Brokers	▪ Sales channel disaggregation ▪ Increased competition ▪ Internet brokers ▪ Increased transparency ▪ Direct funding access to secondary market ▪ Increased servicing choices	▪ Growing overall market for brokers ▪ Increased competition from a variety of players including secondary market conduit ▪ Reduced commission structures and a shift to fee-for-service ▪ Product/price transparency on Internet will undermine broker value ▪ Seeking to use market power to draw consumers via Internet offerings
E*Banks/Brokers	▪ Rise of brokers ▪ Reduced brand appeal ▪ Low brand perception	▪ Slow growth of online originations and banking ▪ Will have difficulty differentiating product and pricing unless they are the lowest cost provider – but need scale to do so ▪ Will need to expand to become "bricks & clicks" to be a substantive competitive force
Servicers and Securitizers	▪ Electronic payments/billing ▪ Industry realignment ▪ Secondary market	▪ Increased role for outsourcing in Canada ▪ Reduced transaction costs to consumer based on attainment of scale
Securities Brokers	▪ Secondary market and conduit ▪ Direct investment	▪ Reduced role for specialist/boutique assistance with managing mortgage debt securitization ▪ Increased role for government backed securitization ▪ Improved trading/funding liquidity
Institutional and Individual Investors	▪ Secondary market ▪ Risk transparency ▪ Investment instrument productization	▪ Improved investment/product alternatives ▪ Improved liquidity and transparency ▪ Increased role of foreign investors
Real Estate Companies	▪ Internet sales	▪ Heightened competition ▪ Realignment of commission structure to fee for service ▪ Reduced role of referrals to brokers, lawyers, etc.
Mortgage Loan and Property Insurers	▪ Market move to conventional mortgages with demographic changes ▪ Secondary market conflict	▪ Reduction in HLV market size ▪ Continued role in property and HLV insurance but seeking new markets in conventional mortgages ▪ Possible role for wholesale insurance ▪ Heightened investment in risk assessment technologies
Developers/Builders	▪ Increased competition for wholesale financial services	▪ Improved choices of housing finance during sale processes ▪ Reduced costs for consumers as developers will package mortgage origination with home buying experience
Appraisers and Inspectors	▪ Regulatory reform ▪ Internet enablement on appraisal data bases	▪ Reduced role expected
Title Companies	▪ Internet enabled registry	▪ Opportunity to outsource technology and disintermediate other players (lawyers) ▪ Use title insurance as an entrée into servicing and mortgage processing
Lawyers	▪ Computer assisted title search and registration ▪ Increased use of title company offerings	▪ Growing consumer use of online tools to conclude search and registry will cause price pressure on legal services ▪ Title companies expected to aggregate legal services in their offering

As mentioned earlier, the role of the broker will be significant in determining stakeholder and industry structure in Canada in the period between 2001 and 2006. At the present time, the largest brokerage companies in Canada are backed fully, or at least in part, by the banks. Further, independent brokers are largely dependent on banks for sources of funds and for overall operational management of the mortgage loan once the origination is completed. Thus in effect, the current relationship between brokers and banks in Canada can be seen as symbiotic rather than competitive.

However, looking to the U.S. market as an indicator, the findings suggest that Canada could see the development of a more competitive relationship between brokers and banks in the future. Notably, the research suggested that as the broker market matures in Canada, independent brokers will compete directly with the major banks for origination business. As the market matures and grows, brokers will likely seek increasing independence from the backing banks. As a result, if we look to the development of the broker market in the U.S. we would expect to see leading independent brokers join forces in order to capitalize scale benefits such as geographic coverage, brand penetration and administrative cost savings. Thus, the development these "super brokers" may also see the transition of operational control away from banks toward brokers which would determine servicing, closing and funding providers.

The creation of these large independent brokerage companies should result in the development of specialist customer service, funding and servicing functions. This trend could also be fuelled by the large banks looking to outsource their functions to create savings and to minimize investment capital requirements in mortgage technology and infrastructure. The specialization of these functions will likewise assist smaller lenders and new entrants to compete in the Canadian market.

The Impacts of E-Commerce on the Value Chain

The alterations to the value chain processes and stakeholder roles may also modify the organization of the value chain itself and reorganize the relationship of its component parts.

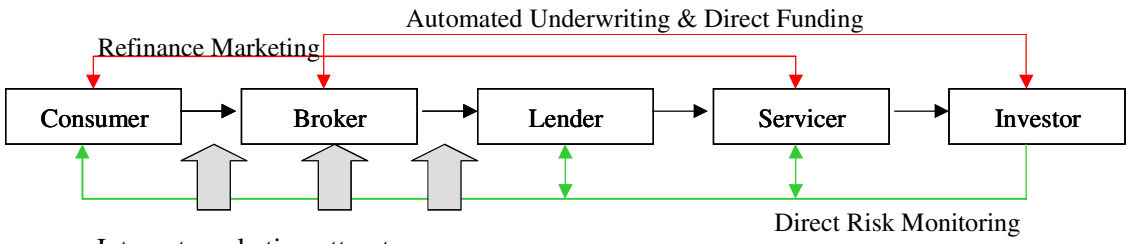
To this point we have suggested that technological change will occur within the confines of the current value chain essentially by making the communication between value chain elements more efficient, or by changing the relationship of specific stakeholders to components of value. We are now at the point of examining the impact of e-commerce on the structure and ordering of the value chain itself.

Simply put, e-commerce technologies are an inherently destabilizing force to traditional value chains. The value chain has historically been considered to be a linear progression of steps. One of the core challenges of e-commerce technologies to traditional value chains is that they call into question linear processing. These technologies enable parallel processing, and immediate collaborative involvement and decision making. E-commerce technology allows information to be broken down, sent simultaneously to multiple processing areas and reassembled in a shorter time frame. Additionally, the ability to change the process sequence of data also implies that the process itself can be rethought and redesigned. This implies not only a reduction in time associated with the execution of the mortgage value process, but by extension, a re-evaluation of the roles that stakeholders play in the value chain. Finally, the introduction of multiple new technologies has the profound effect of asserting the need for a holistic examination of the underpinnings of value creation.

The simplified stakeholder map illustrated in Figure 23 presents a mortgage process illustrating the value relationships between customer, broker, lender, servicer and investor. It starts with the hypothesis that the growth of brokers will increasingly place pressure on the Canadian mortgage value chain in a way that will eventually fragment the integrated model into a multiparty model. It assumes that these brokers, using improved technology, will begin

to work directly with funding and servicing organizations. Finally, it also represents the impacts of risk technologies.

Figure 23 - The Impacts of E-Commerce on Value Chain Organization



- Internet marketing attracts consumers
- Increased market validity of brokers creates investment demand
- E-Commerce technologies allow choice of suppliers
- Stakeholder share access to risk data
- Stakeholders have direct relationship with customer

Source: Organic and Morgan Stanley Dean Witter

The top of this graphic illustrates several forces that are likely to destabilize this set relationship:

- *Direct Relationships*. The current value chain is based on the sequential relationship of value participants. However, with fragmentation of the value chain there is increased pressure to force every stakeholder into direct relationship with end consumer, either from a risk, revenue or reporting perspective. In this case, the investor who previously only dealt with the servicer or lender, may directly fund the broker after underwriting the customer risk. Therefore the central focus of the stakeholders of the new value chain is not the lender – but, the person taking out the mortgage – a subtle but significant change in the power dynamic.
- *Active Customer Farming*. As an extension of the direct relationship, all stakeholders will seek to create value from their customer relationship. An example of this is the Servicer directly marketing to consumers based on their data, in addition to the lender.

- *Risk Transparency*. The *lingua franca* of the mortgage value chain now becomes risk transparency as all stakeholders will have the data to mine, monitor and price services based on the value of the account and the risks inherent in it.

Effectively, one could imagine future scenarios in which the value chain is reorganized depending on the relationship holder and funding relationship, as in cases where, for example, a broker becomes the pivot of the relationship. Thus the effect of e-commerce could be that the central role played by the large banks in the Canadian model is no longer guaranteed, but rather dependent on their ability to secure consumers through their own channels.

The Impact of E-Commerce on Competition and Structure

Given the forces at play within the value chain and among stakeholders brought about by e-commerce technologies, a strong theme of the research was the impact of these technologies on competition and structure of the business in Canada. The view that e-commerce technologies are an enabler rather than instigator of change also shapes the thinking regarding access to Canadian markets by U.S. mortgage players in the period between 2001 and 2006. Thus, the report contends that e-commerce technologies alone will not significantly impact the competitive structure of the Canadian mortgage market. Although existing market trends such as cross border trades, global financial services trade liberalization and trends in value chain disintermediation will, through their implementation potentially alter the Canadian market structure.

The findings indicate that barriers to entry into the Canadian market is less one of regulatory restrictions and more one of the comparative opportunity cost of entering the Canadian market. Particularly this is the case when a new lender has a choice of other, more lucrative markets either domestically or internationally. Looking to the U.S. market specifically, there is a desire for short-term returns influencing the lenders' perception of the Canadian market.

Several interviews suggested that entry into Canada was possible, but not probable, given other market opportunities.

The interviewees cited several perceived and real factors regarding Canadian homeownership mortgage market attractiveness, including:

- *Product Profitability.* Market penetration by the leading lenders and a loss-leader strategic rationale are driving current Canadian mortgage product pricing. Because of this, real mortgage rates (i.e., the rate charged to consumers after discretionary discount and fees), are 50-100 basis points lower than comparative U.S. rates. The impact of this pricing structure is to minimize entry of new market entrants in Canada. While the current mortgage pricing structure benefits Canadian consumers and entrenched Canadian lenders, the expected return is too low for new market entrants unless they can attain a radically lower cost structure.
- *Market Size.* Although Canada's market size, with a population base of 31 million, is comparable to that of California, the market is divided by 13 regulatory structures and two official languages. As discussed below, the extensive regulatory and market structure requires new entrants to tap a significant level of technology, operations and intellectual capital. Further, the size of the market makes investment not as attractive as other domestic or foreign markets.
- *Technology Costs*. Given the dependency on technology of modern mortgage products, a lender's entry into the Canadian market would require a sizable up-front investment in technology. The lack of available third-party solutions in the Canadian market would force a foreign lender entering the Canadian market to customize a foreign solution at substantial expense and investment in time. The customization effort would also require the assistance of a knowledgeable Canadian team. This latter point is significant, since the Canadian mortgage industry is very small and, as acknowledged by many Canadian interviewees, there are limited sources of development talent. The initial technology costs and their carrying costs would significantly inflate the book costs of the mortgage offering.

- *Operational Factors*. A lender newly entering the Canadian mortgage market would also have to erect an operations environment for mortgage closing, servicing, funding and investment, and risk management. While there are some choices available in Canada of service providers in these areas, there is significantly less choice than in the U.S. As a result, a lender entering the Canadian market may also incur costs developing internal processes and acquiring expertise to manage their mortgage portfolio.
- *Intellectual Capital.* Another factor influencing a competitor's decision to enter the Canadian mortgage lending market would be the availability of mortgage expertise not already dedicated to a vertically integrated lender. Given the size of the current market, the interviews suggest that management, operational, structural, regulatory and sales expertise is relatively limited in the mortgage space in Canada. As such, new entrants would face significant hurdles in either recruitment of existing talent or training.
- *Compliance Hurdles.* While Bill C-8 addresses many issues, many interviewees indicated that they felt that the Canadian regulatory environment to be sufficiently restrictive and substantially different enough, when compared to that existing in the U.S., to be perceived as a real barrier. Companies were also worried about the system development outlays needed to meet provincial compliance requirements.
- *Consumer Issues.* Lastly, entrenched brand allegiance and lender relationships play an important role in Canadian consumers' behaviour. While consumer behaviour may be changing, Canadian opinion polls suggest that consumers are still less likely to use foreign banks than they are domestic banks.[27] As such, entrant banks face a significant marketing hurdle. The success some of these new entrants suggests that these hurdles are not insurmountable. There are, however, significant costs associated with new market entry, and as a result, many companies cited expected return on income as a key factor behind their decisions not to enter the Canadian market.

[27] Canadian Federation of Independent Business, March 2001

The findings indicate that the trends and dynamics driven by e-commerce should assist in reducing the barriers to new foreign entrants in Canada. Specifically, the development of outsourced servicing, funding, closing and required software solution would assist new entrants to acquire cost-effective infrastructure in order to operate in the mortgage space. Further, the development of these functions would train a significant pool of talent that would facilitate new entrants and also spark innovation. Given this assumption, the research indicated five industry segments could benefit from the introduction of e-commerce in Canada. These include:

- Non-Bank Mortgage Lender Specialists:
    - Leading U.S. companies, with assistance of third-party operations and software, could apply their marketing expertise and brand in the Canadian market.
- Sub-Prime Lenders:
    - The Canadian sub-prime market is relatively small because access to bank credit is fairly high and because of the use of mortgage insurance. We feel, however, there could be aggressive forays into the Canadian market by U.S. sub-prime players. An example of such aggressive marketing, in another financial services market, is the entry of U.S. based credit card companies into the Canadian market over the last 5 years.
- Niche Market Banks:
    - Given the increasing role immigration plays in our population growth, an increased role for foreign banks serving the expatriate market is expected. Various such banks have made successful niche market inroads, particularly in some Canadian cities.

- Life Insurance Subsidiaries:
    - The de-mutualized life insurance companies were specifically precluded from merging with Canadian banks because regulators expect them to provide increased competition through their bank units. In the 1970s, insurers dominated the mortgage market. With the re-introduction of brokers they may regain market share.
- Super-Brokers:
    - Given the emerging role of brokers, it is likely that the formation of large independent brokerage companies will play a role in the Canadian market. The introduction of these "super" sized brokerage companies also promises increased investment in technology and operational capacities, further separating the broker from a funding dependency on Canada's large banks.

In each of these cases, e-commerce technologies will allow new entrants to more cost effectively offer services to the market. However, the success of these companies depends on acquiring and servicing a market profitably; e-commerce alone will not deal with the most substantial components of their cost structures.

Conclusion

The implementation of e-commerce technologies will serve to eventually increase operational efficiencies and flexibility of response for the lender. The effects of e-commerce technology will be mitigated somewhat in the short term by the ability of the industry to implement them within an existing infrastructure and workflow. This suggests that rapid and radical changes in mortgage offerings because of e-commerce technology will be unlikely in the period between 2001 and 2006.

The author expects that there will be a slow evolution in the Canadian financial services community between 2001-2006 away from vertically integrated mortgage fulfillment processes towards a multi-party processing structure involving a number of third-party providers. As a result, the Canadian market would increasingly resemble a U.S. industry structure, with a wider variety of mortgage lenders – and product offerings -- capitalizing on shared scale processing companies, leveraging shared processing and funding infrastructure. Strictly speaking this transition would not be a result of the introduction of e-commerce technologies but would occur through their enabling existing trends and pressures in the market.

The findings suggest that the introduction of e-commerce technologies will take on many forms, but that improving communication and workflow efficiency within the mortgage workflow will be its longest-term impact.

In this anticipated environment, the lowest-cost provider is increasingly the winner. This in turn will put significant pressure on all stakeholders to invest in technology to become low-cost providers in their designated areas of expertise – or seek to source work to others who are the lowest-cost provider. Given that individual stakeholder roles will undoubtedly shrink in this future state, we anticipate that individual stakeholders will seek new value propositions by increasingly moving to add value to their offering. The future of competition between players in the mortgage industry may not just be product based but involve increasingly overlapping roles between stakeholders in the value chain. Thus, future competition may involve lawyer versus mortgage broker, mortgage servicer versus title company, and secondary investor versus primary originator. As a result, every stakeholder could be at risk of being disintermediated from the value chain unless they are in a strategic position to invest in technology and develop their role to better suit customer needs.

The findings indicate that there will be stakeholders that benefit more than others from the introduction of e-commerce technology. These are summarized in Table 11. Among the expected winning stakeholders are the software developers, brokers and third-party service companies that will grow to support the broker-forced fragmentation of the value chain. Among potential losers in the mortgage finance process are high-cost or late technology adopting stakeholders, low-value contributors, and stakeholders whose function can be replaced in whole or in part through electronic data manifestation (such as appraisers and lawyers).

Finally, as a result of e-commerce technologies' core characteristic of redefining workflow, and the ongoing competition between stakeholders, the research suggests that the mortgage value chain and Canadian industry structure will become increasingly fragmented. However, the interviews and analysis indicate that this transition will take time. The effects of that fragmentation may only be observed after the 2006 timeframe of this analysis. The primary factor driving an elongated period of transition in the industry is that there remains significant friction in the Canadian mortgage market as a result of entrenched behaviours by consumers and within the institution themselves as a result of legacy technology investments, corporate intransigence, perceptions of consumer behaviour and regulatory structures.

Table 11 - Impacts of E-Commerce on Mortgage Stakeholders

Value Chain Segment	Impact 2001- 2006	Winners	Losers
Origination	▪ Increasing movement to non-bank sales channels ▪ Low interest in consumer direct sales through the Internet ▪ Competitive pressures will drive cost savings to consumers	▪ Brokers ▪ Niche mortgage players ▪ Real estate agents ▪ Lawyers ▪ Low cost lenders	▪ Financial institutions with high retail channel costs ▪ Lending officers ▪ Direct-to-consumer Internet specialists
Closing & Fulfillment	▪ Process costs should drop 30-40% ▪ Time to close could be reduced by 90% ▪ Real time registry will not happen for 10-15 years	▪ Specialist providers ▪ Scale operations environments ▪ Electronic registry providers/ title insurers	▪ Property appraisers ▪ Lawyers
Funding & Investment	▪ Increased private investment ▪ Larger role for secondary markets ▪ Increased role for dedicated risk managers ▪ Improved product flexibility ▪ Spreads may widen	▪ Low cost lenders ▪ Brokers ▪ Investment funds ▪ Secondary market conduits ▪ Sub-prime lenders	▪ High-cost providers
Servicing	▪ Increasing shift to scale providers ▪ System and product flexibility will be key	▪ Scale providers ▪ Lowest cost providers	▪ High-cost providers ▪ Late adopters of risk monitoring technology
Delinquency Management	▪ Lenders to focus on early risk identification ▪ Looking to third-party provider for collections and default management	▪ Scale providers ▪ Foreclosure process specialists	▪ Lawyers
Product Design	▪ Lenders seeking to quantify product investment ▪ Seeking rapid, flexible product development	▪ Application service providers ▪ Consultants ▪ Software specialists	▪ In-house IT departments

Impacts on the Canadian Consumer

Housing Finance Accessibility, Affordability and Protection

Introduction

Our next goal is to project how these industry issues will affect consumer home ownership financing accessibility in Canada.

We have previously indicated that the introduction of e-commerce technology should result in lower prices for consumers because of increased processing efficiency and via improvements in risk management. The question still not addressed is whether these savings come at a cost or not to consumer accessibility, and if they do, at what cost?

During the research process, we were presented with of the following issues:

- Will e-commerce technology impact home ownership financing accessibility?
- How will risk management technologies impact accessibility?
- What will be the impact of e-commerce on consumer data privacy?
- How will e-commerce impact product offerings and pricing – particularly, how will e-commerce impact on non-traditional product offerings?

While the complications are real, our research indicates that Canadians will continue to enjoy favourable homeownership housing finance access and affordability in the short-term.

Changes that could have a beneficial effect include initiatives to create a common servicing infrastructure and secondary funding conduits.

Mortgage affordability and accessibility

The introduction of e-commerce technologies and the attendant savings should increase home ownership finance accessibility in Canada by 2006.

There is a direct correlation between mortgage affordability and accessibility. U.S. studies indicate that a rise of one percentage point in the real mortgage rate means that up to 10 per cent more new home buyers will not qualify for a mortgage.[28] There are potential savings from the introduction of e-commerce technologies by 2006, some of which may be passed on to consumers through competitive forces. If realised and if passed on, the cost savings as a result of e-commerce could result in a direct increase of accessibility of perhaps up to some five per cent more Canadians, other things being equal.

However, the potential savings could be offset by the costs of the technology, increased cost of funds, increased market demand for bank profits, changes in the domestic market competitive structure and lower than expected returns on technology investments.

Accessibility and Risk Management Technologies

The role that Automated Underwriting (AU) engines play in the access to funds is an issue of significant concern in the U.S. market, and it may become a concern in the Canadian market as we move to less personal sales channels through the use of e-commerce. Until recently, there has been a lack of detailed information made available with regard to AU systems and their exact role in relation to human credit managers in judging applications. AU systems are, however, commonplace in Canadian banking. All credit applications are scored automatically based on commonly accepted rules differing slightly between individual lenders.

Automated Underwriting programs look to available application and consumer credit information to "score" the application. The system uses a series of uniform procedures to generate the score. The advantage of this approach is that all applications are judged on their merits in the same way; there should be no prejudice based on eg. race, sex or religion.

The ability of these systems to accurately gauge risk is based on the fundamental quantity and quality of the available data. This poses an issue as data quantity varies by region and by

[28] Seidman, Ellen. "Risk-Based Pricing: Promise or Perdition for Affordable Home Ownership?". Remarks to Neighbourhood

provider.[29] Further, AU systems are reliant on preset, inflexible rules and they cannot negotiate above the data; they cannot, in more human parlance, take the measure of a person.

Nonetheless, recent research conducted in the U.S. indicates that automated underwriting is more likely to create a positive result for consumers. Steven Hornburg, of the Research Institute for Housing America (RIHA) explained recent findings[30]:

"The rapid emergence and dominance of AU systems, however, has raised widespread attention and concern over their impact on minorities and low-income households. Some AU system developers and information vendors were initially reluctant; however, to release any specific information about what information was included in these models and how these models operated, citing proprietary business concerns. Without such public access, regulators, and fair lending advocates, and affordable housing proponents were concerned about how these systems operated, their accuracy in predicting risk, and ultimately, the fairness of their outcomes.

AU system providers recently have made good progress, however, in publicly explaining how these systems operate and what variables they use in making these decisions. For the most part, these public disclosures have effectively demonstrated that these systems satisfy fair lending concerns. Furthermore, Freddie Mac research comparing manual versus automated underwriting of minority borrowers' applications has shown a stunningly better approval rate for their AU system, Loan Prospector--79.2 percent acceptance versus 50.9 percent for manual underwriting.

These efforts have shifted attention to the inability of AU systems to handle all potentially creditworthy borrowers. Due to limitations in automating certain variables and processes, these systems cannot handle all mortgage applications in an automated manner. Rather, the systems "kick out" a significant proportion of loans for manual consideration typically termed "referrals" and "referrals with caution". Some have argued that the resources saved with automated underwriting could be devoted to more thoughtful processing of these "non-conforming" applications. However, the economics of the origination process make it likely that competitive pressures force these savings through to the customer".[31]

Thus the immediate solution seems to be to use AU systems in conjunction with loan officer review, a process, interestingly enough, reinforced by the consumer's desire to use branch and broker sales channels."

Investment Training Institute. November 18, 1998.

[29]Hornburg, Steven. "Will Technology Expand Housing Opportunity?" See Research Institute for Housing America Mortgage Banker Magazine. 2001. Also, Canadian FI leaders indicated that credit bureau data quality varied by region. As such there is room for discrepancies in the Canadian context as well.

[30] Hornburg, Steven.

[31] Hornburg, 2001

Therefore, our findings suggest the issue is not whether lenders should use credit scoring since scoring offers significant benefits to consumers and lenders; rather, the challenge is how to hone and humanize the process, and to monitor the findings for special cases and groups. There may be pressures for the mortgage industry to create greater transparency in the process of how scores are created –in terms of the input data, the role of the lender and the scoring techniques. Further, from a consumer perspective, there needs to be assurance that their needs will be addressed by the lender on a special-case basis or alternatively that there are sufficient systemic avenues for appeal of the process. Special attention needs to be paid to consumers who may not have the means or awareness of how to use appeal mechanisms offered by lenders. What needs to be included within that appeal process is accurate and timely data indicating why a customer application was not acceptable. Should errors of data or rules be found, consumers should also be given neutral avenues to insure that the errors – particularly data errors – are immediately and permanently addressed. A role could be played by a regulatory body in the mortgage industry to develop and monitor credit scoring and data. This data could be universally sold to providers and be fully accessible to consumer review.

Consumer Information Privacy and Data Protection

Another issue to consider is the privacy of credit data. The research indicates that both regulators and corporations are highly sensitive to the issue of consumer privacy. The passage of *The Personal Information Protection and Electronic Documents Act* (2001) and the formation of the Canadian Privacy Commission suggest that Canadians will have adequate systemic redress for data privacy issues. The interviews also indicate that the primary lenders in the Canadian market are taking significant steps to monitor how they use customer data, since they recognize that the inappropriate use of customer data would jeopardize the larger customer relationship. One large bank, for example, has a full-time Chief Privacy Officer whose job it is to form and enforce consumer privacy procedures.

Furthermore, the potential cross-border expansion of financial services should also have a limited impact on the level of Canadian privacy. First, the technology now being implemented to manage mortgage applications and customer data is, in general, much more secure than previous systems and technologies (such as faxing). Second, legislative measures covering privacy as enacted by Canadian and U.S. governments are very compatible in intent and provision. Third, the specific legislation governing U.S. financial institutions and their conduct in relation to rights of privacy ("Reg E provisions") is actually significantly more restrictive than current Canadian legislation[32]. Therefore even in the event of cross-border financial services trade in the retail market, Canadian consumers should have equal or better information privacy protection.

Finally, while abuses by disreputable players may occur and will be dealt with through legislated provisions, the vast majority of lenders are carefully protecting private consumer data as that privacy has become an underpinning of their brand.

Product Design and Consumer Access and Affordability

Significant change is anticipated to occur in the development of new product offerings for the Canadian market as a result of the introduction of e-commerce technology, specialist mortgage system providers and the resultant increase in competitive forces in the Canadian mortgage market. Specifically, the Canadian mortgage market is expected to move toward a component based à la carte system of mortgage offerings and away from today's package-based offerings.

Mortgage product design relates largely to options associated with term, rate type, payment schedule, fee structure, bonuses and other marketing type functions within the overall framework of repayment of principle and interest over a period of time. While certain features add value to certain consumers, they also add layers of costs to the delivery of the

[32] "Reg E" refers the U.S. Federal Reserve regulations governing electronic banking and payments.

mortgage for the lender. Therefore in the ideal world, a consumer would pay for product features that they both used and found valuable.

Canadian mortgage products are generally packaged, so that features are grouped together and priced as a whole rather than as a sum of their components. While packaging offers benefits to many customers in terms of grouping common features within a simple pricing mechanism, it does create a degree of inefficiency in the market. For example, packaging makes comparison of mortgage pricing and features between lenders somewhat difficult for most consumers, as the packaging of options varies between lenders.[33] Further, packaging creates a degree of waste in the market as the industry interviews suggested that few customers actually use the mortgage options provisioned and paid within the package.

Some interviewees suggested that the market is moving toward a "build-your-own" mortgage option, in which a standard "vanilla" mortgage offering is widely available in the market (eg. 10 year term, monthly payment), on top of which consumers choose to add different options (i.e. bonuses, early payments, penalty fees, skip payments, payment insurance, etc) which affect pricing. However, since all lenders operate from the same or equivalent base assumptions, competition would focus on common and comparable features. The benefits of the *a la carte* product offering include:

- improved product and competitive transparency;
- reduced product costs; and
- heightened consumer choice and flexibility.

In this area too, e-commerce technologies are seen as an enabler of change – in this case to component-based mortgage product offerings in Canada. There is some movement towards off-the-shelf and third-party software in the Canadian mortgage lender market; however, regardless of whether these systems are internalized or purchased through service bureaus,

[33] Some interviews suggested that the rise of brokers in Canada was directly related to the lack of product feature and pricing transparency in the Canadian market.

the research indicates these new systems engender a move to *à la carte* mortgage offerings. Further, the introduction of a secondary market conduit could create a "vanilla mortgage" product base from which lenders would add their value added services. Any move toward individual pricing would likewise support this.

Accessibility and Sub-Prime Lending

One potential area for greater development is through risk-based pricing and offering of sub-prime or less-than-prime mortgages. While not an issue in the current environment, an area where we see potential consumer-related developments is in higher-risk and sub-prime lending.

Sub-prime lending, which is generally more common in the U.S. than in Canada, refers to cases where lenders offer funds to consumers with FICO/Beacon scores lower than 650. These consumers typically have either limited or poor credit, combined with a high-loan-to-value mortgage[34]. In such instances lenders charge two to six percentage points more than conventional mortgage rates (some charge considerably higher) in order to cover their risk provisions. These margins, however, have driven many companies in the U.S. market to be more aggressive with their marketing techniques. Furthermore, the historical consequences of demographic distribution in the U.S. meant that poorer consumers had less actual choice in

[34] A credit score attempts to condense a borrower's credit history into a single number. The credit bureaus do not reveal how these scores are computed. Credit scores are calculated by using scoring models and mathematical tables that assign points for different pieces of information that best predict future credit performance. Developing these models involves analyzing how thousands, even millions, of people have used credit. Score-model developers find predictive factors in the data that have proven to indicate future credit performance. Models can be developed from different sources of data. Credit-bureau models are developed from information in consumer credit-bureau reports. Credit scores analyze a borrower's credit history, considering numerous factors such as:

- Late payments
- The amount of time credit has been established
- The amount of credit used versus the amount of credit available
- Length of time at present residence
- Employment history
- Negative credit information such as bankruptcies, charge-offs, collections, etc.

In Canada each of the three main credit bureaus have their own scoring mechanism —Experian, Trans Union and Equifax. In addition to these standards, many other banks operate their own proprietary scoring systems. Some lenders use one of these three scores, while other lenders may use the mean score. Source: www.mtg-net.com

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lenders because the banks avoided investing in their own neighbourhoods. Thus it is a mistake to think of the customers of sub-prime lenders as un-bankable – rather, the experience in the U.S. suggests otherwise, as pointed out by Ellen Seidman, Director of the Office of Thrift Supervision:

> "Many of those served by the sub-prime market are creditworthy borrowers who are simply stuck with sub-prime loans or sub-prime lenders because they live in neighbourhoods that have too few credit or banking opportunities. More than 20 years after CRA was enacted, we still have communities that are not adequately served by insured depository institutions."[35]

It is an important lesson for Canadians to consider as we consider the impacts of e-commerce on accessibility as a result of changing competitive structures and regionalization, and as some banks consider virtual bank structures as a replacement of traditional branches. Evidence from the U.S. market would suggest that local access to capital is an important determinant of mortgage access.

Given the increased spread, sub-prime loans can be very profitable. However, the sub-prime market is cyclical; loan losses in one bad year can eliminate several years of returns. Many companies have found that the risk provisions and costs are too high and, particularly in the U.S., have exited this market[36]. Likewise, the major banks in Canada in general are not involved with sub-prime lending – although some have subsidiaries that do lend to the market.

The issue of sub-prime lending in Canada it not nearly as critical as it is in the U.S. market, primarily because there is less of a market here for sub-prime loans. This dynamic is driven by both supply and demand factors – namely, fewer players in the sub-prime lending market in Canada, generally lower regional differences in consumer access to mortgage capital and a more conservative consumer base, all point to a reduced role for sub-prime players. The U.S. experience suggests that there are degrees of sub-prime customers and that some parts of the market overlap with a traditional-risk loan market. For people who are repairing credit, or

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[35] "Puzzling Through: Approaching Alternative Credit Responsibility." Remarks by Ellen Seidman. Director of the Office of Thrift Supervision Interagency Conference on CRA. San Francisco, April 17, 2000.
[36] Bank of America exited the U.S. sub-prime market in 2001.

who are newly establishing their credit in Canada, sub-prime lending may be a useful finance avenue, allowing these consumers to acquire housing finance and to build a solid credit rating for the long-term. Thus, there is a significant role for higher-risk lenders in the market to create accessible funds for consumers.

However, one area of concern raised by our research and analysis is the possibility of the entry of aggressive U.S. players into the Canadian market, analogous to the recent entry of large U.S. credit card companies into the Canadian market. Particularly in the context of common credit card practice of pre-approving loan values to marginal consumers, the research raised questions about the long-term and regional impacts of credit marketing in conjunction with large home debts. Two markets in particular were identified as at risk in the research for this report; namely, young working-poor families (for high-credit home purchase loans) and seniors (for reverse mortgages) as both groups may be vulnerable to aggressive marketing techniques and the promise of money. We maintain, however, that the real risk posed to Canadian mortgage accessibility in the near term by aggressive sub-prime lenders is very low.

Accessibility and Implications of Risk-Based Pricing

A main topic of discussion in our research was the impact and influence of risk-based pricing on mortgage accessibility. Many prognosticators have foreseen the day when all mortgages will be spot-priced, based on consumer risk, property risk and funds risk. That is consumers will be offered different mortgage rates based on their credit bureau scores, housing scores and investor appetite.

Risk-based pricing, like automated underwriting, is a double-edged sword for mortgage finance accessibility. On the one hand, it would seem fair that persons who have maintained good credit, and thus are a lower risk to the lender, should receive a lower rate. On the other hand, there is a higher correlation between persons who are most in need of lower financing costs and those who have inferior risk scores.

In the past, particularly in Canada, both low-risk and high-risk clients, once past the threshold, have been treated equally by the banks in terms of pricing. Considering that one of the prime drivers of risk was size of mortgage versus home value, the use of mortgage insurance also assisted in reducing the threshold for Canadian consumers. The introduction of discretionary pricing by banks underlined this equality, as criteria for offering discounts is fairly arbitrary, and as a result the discount has become more a product of negotiating skills than of worth or customer risk.[37]

While the research suggested that the market need and competitive implications of risk pricing was still unclear, the interviews suggested that the largest hurdle to offering risk-based pricing was the lack of system and infrastructure capability. However, we do see risk-based pricing in some form entering the U.S. and Canadian markets in the next five years.

Based on our research, we see the U.S. adopting some degree of flexible offering pricing based on consumer risk and wholesale funds availability. In particular, we see the high-end and near sub-prime markets as being most impacted by risk-based pricing. The interviews suggested that mid-tier markets, however, will continue to be driven by the threshold-based risk analysis of the existing lenders and vanilla product offerings of Fannie Mae and Freddie Mac.

In Canada, the same open-ended pricing discussion or targeted use of risk pricing is not expected. Given the structure of the Canadian financial services environment, we think it competitively unlikely that there will be any large-scale movement toward pure risk pricing in the foreseeable future. This assertion is based on both substantive infrastructure costs associated with changing the mortgage systems to implement risk-based pricing. And, the competitive and public relations implications associated with the large Canadian banks moving to a highly differentiated pricing schema. Instead, our findings suggest that risk

[37] There is a general correlation between customer value to an FI and their credit score – however, the interviews pointed out situations where marginal customers have been more successful at negotiating discounts because of their aptitude for negotiation.

analysis and scoring will increasingly be used in Canada to partially generate the discretionary discount offered to customers(i.e. in conjunction with market and relationship issues).

While it is simpler to look to threshold models for pricing, the market would be served by a fair-pay model across the board. As such, risk based pricing remains a prominent issue in the industry. In order to accomplish this task, the lenders, insurers and regulators need access to accurate risk models and consumer risk data. Further, these models must grow with the stakeholders as new market circumstances develop and as the technologies themselves develop. Thus a core component of the process must not only be communication between various stakeholders in the risk management process, but true collaboration in order to optimize risk management and the outcomes. One potential avenue to explore, therefore, is the development of a universal industry-standard risk management scoring system and data repository by an agency that serves all stakeholders in the mortgage process.

Conclusion

From the perspective of overall homeownership housing finance affordability and accessibility, the introduction of e-commerce technologies in various guises could reduce costs and improve product choices for the majority of consumers.

Conclusion

Between 2001 and 2006, the Canadian mortgage finance industry will incrementally implement e-commerce technologies throughout the mortgage value chain. During this period, the Canadian homeownership mortgage industry will look at how it can reshape the cost structures and workflows of the mortgage process to reduce its cost structure and to improve their strategic flexibility. The inherent attributes of e-commerce technologies as a collaborative communication tool coupled with a defined workflow and stakeholder environment will shape the selection of technologies and the impact these technologies have on the market.

Based on the research and analysis there are five key technology thrusts that have the potential to reshape the Canadian market. These include:

- Electronic Documents Technologies;
- Personalized Selling Technologies;
- Risk Management and Pricing Technologies;
- Mortgage Broker Technologies; and,
- Application Service Providers and Outsourcing Offerings.

The implementation of these technologies will serve to maximize operational efficiencies and flexibility of response for the lender. Together these e-commerce technologies touch every component of the mortgage value chain and each stakeholder. They are also expected to continue to put pressure on all stakeholders to realign processes, because they call into question the form and the substance of the relationships each has in relation to the mortgage value chain, product and the consumer. As a result, the mortgage value chain and Canadian industry structure are expected to become increasingly fragmented, although the effects of that fragmentation may only be observed after the 2006 timeframe of this analysis.

The findings suggest that the introduction of e-commerce technologies will take on many forms, but that the primary function of improving communication and workflow efficiency within the mortgage workflow will be its longest-term impact. The resulting savings accrued from reductions in error and in the need for human labour could potentially save consumers modest amounts on their mortgage rates. These savings might be passed on to consumers by the lenders from savings which may accrue with the implementation of new technologies and the improved flexibility to address existing process inefficiencies. Such savings, if any, however depend on the costs of acquiring, implementing and maintaining e-commerce technologies.

In this environment, the lowest cost provider is increasingly the winner. This in turn will put significant pressure on all stakeholders to invest in technology to become a low cost provider in their designated area of expertise – or seek to source work from other vulnerable stakeholders. Further, mortgage industry stakeholders will increasingly look to their place and neighbouring places in the mortgage value chain to expand their value offering and worth to the customer, leading to a blurring of stakeholder roles. As a result, every stakeholder is at risk of being disintermediated from the value chain unless they are in a strategic position to invest in technology and develop their role to better suit customer needs.

The mortgage industry is quite mature. As a result, the effects of technology could be mitigated by the ability of the industry to implement these technologies within an existing infrastructure and workflow. There remains significant friction in the Canadian mortgage market because of legacy investments, technology, corporate intransigence, consumer behaviour and regulatory structures which means that rapid and radical changes in mortgage offerings as a result of e-commerce technology will be unlikely. Perhaps the most substantive friction point noted in the report is also most beneficial to the consumers in the short term, namely the hyper-competitive pricing environment which the interviews suggest limit investments and competitive entries in the market.

In light of this concern, the largest impact of e-commerce in the Canadian mortgage market may not be the actual impacts of the technology and costs themselves, but rather the options and opportunities that the technology allows to use third-party companies as outsource providers. The pressures to outsource and dissolve the integration of the workflow are being felt throughout the mortgage value chain, including channel and sales force (brokers), operations (servicing and closing), funding (secondary markets) and through the extensive use of software providers. It is through the development of extensive third-party services and software industry that Canada can effectively reduce the barriers of entry into the Canadian market and increase competition.

The Canadian market is expected to increasingly resemble a US-like industry structure with a larger variety of mortgage lenders capitalizing on shared scale processing companies, leveraging shared processing and funding infrastructure. There could be a slow evolution in the Canadian financial services community between 2001 and 2006, away from vertically integrated mortgage fulfillment processes and toward a multi-party processing structure involving a number of third-party providers.

From a consumer perspective the implementation of e-commerce could be relatively positive:

- Cost savings, net of e-commerce related expenditures, expressed as lower mortgage rates, might be accrued from e-commerce technology implementation in the closing, servicing and risk value chains.
- Changes in the value chain brought about by e-commerce will be largely invisible to consumers, as lenders work to make back-end processes more efficient, improving customer satisfaction.
- There should be increased product and rate transparency as companies post information online and as tools become available on the Internet to compare and contrast product offerings and pricing.

- There could be increased competition in the origination space for consumer mortgage accounts as new players enter the market, capitalizing on the increased availability of outsource providers, to create new value propositions to better serve their customers.
- Industry leaders also expect that automated underwriting and risk assessment technologies will play a significant role in improving finance accessibility by both reducing risks and costs, and by the creation of a more transparent and quantifiable assessment of instance risk.

The introduction of e-commerce technologies within the mortgage industry is expected -- in time -- to create profound change. The timeframe for change will likely extend beyond 2006. There will be many stops, starts and false paths. Change, however, will be inevitable.

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Glossary

Basis Points (BPS) A description of measurement used in the financial services industry whereby 1 per cent of interest represents 100 basis points. Therefore one basis point is value at 0.01 per cent.

Conventional Mortgage Refers to a mortgage loan where the loan amount accounts for less than 75 per cent (in Canada) of the value of the property. Conventional loans do not require mortgage insurance.

Cost of Funds The wholesale or arbitrary cost of capital expressed in an interest rate or basis point, paid from the lender to the investor.

E-commerce Technologies Refers to a family of business software, network applications and computer hardware that support the interchange of data for the purposes of transacting business via the Internet. These solutions range the gamut of size, providers, industry and technological base – although in theory all share common foundations in internet-protocols, standards and availability. These issues are more fully discussed in section *The Origins of E-Commerce Technologies.*

Electronic Data Interchange (EDI) EDI refers to a series of ISO (International Organization for Standardization) agreed on data protocols and data definitions by industry facilitating the electronic transmission of commercial data between trading parties.

Electronic Signatures Refers generally to a family of technologies used to encrypt, validate authenticity or integrity, and/or to identify origin of electronic data. There a number of commercially available electronic signature solutions in the market.

Derivative Refers to a series of financial products and investment strategies used to mitigate risks associated with traditional investments, loans and financial exchange instruments.

Discretionary Discount Refers to the common practice of offering consumers reductions in mortgage rates in order to gain their business. The discount is offered by the bank is ostensively based on the value of the consumers business, but in reality the size of the discount is based on internal capital restrictions, competitive and market needs, and sales goals.

Financial Institution (FI) Refers broadly to financial services firms including banks, insurance companies, investment firms and mutual fund companies.

High-Loan-to-Value-Ratio (HLV) Loans Refers to a mortgage where the loan accounts for more than 75% of the value of the property at the time of origination. Deposit taking institutions in Canada are not allowed to offer HLV loans without insurance – such as what is offered by CMHC.

Internal Capital in regards to mortgage lending, refers to funds available within a lender created from term deposit, savings, other borrowed or accrued capital within the bank.

Long-Term Funds Refers funds derived from investments with terms of up to 30 years. It is common practice within lenders to match funding sources' term to the length of the term of mortgage. Guaranteeing sources of long-term funding allows the lender to avoid potential risks associated with market and interest rate changes. However, long-term funds incorporate a higher posted rate to compensate investor risk.

Mortgage Insurance Refers to products designed to reduce investor risk of default on mortgages – typically used for HLV mortgages. In Canada, mortgage insurance is offered by both CMHC and GE Capital and as well as backing the loan in event of default reduces capital reserve requirements imposed on banks by regulators. In the case of CMHC insurance it totally eliminates the capital reserve requirements. Consumers apply for, and are charged, for mortgage insurance when they apply for mortgages with the originating lender. Pricing for mortgage insurance varies by the amount of percentage of down payment offered by the consumer. Mortgage insurance is also used by the lender to reduce costs and risks of conventional mortgages.

Origination Refers to functions of marketing and quantifying a mortgage application prior to approval. Also referred to as the primary market.

Originator Refers to companies and individuals involved in the marketing and quantifying a mortgage application prior to approval. Specifically refers to brokers and/or the lender directly responsible for the client application.

Outsourcing Refers to the practice of using external service providers to function as part of a service offering, replacing or augmenting functions that were managed previously within the firm.

Real Rate Refers to the mortgage rate charged to the consumers after discretionary discount.

Refinancing Refers to the consumer practice of renegotiating a mortgage prior to completion of term.

Renewal Refers to the consumer function of renegotiating mortgage contract at the completion of term.

Return on Income/Investment (ROI) A measurement of gain or profit from investments over a defined time-period. Used to quantify the business, strategic or tactical value of the investment by managers and analysts.

Secondary Market Refers to the market for mortgage-based securities and derivatives. The process for creating a secondary market product is securitization.

Secondary Market Conduit Refers to the central role of an entity such as Fannie Mae. The function acts as a active middleman between the mortgage offering market and the mortgage investing market. From the mortgage originating market the entity purchases mortgage securities from banks and lenders and/or provides wholesale loans to originators. To the investing market where the entity packages mortgages securities into a variety of investor-friendly products (Mortgage Backed Securities or Mortgage Backed Bonds) and then manages the risks of that portfolio in the market.

Short-Term Funds Refers funds derived from investments that redeemable within 90 days (in some markets up to one year) including deposit, savings and bankers acceptance and other money market products. Short-term funds are more susceptible to market fluctuations but the face rate is also usually priced below long-term funds. In the integrated model, lenders may choose to use short-term funds to reduce the cost of funds and increase profit. Should they do so they are more open to interest rate fluctuations through the term of the loan. Therefore, there tends to be an active function associated with treasury management for lenders who use short-term funds as well as a cost associated with risk that included in the spread.

Spread Refers to the difference between the mortgage rate charged to the consumer and the cost of funds. The spread is the margin (or mark-up) used by the bank to cover costs of administering the loan for the duration of the term and for profit.

Term The length of time negotiated in the mortgage contract. Terms vary from 3 months to 7 years in Canada – with the most common length of term being 3-5 years. In the U.S. market the length of term is considerably longer with 20-30 year terms being common.

Underwriting Refers to function of determining client and property risk during the application process and ascertaining whether to accept or decline the loan. This process is typically automated in the Canadian context.

Value Chain A value chain depicts the logical processes, steps or value-creating activities within a system or business function. The purpose of the value chain methodology is to assist the description of steps and functions within a process, by breaking down the functions to smaller more easily understood sub-processes.

Wholesale Market Refers to the funding and decision modeling process between the Broker/Originating lender and the lending lender. Typically, the process involves the originator working with a number of lenders to find the best solution for the client. In the U.S. market, the wholesale function has developed auction characteristics with lenders and brokers engaging in interactive pricing based on risk and capital availability.

Workflow The business processes and tasks performed by employees or systems to create value in a work function.

Appendix

Appendix A: Acknowledgements

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Canadian Bankers Association	Bill Randle
Canadian Bar Association	Ann Tremblay
Canadian Lawyers Network	Richard Bell
Canada Mortgage and Housing Corporation	Bill Gray
CIBC/First Line	Paul Grewal
Citizens Bank	Guy Bantleman
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	Mike Moore
	Martin Stevens
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