Empowered or Vulnerable? The Role of Information for Australian Online Investors / Plus forts ou plus vulnérables ? Le rôle de l’information pour les investisseurs en ligne australiens

Kirsty Williamson, Dimity Kingsford Smith

Canadian Journal of Information and Library Science, Volume 34, Number 1, March/mars 2010, pp. 39-81 (Article)

Published by University of Toronto Press
DOI: https://doi.org/10.1353/ils.0.0004

Empowered or Vulnerable? The Role of Information for Australian Online Investors

Plus forts ou plus vulnérables ? Le rôle de l'information pour les investisseurs en ligne australiens

Kirsty Williamson
Director, Information and Telecommunications Needs Research
Caulfield School of Information Technology, Monash University and School of Information Studies, Charles Sturt University
PO Box 197, Caulfield East, Vic., 3145
kirsty.williamson@infotech.monash.edu.au

Dimity Kingsford Smith
Faculty of Law
The University of New South Wales
Sydney NSW 2052
d.kingsfordsmith@unsw.edu.au
Note: Correspondence to be sent to Dr. Kirsty Williamson

Résumé : Un nombre assez considérable de personnes investissent en ligne. Les avis juridiques indiquent que la disponibilité et l'utilisation d'information joue un rôle clé dans la sécurité des transactions. Un projet multidisciplinaire a entrepris l'investigation des comportements de recherche d'information chez les investisseurs, avec en vue la possibilité d'une nouvelle réglementation. Une approche mixte a été utilisée. Elle comportait une enquête contenant cinq-cent-vingt réponses fournissant un comptage de la fréquence des activités d'investissement et de recherche d'information. Des entrevues individuelles, menées avec vingt-six participants sélectionnés pour représenter les répondants de l'enquête, ont ouvert des perspectives approfondies. L'analyse a identifié des thèmes, des catégories et les citations correspondantes. L'enquête a montré qu'Internet est le fournisseur principal d'information, et que certains sites web d'investisseurs en ligne sont particulièrement fréquentés. Les autres importantes sources d'information sont les journaux traditionnels, les revues et les médias électroniques. Sur le plan qualitatif, l'indicateur a montré que les sources clés doivent leur importance à la commodité, au contenu, à la vitesse de livraison, et à l'exactitude et la fiabilité. D'autres problèmes importants sont la surcharge d'information, la prise de risques en lien avec l'analyse systématique dans l'utilisation d'information, et l'utilisation de sources d'information interpersonnelles. La discussion met en lumière la question inexplorée, chez les investisseurs en ligne, de l'impact de la structure des sources web sur la construction des connaissances. Sur le plan légal, cette étude donne des raisons d'être optimiste, car les investisseurs en ligne participants se sont montrés préoccupés de trouver de l'information et prêts pour l'éducation des investisseurs.

Mots-clés : comportements informationnels, investisseurs en ligne, réglementation juridique, sources d'information, surcharge d'information, prise de risques

Abstract: A sizeable proportion of people invest online. Legal opinion is that information availability and use play a key role in its safety. A multidisciplinary project investigated the information-seeking behaviour of online investors, with possible further regulation in mind. The mixed-methods approach included a survey, with 520 responses providing frequency counts about investment activity and information seeking. Individual interviews with 26 participants, selected to represent the survey respondents, provided in-depth perspectives. Analysis identified themes, categories, and related quotations. The survey indicated that the Internet was the major provider of information, with websites of online investors particularly widely used. Other important information sources were traditional newspapers and journals, and the electronic media. The qualitative component indicated that key sources were important because of convenience, content, speed of delivery, and accuracy/reliability. Other important issues included information overload, risk taking in relation to systematic analysis using information, and use of interpersonal information sources. The discussion highlights the unexplored issue of the impact of the structure of Web sources on knowledge building of online investors. From the legal perspective, the study provides grounds for optimism because online investor participants appeared to be relatively engaged with information and amenable to investor education.

Keywords: information-seeking behaviour, online investors, legal regulation, information sources, information overload, risk taking

Introduction

Online investment (OLI) has become very popular with investors, especially in the Western world. One prediction is that global trading will quadruple from 10 million active trades a year in 2002 to 40 million in 2010 (Keen 2007). But how safe is this kind of investment, which is usually done without professional advice? This is an important question because online investment is attractive to investors who are likely to be seduced by much cheaper costs than for broker-advised transactions and also the sense of control and feelings of empowerment that online investors have been shown to relish (Barber and Odean 2001). In fact, according to Bradley (2004), there are reasons to suspect that online investors are as vulnerable as they are empowered. She sees information availability and use as playing a key role. This view accords with that of the lawyers in the major Australian project reported in this article: if people are to invest online as safely as possible, they must be well informed. Yet as Mezick (2001, 5) pointed out, there is a paucity of research focusing on the information behaviour of individual investors.

The focus of this article is the information-seeking behaviour of online investors. In the study that underpins it, an information researcher worked with researchers from another discipline (law) to consider the implications of the results for regulation of online investing. The three-year project was awarded a prestigious category of Australian Research Council funding, an ARC Discovery Grant, and has an international collaboration involving academics specializing in legal regulation from three different countries (apart from Australia). It has taken a mixed methods approach, where quantitative and qualitative data have both played a part.

Literature review

It is readily agreed (e.g., Boreham 2008; Bradley 2004, 2006) that, especially compared with pre-Internet days, investors have an abundance of information at their fingertips—labelled "a cornucopia" by Kaplan (2008). The words *empowered* or *empowerment* are commonly used in relation to investors in recent times (e.g., Unger 2001). As long as they have access to the Internet, there is no limit to the amount of information they can obtain or to their level of access to information. According to Bradley (2006), these have been the criteria used by regulators to distinguish sophisticated from unsophisticated investors, although she questions their relevance in this age of the profusion of information.

The range of types of information available to investors has been discussed by various writers (e.g., Bradley 2004, 2006) with some aiming to provide guides for investors (e.g., Kinsky 2007). Bradley is from the field of law and is particularly interested in information sources in relation to questions of regulation. For example, she examined (2004) sources from a number of different perspectives, including immediacy. Starting with print information sources (e.g., books, magazines, investment newsletters, finance sections of daily newspapers), she pointed out their lack of immediacy and the disadvantage to investors who rely on these sources (380). Radio and television provide some investment information and analysis, but it is the Web that is so prolific and immediate. Yet as Bradley mooted, while the Web provides up-to-date information, its presentation on screen (often with hyperlinks) may prevent readers from developing a sense of the full document.

Bradley's point about the structure of online information, and the non-linear use it encourages, resonates with the work of Nicholas et al. (2003), who studied digital information consumers. They labelled online consumers as "information players," concluding that they are promiscuous in that they "flick" and "bounce" because of the wide choice of digital sources at their disposal (26). On the one hand they are untrusting because, unlike with a print newspaper where they understand what they will find, "digital formats, and the web in particular, have a tendency to break down this easy familiarity and leave the consumer floating in a sea of uncertainty" (27). They are also novice information retrievers who place great trust in search engines, which are "invested with magical powers of retrieval" (28). On the other hand, contrary to the findings of Mezick (2001), discussed below, Nicholas et al. saw rapid speed of delivery as essential to "information players," with real-time information being what everyone wants because it is the benchmark (28).

As already suggested, there is limited research concerned with information seeking and use by investors from the field of information studies/librarianship. In 1996 McKay et al. undertook a study of the use of investment information in academic libraries, focusing on various types of users including seven personal investors. While the study was undertaken some time ago, with a small sample of actual investors, it asked some interesting questions, particularly about use of sources of information and methods used in investment research, and these were useful for the project described in this article.

From the field of business librarianship in the United States, Mezick (2001) undertook a survey involving 96 respondents. Although 81% of her sample used the Internet, supporting Hektor's (2003) findings regarding use of the Internet for "marketing information," she concluded that "rather than using it as a primary source, investors appear to be employing it as a supplement to other resources" (12). This was because she found an overwhelming preference for printed versions of what were called "narrative" sources, which included newspapers, magazines, and annual reports (3). Mezick attributed this finding to the older age profile of participants. The fact that this finding confirmed the NASDAQ (1997) survey may be a reflection of the even earlier date of that study.

Library use in the Mezick study was remarkably high (78%), especially given that the survey was conducted under the auspices of the National Association of Investors Corporation, was administered at the Investors' Fair in New York City, and was not linked with libraries in any way.

Mezick's respondents gave the following as their most significant reasons for using the Internet, in descending order from the most often nominated reason: convenience, as a supplement to other information sources, currency, reliability, ease of use, cost effectiveness, speed of obtaining information, and uniqueness of information (2001, 9–10). The infrequent mention of speed is interesting, given the views of Nicholas et al. (2003), mentioned above. Also Barber and Odean (2001) postulated that the Internet's facilitation of "comparisons of real time data" leads to an emphasis on "the importance of speed and immediacy," which they saw as influencing investors "to trade too often and too speculatively" (48).

Mezick found that the vast majority (84%) of her sample saw the Internet information as reliable as other information, with 11% believing it was more reliable. This raises the question of whether all of the many Internet sources are perceived as equally reliable. Common sense would say that this is not the case. Discussions about this issue include that of the chairman of the US Securities and Exchange Commission, Arthur Levitt who, in 1999, warned about Internet chat rooms. By that time chat rooms had become "a source of information or mis-information for many investors ... [They] have been compared to a high-tech version of morning gossip or advice at the company water cooler. But at least you knew your co-workers at the water cooler." He hoped that investors "realize that if someone is waxing poetic about a certain stock, that person could well be paid to do it" (5).

Other key sources of literature about investors come from the finance/business/consumer sectors and the implications are beginning to be seen in law. Professor Donald Langevoort is the leading US scholar working on investor psychology and securities regulation and also part of the international collaboration for the project discussed in this article. He wrote (2002, 7) about the impact of the media in driving stock prices, even though there was no "new news" about a company. Since that time, the volume of email SPAM associated with investing has burgeoned and, although unlikely to have the credibility of respected media, could also be considered as a problem for gullible investors.

Langevoort (2002, 13) also described "the contagion of excitement or panic" generated by social contact, basing this conclusion partly on the key work of Shiller and Pound (1989), whose research found that direct interpersonal communication between peers is important to the information seeking and decision making preceding securities trading. This is in keeping with research findings in the human information behaviour field, from the last few decades of the last century to more recent times: interpersonal information sources are frequently used by information seekers (e.g., Chen and Hernon 1982; Heinstrom 2002; Warner, Murray, and Palmour 1973; Williamson 1995, 1998). Langevoort (13) saw the effect of social contact among investors as the most unexplored aspect of investor behaviour. The chat room phenomenon, discussed above, is a recent manifestation that has increased the opportunities for interpersonal exchanges.

Along with Barber and Odean (2001), Langevoort (2002) proposed that well-informed investors can lose money through over-confidence. He saw them as tending to "overweight their private stock of information or inference" (14). The work of Lin and Lee (2004), investigating "the determinants of consumers' information search behaviour when making decisions" (320), may provide some support for this view, although the researchers were concerned with neither the concept of "overconfidence" nor of "financial loss." Using a large sample from a database of consumer attitudes, behaviours, and motivations associated with financial products, they found "that consumers who engage in more information search activities are more risk tolerant" (326).

While it seems unlikely that the answer is to discourage online investors from seeking information, the problem may relate to Barber and Odean's (2001) proposition that investors may not seek information with an open mind. Rather they may seek to confirm previously held opinions, such as through Internet chat rooms where they can seek out like-minded investors (46–7). Barber and Odean saw the Internet, in general, as providing an illusion of knowledge and control. Along with Langevoort (2002), Mezick (2001), and Nicholas et al. (2003), they proposed that information overload is a big problem for investors, postulating that because of it "at some point, actual predictive skill may decline as information rises" (46). In the colourful language of Nicholas et al., we now have "a data-driven world" with the Internet providing "loads of links, endless links, thousands of postings," characterizing "the endless information journey with seemingly no destination" from which information players will retain little information and have "no sense of knowledge building" (30).

There are myriad questions arising from this overview of the literature. On the one hand, the easy access to a wealth of information, especially as a result of the Internet, has brought opportunities for people to use that information to invest online. On the other hand, there have been many provisos raised about kinds of information available through the Internet, about the problems investors may have in finding useful, reliable information from the vast array available, and even questions arising from the way that Internet information is structured.

The findings of the empirical research, reported below, relate to research questions focused on the key sources of information used by Australian online investors and reasons for their importance, and other sources of information and reasons for use. The quantitative data provide strong evidence of "level of use"; the qualitative data provide the reasons for use. Other qualitative data concern information load and level of analysis using information related to perceptions of level of risk taking. The impact of the way information is structured on the Internet was not investigated empirically but will be explored in the discussion section where the implications of the study for information seeking and legal issues are discussed.

Research philosophy and method

Williamson (2008) provides an in-depth discussion of the philosophy and method for the project. The researchers adopted a "mixed method" (MM) approach to both research philosophy and method but tried to do it "in a thoughtful and defensible manner," as Greene and Caracelli (2003, 94) urged. Greene and Caracelli's research found that "inquiry decisions are rarely, if ever, consciously rooted in philosophical assumptions or beliefs" (107), implying that much MM research—and, it could be added, single method research—appears to be atheoretical. The research adopted the Morse (2003) approach of first recognizing the "theoretical drive" of the project—whether its principal purpose is to discover, find meaning, or explore (interpretive/qualitative), or to measure or test (positivist/quantitative)—and then respecting the assumptions of both paradigms. With the OLI project, the theoretical drive was qualitative (interpretivist), with the quantitative data being used to provide the "broad picture" of investing and information-seeking behaviour before an in-depth exploration of a range of questions during the interviews. The two components were treated as separate, though related.

The quantitative component

For this component, major Australian OLI companies such as the Commonwealth Bank online brokerage company and Sanford Online put the survey questionnaire up on their websites. The Australian Shareholders' Association and the Australian Stock Exchange both supported the project. As a result, a target sample of at least 500 respondents was easily reached and exceeded (total of 520).

The online questionnaire was developed and piloted late in 2005, with some minor adjustments being made before the survey was launched in 2006. Apart from demographics, questions all focused on frequency of types of OLI activity and information source use. The questions asked in the survey are in an appendix to this article.

As the researchers were interested only in a broad picture from the quantitative data, analysis involved simple frequency counts on an Excel spreadsheet. Apart from gender, where males outnumbered females five to one, the other demographic results tended to cluster. The majority of the sample was aged 40 to 69, 67% had a university/college or post-graduate degree, and almost 50% had a total household income of at least A$80,000. On the other hand, 3% of respondents had an income of less than A$20,000 and about 16% had an income of between A$20,000 and A$50,000.

The most important outcome of the survey was that it provided a large number of potential interviewees. Almost 200 respondents offered to be interviewed and provided personal details, giving us a large and varied pool of people from which to build a balanced purposive sample, as discussed below. The wide geographical spread of respondents also means that this is a truly Australian study. As would be expected, Sydney and Melbourne were the best represented (about 18% each), but all states were included.

The qualitative component

The researchers adopted an interpretivist/constructivist approach to explore the information behaviour of online investors, including perceptions, values, beliefs, and the "meanings" they constructed around information needs, seeking, and use related to OLI outcomes. Since Australian online investors have an interest in common and live with a similar range of cultural influences, both macro and micro, they are likely to have at least some shared needs, understandings, and information behaviours. The researchers therefore took the approach that the patterns that emerge from shared meanings can be used to try to gauge the role that information plays in investing, as well as to identify where information services may need to be improved. Thus the particular interest was in the shared meanings of participants but, at the same time, note was taken of individual meanings. In other words, the researchers looked for both consensus and dissonance.

Within this constructivist framework, ethnographic method was used. According to Bow (2002), there is no single way of undertaking ethnography or participant observation as it is also called, that it can combine techniques such as interviews and observation, and has the flexibility "to emphasise some techniques over others, and to leave some techniques out altogether" (267). The technique emphasized was the individual interview, which was used in combination with participants' responses to the questionnaire.

A pilot study was undertaken for the qualitative component and provided interesting results in its own right. These are documented extensively in Kingsford Smith and Williamson (2004) and are used as an example of a study of the use of ethnographic techniques in constructive frameworks in Williamson (2006).

The sample

The sample consists of 26 individual online investors but will also include a small number of interviews with site sponsors and regulators. The interviewing was terminated before the notional target of 30 individual investors was reached because redundancy of information was starting to occur. *Redundancy* is a term Lincoln and Guba (1985) used, suggesting that purposive sampling be terminated "when no new information is forthcoming from new sampled units" (202). By this stage a geographically representative sample of investors, who undertook various types of trading, had been included: Australian standard share trading (at various levels of frequency) and trading with margin loans. There were representatives from every age and income group and a sufficient number of women (a higher proportion than in our original sample). A range of levels of information seeking and use was also included. It was based on the calculation of the frequency of information seeking across 11 different sources of information from the survey. Table 1 sets out details of the sample.

Some demographics are slightly under-represented, others over-represented compared with the survey results. It was impossible, given the range of variables being juggled, to achieve precision but we believe that the balance is about the best possible.

Including participants with a range of frequency of information seeking was difficult. To attempt to do this, we had to calculate the frequency of information seeking across 11 different sources of information from the survey. Averaging the frequencies gave us almost 1.9 participants who sought information daily from a wide range of sources. At the other end we had 5.4 participants who rarely sought information from any of the sources. The others fell between. It was based on these calculations that we made the choices for this variable.

Data collection

The semi-structured interviews, lasting between one and two hours and conducted face-to-face, began in September 2006, with most completed by May 2007. Some took place in the homes of participants, others in workplaces, and yet others in university or library premises. The researchers took care to meet the requirements of the Ethics Committee of the University of NSW, in each case obtaining informed consent from participants, including for the audio-taping of the interviews.

The questions began with types of trading and reasons for investing online, including perceived level of risk taking, and then moved on to types of information seeking (Internet and other), the perceived qualities of information sources, and views about issues such as information overload. These questions can be found in an appendix to this article. The remainder of the questions were those framed by the lawyers, mostly

Table 1. Interviewee demographics (numbers of participants in each category)

Category		No.
Location		
	SA	3
	Queensland	4
	ACT	3
	Victoria	7
	WA	4
	NSW	8
Gender		
	Male	18
	Female	11
Age		
	20–9	2
	30–9	5
	40–9	8
	50–9	4
	60–9	7
	70+	3
Income		
	<$20k	1
	$20–50k	4
	$51–80k	3
	$81–120k	7
	$121–250k	5
	$251k+	8
	No response	1
Education		
	High school	8
	University/college	10
	Non-uni/tertiary	2
	Postgraduate	9
Frequency of domestic share trading		
	Every day	3
	Very frequently	8
	Frequently	7
	Occasionally	6
	Rarely	5

concerning investment decisions and processes (such as the customer-broker agreement and awareness about warnings and disclaimers on brokers' websites).

Before the interviews, the researchers prepared a profile of each participant based on the individual's questionnaire responses. The appropriate

Table 2. Characteristics of key information sources—accuracy/reliability voice sheet

Category	Quotations
High level of trust in sources	I'm assuming that it's reliable, it's authoritative, because it comes from brokers and other sources.
A degree of doubt	Because they're analysts, 99% of what they're saying I think is true, but there may be also 1% of fiction in it as well.
Approaches to dealing with doubt	I probably always double check one against the other anyway . . . Accurate price, it's very important.
Very skeptical approach	I don't [take] an awful lot of notice of it [online information] . . . I treat it all with a grain of sand because I'm not confident on it.

part of the profile was read out to the participant as the interviewers moved through the questions. This approach was very useful, not only because it set the scene for the in-depth questions, but it also enabled us to check on the level of accuracy of the survey results. The result is good data to critique the effectiveness of the questionnaire, an exercise that should prove salutary for other developers of survey instruments. These are briefly discussed later in this paper but more fully in Williamson (2008).

Data analysis

The audio tapes of the interviews were transcribed by an experienced transcription typist.

Although the analysis as undertaken does not constitute a "grounded theory," it was influenced by the "constructivist grounded theory" (CGT) approach of Charmaz (2003). CGT "recognises that the viewer creates the data and ensuing analysis through interaction with the viewed" and therefore the data do not provide a window on an objective reality (273). This means that, although there is every effort made to present the viewpoint of participants, there is acceptance that "we shape the data collection and redirect our analysis as new issues emerge" (271).

In the case of the information questions, one of the chief investigators and a research associate were engaged in the analysis. It initially involved detailed categorization/coding of the data, with key themes emerging during that process. To link themes and categories to key quotations that might be used to support the findings, a "voice sheet" was set up for each theme, so named because it includes the quotations ("voices") of participants. As each voice sheet was completed, an overview or summary of the data in that voice sheet was written. An example of part of a voice sheet (without summary) follows, in table 2. It is for the theme, "characteristics of key information sources: accuracy/reliability" and includes just a few of the categories and quotations.

Findings

As mentioned above, two sets of findings focus on the information-seeking behaviour of Australian online investors—one broad set from the survey (the quantitative results) and the more detailed set from the interviews (the qualitative results).

The survey

The survey asked about kinds and frequency of investment, as well as about information seeking (the emphasis here). It was found that by far the most popular form of OLI was trading in Australian shares, which over half of the sample of 520 survey respondents undertook at least once a month.

An important question about information seeking was use of the Internet. The finding was that 82.3% of participants used it (including email) to seek information either "every day" or "very frequently" (once every two weeks)—making this the most popular way of seeking information. More specifically, within the broad category of the Internet, the websites of online brokers were widely used, with 79.3% of respondents using them "every day" (ED) or "very frequently" (VF). Data and charting services were also well used (52.8% ED or VF). Forty-five per cent of respondents used general information portals with financial sites and 40% received emails from brokers—in both cases ED or VF. Company investor relations websites were used less widely (30.5% ED or VF) and online bulletin boards and chat rooms were distinguished by having a high level of never being used (52%)—their ED or VF use being less than 20%.

Even though the Internet is now very important to online investors, some more traditional information sources were popular with survey respondents. This was particularly the case with newspapers and journals. The vast majority of respondents gained information from traditional newspapers and journals at least frequently (79.2%). Given the findings from the interviews, discussed below, many would be reading these in hard copy at least some of the time.

Electronic media (radio and TV) were not quite as popular, although the majority (55.5%) of respondents acquired investment information from them ED or VF. While telephone and face-to-face advice from brokers was seldom sought (not at all by 75.9% of the sample), traditional printed literature from share brokers and financial analysts was used at least occasionally by a slim majority of respondents (52.8%). Once again, use of formal investor organizations was not common, although 39.3% were involved with them at least once or twice a year.

There was a strong expectation among the team that many investors would use interpersonal sources of information. This came from the fact that research findings in the field of human information behaviour have indicated that interpersonal information sources are frequently used by information seekers (e.g., Chen and Hernon 1982; Heinstrom 2002). Moreover, as mentioned above, Langevoort (2002) and Shiller and Pound (1989) had found that social contact influenced decision making of investors. Again the pilot study for this research (Kingsford Smith and Williamson 2004) had found that interpersonal and social communication was important in information seeking—not only informal chats with family and friends, but also participation by several interviewees in investment clubs. It was therefore surprising to find a different result in the main study where 62.8% of survey respondents said they rarely or never received information or advice from family, friends, or acquaintances. Nevertheless this result turned out to be questionable, as revealed during the individual interviews. There was much more discussion with family and friends than people either wanted to admit or thought of admitting (discussed further below).

The interviews

The emphasis of the findings here is on sources of information including the extent of use and perceptions of qualities that might influence that level of use. Key sources of information, as perceived by participants, begin this section.

Key sources of information

The survey findings indicated very frequent use of online brokers' websites. The interviews revealed that the key source of information for many interviewees was their online brokers' websites. These were seen by most as providing a range of useful and up-to-date information. One described his broker's website as his "main unreliable source" (male, Perth, 70+). They were also not always seen to be self-sufficient.

Several participants mentioned the Australian Stock Exchange site (ASX) as being the most up-to-date source of prices and company announcements, and others nominated sites and newsletters offering professional investing information and advice, often available only on subscription. Huntley's information service was commonly mentioned. Needless to say, the technical investors relied particularly on the charts, also shown to be frequently used in the survey.

Newspapers, another frequently used source of information in the survey, were also a key source for some interviewees. Comments focused sometimes on general newspapers, as with the first comment, and sometimes on specialized financial newspapers, as with the second one.

- [The *Australian*'s] recommendations of both buy and sell or hold. I have sort of followed that and found it quite effective. (Female, Brisbane, 50–9)
- *Financial Review*, yep. [It's important because] ... I guess it's specific company information and market information and Australian economy information. (Female, Sydney, 40–9)

There were two unusual key sources of information: the first was Foxtel, one of Australia's leading subscription television providers, was kept on 24 hours a day by one participant; the second was observation at primary sites of economic activity, such as shops, from which the participant believed he could gauge how the economy was going.

Characteristics of key sources of information

Participants were asked about the characteristics of their key sources of information that made them so important. They were asked this question in an open way, to begin with, after which follow-up prompts were used so that each quality was considered by interviewees. Counts of

Table 3. Level of importance of source characteristics ($N = 26$)

Source characteristic	No. of participants believing characteristic important	Not applicable to participants (or missing data)
Convenience, ease of access	26	0
Content	26	0
Reliability, accuracy	24	2
Currency, timeliness	23	3
Speed of access	19	7*

*Because "speed of access" tended to be closely related to "convenience" in participants' minds, in some cases interviewers did not pursue it as a separate issue

initial responses were recorded for the main qualities. Table 3 shows the results.

Convenience, ease of access

This characteristic was seen as important by all participants. As one participant (male, Adelaide, 60–9) explained, ease of access is important because "you don't want to be spending a long time trying to get at the information," with another view being that "it's much easier to be informed if you've got easy access" (male, Melbourne, 40–9). This reason emerged as important in the choice of the sites of online brokers as a key source of information. For example,

- I bring my Sanford site up and I watch what my shares are doing every day on that site. So I stay on that site if I want any other information. So it's convenience more than anything else. (Female, Melbourne, 70+)

Others extolled the convenience of the Internet, in general.

- But I tend to look at everything that's, you know, that's easily accessible, that I can lay my hands on without moving away from my computer terminal. (Male, Sydney, 50–9)

Nevertheless there were other views about convenience that were not so computer-oriented.

- [The business part of the newspaper is easily accessible] because it's part of a package … You've got all the other information. (Female, Brisbane, 50–9)

For this participant, reading the newspaper and checking the share information was part of her daily ritual. There was also a view that convenience and ease of access, although important, were not the only considerations: one participant said: "I'll go out of my way to get it, like subscribing ... [to] newsletters" (male, Brisbane, 20–9).

Speed of access

A strong majority of participants saw "speed of access" as one important characteristic in defining what they considered key sources of information for online investment. Nevertheless, the concept of speed of access sometimes differed among participants and also appeared to be associated with "convenience, ease of access" in the minds of some participants.

- Exactly the same thing, because ease and speed pretty much ties straight in. (Male, country NSW, 60–9)

There was some dissonance here, with some participants considering speed to be "probably not the top priority" (female, Sydney, 40–9) and a few thinking that speed was not a good idea, such as the participant who "would never rush into anything" (male, Perth, 70+). Nevertheless, slow speed of access came in for particular criticism.

- If the website is slow, it's a pain in the butt ... If the information doesn't come up within two seconds, my brain's off thinking about something else. (Female, Sydney, 40–9)

Currency

As can be seen from the counts, above, the vast majority of participants thought that currency of information was important and this was reflected in some of the comments, although concepts of what constituted a current source—and therefore currency—varied.

- I'm certainly looking for the most current information [e.g., from ASX]. There's not much use having stuff that's 12 months old. (Male, country NSW, 60–9)
- Well it's a paper; it's every morning ... without going searching, so to me it is [current]. (Male, Melbourne, 40–9)

Understandably speed of access and currency were also sometimes linked in some of the comments made by participants.

- I just have the TV on Foxtel . . . I see the price going through every day, 24 hours a day . . . Knowing the latest, it's currency. (Male, urban fringe WA, 40–9)

Other participants thought that the need for currency depended on the type of information.

- Different bits of information need to be [current]. Some need to be more up to date than others. (Female, Perth, 40–9)

Views were also dependent, to some extent, on the type of trading with which investors were involved. For instance, for short-term or day traders, currency is crucial.

- Definitely [currency is important], particularly when I deal in short-term trading . . . I can get it [quotes and pricing] with 30 seconds' delay from Sanford. (Female, Brisbane, 50–9)

Nevertheless not everyone saw currency as a top-ranking quality, with the newspaper being current enough for one participant:

- [Currency] is a concern because I think the market is so volatile . . . I wouldn't go off and buy a share just on that day on that news. (Female, Brisbane, 50–9)

Content

All participants considered content important, but there were considerable differences in views about what constituted good content. For example, some participants were adamant that they wanted only factual information.

- The ultimate source is the various announcements that the companies make to the stock exchange . . . You always have to go back to the raw source, you know, rather than reading other people's interpretation. (Male, Sydney, 50–9)

Needless to say, technical investors mostly wanted only quantitative data.

- When I go into my charts I've got a heap of indicators which I could put in . . . That's going to give me information whether the stock is going to go up or down [i.e., content]. (Male, urban fringe WA, 40–9)

Others participants wanted advice and interpretation, often paying for it and depending very much on it in their decision making.

- The Rivkin Report ... [doesn't] load me down with a lot of details about that company's performance ... and I'm going to trust these people to use their expertise and just tell me that I was to buy it. (Male, Adelaide, 60–9)

In similar vein, summary information was also popular.

- It's a summary, in a summary format, which is what I want to read. I want to read something quick. (Female, Sydney, 40–9)

Others talked about the particular kinds of content they were looking for and the sources that provided it.

- What I like with some of them is if they've got a strategy with it ... So the factual information, and then ... put it into practice with a strategy ... daily newspapers, they have those little different strategies involved. (Female, Melbourne, 30–9)
- [The *Financial Review*—Australia's major financial newspaper] has more in-depth information ... investment techniques that you wouldn't find on news [web] sites. (Male, Brisbane, 20–9)

Several participants again mentioned online brokers' sites, with plaudits given for content.

Accuracy, reliability

Participants had no doubt about the importance of accuracy and reliability, and some indicated a level of trust, if mostly falling short of total confidence, about the sources they used.

- I'm assuming that it's reliable; it's authoritative because it comes from brokers and other sources. (Female, Sydney, 40–9)

A number of participants, on the other hand, doubted that there could be complete certainty about accuracy or reliability, some indicating that they realized that the final decision was theirs and, in some cases, mentioning that they checked sources against each other.

- Because they're analysts, 99% of what they're saying I think is true, but there may be also 1% of fiction in it as well … Analysts could be wrong. So it's up to me. (Male, fringe WA, 40–9)

Finally, there was some near-total skepticism expressed.

- I don't [take] an awful lot of notice of it [online information] … I treat it all with a grain of sand because I'm not confident on it. It's better than nothing. (Male, Perth, 70+)

Cost-effectiveness

Participants who presented a view on this issue considered cost to be important, especially if they lived on a low income.

- Yes, not having a huge income, definitely [cost effectiveness] is [important]. (Male, Brisbane, 20–9)

Nevertheless most participants who expressed a view on this issue weighed up costs with what they received in return. A number of them paid for information and considered it worthwhile.

- Well this was [cost effective] … [The newsletter I subscribe to] I think went up to $200 last year. (Female, Brisbane, 70+)
- I'm not somebody who expects to get everything for nothing. And if you want to get good information, you're going to have to pay for it, and I can afford to pay for it, and I do. (Male, country NSW, 60–9)

Other information sources

Other information sources were mentioned, although these were not seen as important as those already discussed. Two will be covered here: first libraries, which were used by a surprising number (11 participants), although 1 had used a library only "in the early days" and 2 used libraries only for Internet connections; second, interpersonal sources including family, friends, acquaintances, and investment clubs, where some surprising findings were made.

Libraries

It was interesting to find a few strong supporters of the public library among participants.

- Yes, I read books galore ... That's how I got my investor's know-how ... I started in 2002 knowing nothing about the stock market and being morally opposed to it to boot. And I still do it [use a library]. (Female, Melbourne, 60–9)
- Sometimes I go to the library and have a flick through the investment magazines. Sometimes it's a useful trading technique to see what stocks they're promoting because, you know, lots of people read them, and you can see on the chart increases in volume and price activity when they're recommended ... and you can actually trade it. (Female, Perth, 40–9)

The changes in information-seeking behaviour can also be seen in some comments made by participants about libraries, such as the impact of the readily available Internet information on the use of libraries, undoubtedly applying also to topics other than "investing."

- I used to love libraries ... But yeah, I don't use them very much anymore ... In the very early days, about the only place that I could get information, apart from the broker, was from a library. (Male, Sydney, 30–9)

Needless to say, there were participants who were totally dismissive about libraries as an information source for OLI.

- You can imagine that by the time something gets printed, it's months too late anyway. (Male, Adelaide, 60–9)

Interpersonal information sources

Because the researchers prepared a profile of each participant, based on each individual's questionnaire (survey) responses, the answer to the previous question about interpersonal sources of information was known in each case. From the interviews it was found that participants used family, friends, and acquaintances more frequently than appeared to be the case from the survey responses of those same people. (Investment clubs were included in the same survey question and so could not be separated.) This discrepancy could be the result of the commonly mentioned disadvantages of questionnaires, such as that people do not read questions carefully, people bring different interpretations to the same question, or there is lack of clarity on complex questions where no further explanation can be offered, as in an interview. This survey question was not the only one that revealed this kind of discrepancy, other examples being with the categories of printed information, and traditional newspapers/journals and electronic media, where many participants also underestimated what they had learnt. On the other hand, perhaps some participants had been reluctant to admit that they exchanged information with interpersonal sources. Moreover some participants worked in the finance industry and had highly placed professional contacts, who were also personal friends or family, and whom they may not have considered to be encompassed in the survey question.

- Talking to friends and family ... like my brother's a broker ... an assistant broker at the moment. So he brings me research and things like that as well. (Male, Brisbane, 20–9)
- I have colleagues in various other institutions ... I don't pay money [for their advice]. (Male, Sydney, 20–9)

Other participants made it clear that they had forgotten to mention certain interpersonal sources. For example, a participant who answered "once every three months" in the survey said, "Oh family would be every day. I forgot about him" (Female, Sydney, 40–9).

Several participants discussed investing with family and friends not officially qualified in the financial field, but claimed not to be influenced by them.

- I listen, but I've never followed an investment on a tip from a friend. I don't think it's a good thing to do. (Male, Adelaide, 60–9)

Then there were interviewees who talked to family and friends, admitted to finding this useful and to being influenced by them.

- It's helpful [talking to family and friends] because there are things that you might not see ... Other people are very useful for the information, the whispers they might hear, or their knowledge of stocks. (Male, Melbourne, 40–9)

Nevertheless the picture regarding the influence of family, friends, and acquaintances from the interviews in the major study was a little different from the one that emerged in the pilot study (Kingsford Smith and Williamson 2004). Almost all participants in the major study talked with others who were also investors—particularly family members, friends, and work colleagues—confirming the pilot study and the literature. The difference with the pilot findings was with group social intercommunication. In the pilot study, there was a range of the latter apart from ordinary conversations, with investment clubs being important to some people and formal Australian Shareholders Association meetings (which also facilitate social interaction) to others. It was investment groups or clubs that were not mentioned in the major study, with the exception of one interviewee who described herself as belonging to six "investment-type groups," although a few people had thought about the idea or aspired to joining a club. It is interesting to note the observation of another participant on this topic:

- Investment clubs have died down a bit I'd say . . . You don't seem to hear about [them] much. (Female, Sydney, 40–9)

Only one participant had visited online bulletin boards or chat sites, which she described as doing when she was bored.

- I'll often have a little drive through that to see what everyone else is suggesting that's going to happen, because the market movement is just psychology. There's not much rhyme or reason to it, it's just what everyone else thinks it's going to do. (Female, Perth, 40–9)

This is the kind of investor behaviour described by Langevoort (2002) when he spoke of "the contagion of excitement or panic" generated by social contact.

Information overload

In keeping with the literature, there was awareness of the issue of information overload on the part of participants, with anxiety being expressed about it by some. The major categories were the unconcerned (who often talked of their information-seeking strategies to explain why they felt this way), the concerned who appeared simply worried, and the concerned with strategies for dealing with the problem—the most frequent approach. The three comments below illustrate these three different stances:

No [I'm not worried by the vast amount of information available], because you don't have to read it all … But it's great that it's there. (Female, Brisbane, 50–9)

- Oh, totally overwhelming. Because … every investing site has, you know, recommending funds and all that sort of stuff. And it's just over the top. And they all seem to be struggling against each other. (Female, Sydney, 50–9)
- It becomes the whole analysis paralysis thing. There's so much information out there. How do you know when you've got enough information to make a decision? And what I've found is the best thing to do is to cut yourself off from a lot of information, and try to base it upon information that other people don't have at hand. (Male, Sydney, 30–9)

One main strategy for avoiding information overload was the use of investment analysis software.

Perceptions of systematic analysis (SA) and risk taking (RT)

The researchers asked participants two different but at least partially interrelated questions, in an attempt to gauge the perceived (and perhaps actual) level of safety involved in the investment processes of the sample. With both questions we attempted to obtain a quantitative answer initially: yes or no in relation to SA, and conservative, moderate, and high with regard to RT. While answers were not always clear cut, it is interesting to note that all the interviewees who thought that they did not do SA, or did not do it all the time, were also moderate or high risk-takers. There was a remarkable correlation in this regard, although only four investors described themselves as low risk-takers, with another describing himself as "moving from high to low" (and admitting that he had lost money in the past) and another as a conservative to moderate risk-taker. All of these participants thought that they undertook SA before making an investment decision. There was another interviewee who described his RT as "used to be high, now low" because of losses he had made and who believed that he did SA sometimes.

With regard to SA, the quotations below provide the flavour of the various approaches and views. Some believed that the use of charts made their analysis systematic.

- Yes, yes [I do SA]. But again, probably through, largely through technical analysis … I might quickly research the fundamentals of a company but … I would initially have picked it up because of the upwards trend in price activity. (Female, Melbourne, 70+)

Others saw their own analysis as systematic but doubted that other online investors undertook it. The first was employed in the financial sector; the second had taken up online investing after she retired and had worked hard to be well informed. The latter's view of others was formed through the extensive contact she had with other investors through the six investments groups/clubs to which she belonged.

- But most retail investors aren't making that logical decision. They go, "Oh Brambles, they're hot. I saw a Brambles truck. Right. And what do I know about Brambles? It will be fantastic." Well, that's what they do. (Male, Sydney, 40–9)
- Yes, I'd have to say I did [SA] because I want to buy an investment for a particular purpose, so I have to research to see if it will serve my purpose … [It makes her confident.] There are lots of people out there … who are just buying and selling ad hoc. They have no real plan, they don't document anything, and they're always in trouble with their tax returns. (Female, Melbourne, 60–9)

Then were those who felt that they undertook SA at least some of the time and others who admitted to being not all that systematic.

- Ninety per cent of the time, yep … Oh then I might just have a whim and think, oh blow it … Oh you cross your fingers. (Female, Melbourne, 30–9)
- I wouldn't say all the time … Sometimes I'd have, I'd go get as much information as I can. Other times it would just be a couple of pieces of information and I might not have the full story. (Male, Brisbane, 20–9)

Nevertheless, most interviewees thought that they did SA, felt confident as a result, and reported that they were making good returns—not surprising in the bull market then prevailing. Even an investor, who admitted to having sustained significant losses at times, felt confident in the analysis he did.

- I believe I've got a set of rules where I tick the boxes and say, yes this is positive, this is positive ... And I was getting about a 70% success rate with it, unless something bad happened [which it had on several occasions, it seemed]. I'm always confident. (Male, urban fringe WA, 40–9)

With regard to RT, one question asked of interviewees was whether investing online was more risky than investing through a broker. The views about share brokers, emerging as a result, were often less than flattering.

- I think it's less risky investing online, because [I'm in control] ... brokers are there to buy and sell. Brokers are like real estate agents—they have their back room boys come and tell them, you know, "Push BHP today." (Female, Sydney, 60–9)

Interviewees' desire for control over their investments emerged often during the interviews and was an important reason they invested online. Nevertheless, not everyone espoused a negative view of share brokers or thought that OLI was less risky.

- I guess in general it probably is [more risky] because people can just go and make decisions on their own without having all the facts or a lot of the facts in front of them. (Male, Brisbane, 20–9)

Concerning their own levels of RT, there was a range of views reflecting interviewees' varying perceptions of their own behaviour. The conservative, the moderate, and the high points on the continuum are reflected in the comments below.

- [I am conservative now regarding RT] mainly because I've been burnt a couple of times. (Male, Perth, 40–9)
- Well the most of my money would have a moderate risk profile but I reserve a small portion for, I suppose, what's the equivalent of educated gambling, really. (Male, Sydney, 20–9)
- I would probably say I'm fairly a high-risk person ... because I like to deal with the more volatile paper, the penny end of the market, the smaller chips, smaller caps. (Female, Brisbane, 50–9)

The middle quotation here mentions "gambling," but several other interviewees rated themselves as "moderate risk-takers" because they used a small percentage of their capital for speculative investment. In this sample, this behaviour, which can be seen as analogous to gambling, appeared to be more contained than some of the comparable approaches in the pilot study, where a strong element was detected of the use of OLI as a leisure as well as a shared activity (Kingsford Smith and Williamson 2004). The key difference again may lie in the infrequent participation in group social intercommunication (discussed above) among the sample for the major study. The one participant who gave an insight similar to the one emerging from the pilot study was the member of the six investment clubs:

- I belong to several investment groups where we've got our own little Yahoo email group and ... if someone's read a report about a particular share or if one's done extremely well with some obscure little company that no one's heard of, they email the rest of the group, you know, and start a flurry of activity with commentary from other people. (Female, Melbourne, 60–9)

Discussion

What are the "information" issues that emerge from the study, especially concerning the link between information seeking and safe OLI?

On the whole, the sample for the project was well educated and articulate, with some participants having access to financial experts whom they knew personally. This undoubtedly played a part in the finding that most participants in the qualitative sample appeared to be seeking information at a satisfactory level most of the time and that they were mostly making informed decisions. They also reported mostly that they were making good profits, although some talked about losses they sustained a few years before, when there were downturns in the stock market, including when the dot.com bubble burst. The researchers believe that there was a significant impact on the outcomes of the research as a result of the data having been collected during the bull market of 2006–7 and that the later state of the market would result in problems not perceptible at the time of the field work for the study.

Information-seeking behaviour

Interview participants were able to clearly articulate their key information sources for OLI. They were also clear about their reasons for using these sources. While some still preferred print to electronic information, all interviewees did at least some information seeking on the Internet. While content of information sources was clearly important, convenience and ease of access rated just as highly. Although definitions of good content varied, as did what was considered easily accessible, it was Internet sources that tended to dominate discussions with participants. This finding is not surprising in the sense that OLI is an online activity. Yet there appears to have been a change since the only study that can be used for comparison—that of Mezick (2001). In the Mezick survey, 59% of respondents were online investors, 81% of the total sample used the Internet for information, and 84% thought Internet information was as reliable any other information. Nevertheless, as reported above, "rather than using it as a primary source, investors appear to be employing it as a supplement to other resources" (12). This certainly was not the case with the present study, where the Internet was seen mostly as the primary information source.

It is not possible from this study to gauge the actual level of competence in information use of participants—and indeed this would be difficult information to obtain. Nevertheless the research revealed that many interviewees were avid seekers of information and that others sought a lot less information. The latter are part of a group that appears to be a problem in the eyes of lawyers, including the two who are chief investigators in this project, as well as Bradley (2004). Their view is that uninformed online investors are at risk. Yet Barber and Odean (2001) and Langevoort (2002) proposed that well-informed investors can lose money through over-confidence, and Lin and Lee (2004) found that consumers of all types of financial products who engage in more information searching are more risk tolerant (326). In the present study, investors who saw themselves as low risk-takers also thought that they undertook systematic analysis using information—more so than some of the moderate to high risk-takers, although the results are inconclusive, given that eight moderate or high risk-takers also thought they undertook systematic analysis, apart from the small size of the sample. Until there is more empirical research about the relationship of information seeking to levels of confidence, considered together with investment outcomes, it is not possible to be conclusive about these issues. If a high level of information seeking is likely to make investors feel confident and to encourage them to take risks, the answer does not seem to be to discourage them from seeking information but rather lies in increased provision of education for online investment.

Other information issues of concern

The present study revealed a number of problematic areas in information seeking and provision. For example, although few interviewees had complete trust in information sources, there was a higher level of trust than might be warranted. On the other hand, there was little use of online chat and bulletin boards by either the larger sample for the survey, where 67% had never or rarely used them, or by the smaller, qualitative sample where only one person used a chat room. Writers such as Levitt (1999) have seen chat rooms as potentially harmful to investors. The chat room phenomenon appears to be a modern form of social contact, seen by Langevoort (2002) as generating "excitement or panic." Even so, 10% of the 520 survey sample said that they used chat rooms every day, indicating that there is a proportion of investors who are potentially vulnerable on this score. Without exception, interviewees claimed to have taken no notice of the spam they received, with the common response being that they deleted such emails immediately. This indicates that this sample was not gullible where this kind of ramping is concerned. While there were some indications of online investing as a leisure activity—the kind of social contact that might lead to the type of behaviour as discussed by Langevoort (2002)—these were stronger in the pilot study. In the major study, interviewees considered such approaches to be a greater problem for other investors they knew than for themselves (e.g., by the interviewee who belonged to six different investment groups). Nevertheless one investor, who had lost significant money at one stage, had been caught up in the excitement of group investing discussions in the past, though claiming that this was a period when he made a profit.

There are two other issues of concern, the first focusing on information overload. Many investors were aware of this problem, as reported in the literature, but, on the whole, they did not find it overwhelming. Many had strategies for dealing with the problem, including using investment software, and it was only the minority who appeared overly anxious and without strategic options. Nevertheless this could well be a significant issue for less experienced information seekers than most of those who took part in our research.

The second issue was the predilection for speed in the delivery of information. While this characteristic of information provision did not rate as highly as content or ease of access and convenience, it was seen as an important quality by 73% of interviewees and often enough linked to ease of access and convenience to give it a serious place among the preferences of these investors. This is in keeping with the views of Nicholas et al. (2003) and Barber and Odean (2001), that real-time information matters. The latter researchers postulated that an emphasis on "the importance of speed and immediacy" encouraged investors "to trade too often and too speculatively" (48).

Nicholas et al (2003, 30), in vividly describing what they deemed endless links and information journeys "with seemingly no destination," provided an early observation of a problem that is now attracting discussion in the literature. Recent research, focused particularly on students, is beginning to link the non-linear presentation of information on the Web with superficial understandings resulting from the use of that information. For example, Cohen (2006, 174) pointed out that the typically non-linear, interactive, and multimedia formats of the Web present "a range of challenges for the reader that may require new comprehension strategies for deriving meaning." Another view was expressed by Lorinc (2007), who drew on research about information overload and multitasking. He pointed out that the human brain is "ill equipped to function effectively in an information-saturated digital environment characterised by constant interruptions" (n.p.). Thus the multitasking often undertaken on the Internet may not result in good information processing, as "the science of interruptions suggests our brains aren't nearly that plastic" (n.p.). The brain research frequently cited has been undertaken by the Poldrack Laboratory at University of California Los Angeles—such references as Foerde, Knowlton, and Poldrack (2006). This issue appears to be important to understanding information processing and use by online investors and should be part of any further research on the topic.

Legal issues

As indicated in the introduction, one important practical purpose of this study is to consider what the research results imply for regulation. The empirical study has been necessary because an understanding has emerged in regulatory research that the underlying practices, expectations, and beliefs of those affected by regulation is crucial to its success (Teubner 1987). When law is used to influence the behaviour of significant groups of people, it is likely to result in more successful regulation and be perceived as more legitimate, if it can work *with* the grain of practices, expectations, and beliefs, rather than against it. If the socially desirable result of regulation requires working against the grain, then it is likely that law will have to partner with education, cultural change, or other non-legal approaches, to do the work of changing behaviour. What then are the regulatory implications of the OLI practices, expectations, and beliefs found in the study?

All the survey and interview results showed the online investors are a relatively engaged and knowledgeable group, by comparison with investors more generally (Financial Services Authority 2004). On the whole, the online investors in the study were information seekers: they analyzed information and were self-conscious about the relationship between their decision-making processes and the riskiness of their investment decisions. It is true that the pilot study for the project revealed a trend (mostly among younger male online investors) of seeing OLI as a leisure pursuit rather than a serious financial activity (Kingsford Smith and Williamson 2004). That online investors are *relatively* engaged and knowledgeable does not mean that that they are immune to being misled or are not vulnerable. However, it does mean that a variety of regulatory initiatives in OLI may be helpful and worthwhile for this group. This is by contrast with the wider population of investors who research demonstrates are extremely difficult to engage, even in their own self-interest (Financial Services Authority; Kingsford Smith 2010).

The research shows that regulatory action should be concentrating on certain locations of OLI information. For example, in the Australian research, the large majority of investors said that they did not visit chat rooms—by contrast with those in the United States (Kingsford Smith 2006). This finding, along with the existing tough Australian prohibitions on "misleading and deceptive conduct" (section 12DA of the Australian Securities and Investments Commission Act, and section 1041H of the Corporations Act), suggests the status quo may be enough to protect those suffering loss and damage from misrepresentations on bulletin boards and chat sites. The almost total absence of any complaints about misrepresentations on these sites suggests that the Australian Securities and Investments Commission's (ASIC's) soft law approach of using a code of conduct with the threat of licensing (Kingsford Smith 2001) and tough prohibitions on misrepresentation has safeguarded online investors from being made to appear as fools. Similarly, although spam is annoying, the virtually universal "trashing" of spam messages reported by the qualitative sample in the current project, and in contrast to the position in the United States (Stark and Kerr 2006), also is likely to mean that gullible investors who suffer losses would find sufficient redress through existing "misleading and deceptive" prohibitions. This shows a maturing of the practices and expectations of online investors since the April Fool's Day stunts pulled by ASIC in 1999 and 2000. The stunts, in which ASIC publicized fictitious investments and received offers of substantial amounts of money in response from hundreds of investors, had indicated that many were gullible to unsolicited investment advertising.

The results of the study showed that online broker websites are centrally important in the delivery of OLI information, as well as being central to investors for their buying and selling transactions, including for some investors who use traditional advisory services. For all the reasons already discussed, these sites are the leading source of investment information for all retail investors. Once again, in the last decade since the initial surveys were done and policy papers were published (ASIC 2000; Spitzer 1999; Unger 1999), there seems to have been an improvement in accuracy, comprehensiveness, and sobriety of tone in the information on OLI broker sites, and greater balance in the expectations of those using the sites. However, given the influence over investment decisions that OLI broker sites have, some aspects of their creation and content should be considered.

While some study participants said that they very much like the convenience, currency, and speed of broker sites, it is interesting to speculate on the reasons they felt the need to corroborate or triage information found there with information from other sites, such as the ASX. There are some types of information on broker sites, such as feeds of market information, where there is little scope for inaccuracy or interpretation, which could mislead. But there is much else, such as consensus opinions of analysts about particular companies, where there is a greater threat. For example, are the analysts' opinions posted on these websites those of the broker's associates? If they are, is there a warning of the connection and potential conflict of interest? Many participants were scathing about the connections between traditional brokers and what they perceived to be the distortions in advice they received, due to the deals being done by associates of their brokers. It was an important reason for them taking up the online investing mode.

Given the central position of OLI sites in retail investment decision making, a sensible regulatory response is to suggest that warnings of conflicts of interest be adopted where opinion or advice is created by or in the interests of an associate of the online broker. Since the habit of many online investors in the sample was to corroborate information they found on the Internet anyway, warnings like this would simply add transparency and focus for this group and help others who are not so information literate or conscientious. The warnings, at least for some, would be a regulatory intervention going with the grain of current practices. Also, in Australia, licensing obligations of OLI site operators in relation to advice are very extensive by comparison with other jurisdictions. This, and the prohibitions on "misleading and deceptive" statements already considered, gives further protection to investors in relation to the information on OLI sites.

The research showed that often online investors deal with information overload by either devising a system for themselves or by using proprietary investment analysis software. The use of the latter links into the "corroboration" habit just discussed, as it is another way of checking investment decisions while helping to make the quantity of information manageable. However, there is a danger with regard to some of the analysis software programs in that investors are being encouraged to subscribe to them at "workshops" that parade as venues for investor education and information provision. In fact the workshops are being run by unlicensed entities that do not adhere to licensed standards and against which it may be more difficult to take regulatory action. As the research showed that many online investors use investing software, this is an area where regulatory enforcement of the licensing regime and investor education is necessary to ensure online investors understand the significance of using analysis software in investment decision making.

Finally, education and OLI regulation must go hand in hand, largely because the whole medium of OLI is so information rich, interactive, and fast moving that no regulation can possibly keep up. Although there is reason to question the effectiveness of investor education in the wider investor population which, as mentioned above, demonstrates a tendency to inertia, online investors are much more motivated. The do-it-yourself premise of OLI, along with the findings of the present project, suggests they are open to increasing their capability and protecting their interests, including through investor education. One area where this might be particularly useful is exotic (or, as some say, toxic) financial products. Although the study demonstrated that most Australian OLI seek information about, and invest in, the equities of the top 50 Australian listed companies, some reported investing in contracts for differences and trade exchanged options. These investments are complex and opaque, they dramatically increase the amounts that can be lost, and they are commonly offered by Australian online brokers. As banning certain investments because of their risk has become an unpopular approach to regulation (even in the retail field), better information and warnings, in tandem with investor education, are the only alternative. The adherence of online investors to online sources of information suggests strongly that this education would be delivered best using the Internet.

Conclusion

The combination of information seeking and legal research in this project is unique in its insights and provides grounds for optimism. It is unique because, as with the pilot study completed in 2004, it brought complementary expertise to bear on a new development in retail investing. It provides grounds for optimism because, although online investors remain vulnerable, the research shows they are amenable to investor education and unusually motivated in their own interest, unlike the picture revealed by research about retail investors more generally. In short, the research reveals a segmentation or layering of the retail investor population. Regulation, whether by warnings, disclosure, education, or otherwise should be premised on this recently acquired granular knowledge.

Issues associated with information-literacy needs for online investors emerged from the study. Examples of help needed focus on dealing with information overload, learning to balance need for speedy delivery of information with making considered investment decisions, undertaking systematic analysis using information, using advice from interpersonal sources of information judiciously (Williamson 2009). Given that many investors attend investing workshops or talks presented by formal investing organizations, incorporating some information-literacy education through these initiatives could be of great benefit.

Acknowledgements

The authors acknowledge with thanks the generous funding from the Australian Research Council Discovery Grant which made this extensive project possible. They also extend their thanks to two able research assistants who worked on this project: Jen Sullivan and Marian Bannister.

References

Australian Securities and Investments Commission (ASIC). 2000. Survey of online trading websites. http://www.fido.gov.au/asic/pdflib.nsf/LookupByFileName/online_trading.pdf/$file/online_trading.pdf.

Barber, B.M., and T. Odean. 2001. The Internet and the investor. *Journal of Economic Perspectives* 15 (1): 41–54.

Boreham, T. 2008. The battle for online business news. *Australian*, June 25.

Bow, A. 2002. Ethnographic techniques. In *Research methods for students and professionals: Information management and systems*, 2nd ed., ed. K. Williamson, 265–79. Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.

Bradley, C. 2004. Online financial information: Law and technological change. *Law & Policy* 26 (3 & 4): 375–409.

——. 2006. Information society challenges to financial regulation. *University of Toledo Law Review* 37:307.

Charmaz, K. 2003. Grounded theory: Objectivist and constructivist methods. In *Strategies of qualitative inquiry*, 2nd ed., ed. N.K. Denzin and Y.S. Lincoln, 249–91. Thousand Oaks, CA: Sage.

Chen, C.-C., and P. Hernon. 1982. *Information seeking*. New York: Neal-Schuman.

Cohen, V. 2006. Strategies for comprehending electronic text in digitally mediated times. Paper presented at the Fourth International Conference on Multimedia and Information and Communication Technologies in Education, 2005, Seville, Spain.

Financial Services Authority (FSA). 2004. *Consumer understanding of financial risk*. http://www.fsa.gov.uk/pubs/consumer-research/CRPR33.pdf.

Foerde, K., B.J. Knowlton, and R.A. Poldrack. 2006. Modulation of competing memory systems by distraction. *Proceedings of the National Academy of Sciences* 103:11778–83.

Greene, J.C., and V.J. Caracelli. 2003. Making paradigmatic sense of mixed methods practice. In *Handbook of mixed methods in social and behavioural research*, ed. A. Tashakkori and C. Teddlie, 91–110. Thousand Oaks, CA: Sage.

Heinstrom, J. 2002. *Fast surfers, broad scanners and deep divers: Personality and information-seeking behaviour*. Åbo (Turku), Finland: Åbo Akademi University Press.

Hektor, A. 2003. Information activities on the Internet in everyday life. *New Review of Information Behaviour Research* 4 (1): 127–38.

Kaplan, M. 2008. The good oil in print: Making the most of investment newsletters. *Australian*, June 25.

Keen, S. 2007. Where advice has little currency. *Australian Financial Review*, 14 November.

Kingsford Smith, Dimity. 2001. Decentred regulation in online investing. *Company & Securities Law Journal* 19: 532–49.

——. 2006. The same yet different: Australian and US online investing regulation. *University of Toledo Law Review* 37 (2): 461.

——. 2010. Financial services and the investor as consumer. In *International Handbook of Consumer Law and Policy*, ed. G. Howells, I. Ramsay, and T. Wilhelmson, 431–481. London: Elgar.

Kingsford Smith, D., and K. Williamson. 2004. How do online investors seek information, and what does this mean for regulation? *Journal of Information, Law & Technology* 1 (2): 1–26.

Kinsky, R. 2007. *Online investing on the Australian sharemarket.* 3rd ed. Milton, Queensland: Wrightbooks.

Langevoort, D. 2002. Taming the animal spirits of the stock market: A behavioural approach to securities regulation. Berkley Program in Law & Economics, Working Paper Series, Paper 64. Berkeley: University of California, Los Angeles.

Levitt, A. 1999. Plain talk about on-line investing. http://www.sec.gov/news/speech/speecharchive/1999/spch274.htm.

Lin, Q., and J. Lee. 2004. Consumer information search when making investment decisions. *Financial Services Review* 13 (4): 319–33.

Lincoln, Y.S., and E.G. Guba. 1985. *Naturalistic inquiry.* Newbury, CA: Sage.

Lorinc, J. 2007. Driven to distraction. *Walrus.* http://www.walrusmagazine.com/articles/2007.04-technology-Multi-tasking-Society/.

McKay, P., W. Diamond, T.R. Mirkovich, and M.H. Munroe. 1996. Investment information in academic libraries. *RQ* 35 (3): 375–91.

Mezick, E.M. 2001. Investing wisely: Individual investors as information seekers. *Journal of Business and Finance Librarianship* 7 (1): 3–23.

Morse, J.M. 2003. Principles of mixed methods and multimethod research design. In *Handbook of mixed methods in social and behavioral research*, ed. A. Tashakkori and C. Teddlie, 189–208. Thousand Oaks, CA: Sage.

NASDAQ. 1997. A national survey among stock investors. Conducted by Peter D. Hart Research Associates: Nasdaq Stock Market.

Nicholas, D., W.R. Dobrowolski, C. Russell, P. Huntington, and P. Williams. 2003. Digital information consumers, players and purchasers: Information seeking behaviour in the new digital interactive environment. *Aslib Proceedings* 55 (1–2): 23–31.

Shiller, R., and J. Pound. 1989. Survey evidence on diffusion of interest and information among investors. *Journal of Economic Behaviour and Organisation,* 12: 47–66.

Spitzer, Eliot. 1999. From Wall Street to Web Street: A report on the problems and promise of the online brokerage industry. Investor Protection Internet Bureau and Securities Bureau, Office of New York State Attorney General, 22 November 1999.

Stark, J., and C. Kerr. 2006. Using the Securities and Exchange Commission's statutory weaponry to combat SPAM. *University of Toledo Law Review* 37 (2): 271.

Teubner, G. 1987. Juridification: Concepts, aspects, limits, solutions. In *Socio-legal reader on regulation*, ed. Robert Baldwin, Colin Scott, and Christopher Hood, 389–440. Oxford: Oxford University Press.

Unger, L.S. 1999. On-line brokerage: Keeping apace of cyberspace. U.S. Securities and Exchange Commission. http://www.sec.gov/pdf/cybrtrnd.pdf.

——. 2001. *Timeless principles of investing in an electronic age.* Paper presented at the Los Angeles Times Investment Strategies Conference, 6 May 2001, Los Angeles, CA.

Warner, E.S., J. Murray, and V.E. Palmour. 1973. Information needs of urban residents: Final report from the Regional Planning Council of Baltimore and Westat Inc. of Rockville, MD, to the U.S. Department of Health, Education and Welfare, Office of Education, Division of Library Programs under contract No. OEC O 71 455, ED088464.

Williamson, K. 1995. Older adults: Information, communication and telecommunications. PhD diss., RMIT, Melbourne, Australia.

——. 1998. Discovered by chance: The role of incidental information acquisition in an ecological model of information use. *Library and Information Science Research* 20 (1): 23–40.

——. 2006. Research in constructivist frameworks using ethnographic techniques. *Library Trends* 55 (1): 83–101.

——. 2008. Where information is paramount: A mixed methods, multi-disciplinary investigation of Australian online investors. *Information Research* 13 (4). http://informationr.net/ir/13-4/paper365.html.

——. (in press). The role of information literacy in safe online investment Australian online investors. In *Practising information literacy: Bringing theories of learning, practice and information literacy together*, ed. A. Lloyd and S. Talja, 000–000. Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.

Interview Questions: One Day We'll All Invest This Way

1. Online investment: Types, levels, reasons, perceptions of risk, use of investing software
   From your questionnaire responses I know that you are . . . [Read out the investing part of the profile from the questionnaire analysis.]
   a. Does this still describe the type of investing that you do and the level of those investing activities?
   b. How long have you been

i. Investing online?
ii. Using margin loans?
iii. Add international trading where applicable.

c. Which online broker do you use?
d. Why do you invest online?
   i. Convenience
   ii. Time efficiency
   iii. Sense of control
   iv. Cost
e. Do you also invest in the traditional way, through a broker? Or have you been a traditional investor in the past? If yes, do you invest more actively online than you do or did through your broker? Do you feel that online investing is more or less risky than investment through your broker? [Probe for reasons.]
f. How do you rate your level of risk taking as an online investor?
   i. Conservative/moderate/high? [Probe for reasons, e.g., fears about using credit cards online.]
   ii. How does using margin loans come into this picture?
g. Do you use investing software? If so, how often?

2. Information: Source preferences and perceptions of characteristics, general attitudes.
   From your questionnaire responses I know that you are . . .
   a. Do you have a preferred or key source of information? If so, could you please tell me why it is your preferred source?
      i. Ease of access
      ii. Speed of access
      iii. Currency
      iv. Type of content
      v. Reliability, accuracy
      vi. Format
      vii. Cost effectiveness
   b. Does your preferred source change according to the type of information you need?
      i. When you are researching a company or industry?
      ii. When you need indicators or information about the present or future performance of a company?
      iii. When you are looking for new stocks?
      iv. When you are tracking present holdings?
   c. What are other sources of information that are important to you and why?

i. Ease of access
ii. Speed of access
iii. Currency
iv. Type of content
v. Reliability, accuracy
vi. Format
vii. Cost effectiveness
[Interviewer: Check that the main information types selected in the questionnaire have been discussed. Where sources listed in the questionnaire were not used, or were rarely used, discuss why.]

d. Do you or have you ever used a library for investment information?
e. I'd like to ask you some further questions about Internet information.
    i. Do you use types of websites other than those we have discussed already? How do you find them?
        - Search engines (and level of trust in their ability to find information). What is the extent to which you work through Google links or hits, e.g., just the first few or more?
        - Advice engines (and level of trust in them).
        - Websites found through newspapers and magazines, TV, family and friends, webpage hyperlinks, financial advisors and stockbrokers.
        [Interviewer: You might not mention all of the prompts, above, but the Google/other search engines question is really important.]
    ii. Is the email advertising of "hot" stocks, often received by online investors, helpful?
f. I'd like to ask you some further questions about interpersonal sources of information (family, friends, acquaintances).
    i. Do you think it is useful to talk about investing to family, friends, acquaintances?
    ii. Are you involved or have you ever been involved in investment clubs? What is the level of benefit from them?
g. Now some general questions about information.
    i. How do you feel about the vast amount of information now available for investors?
    ii. Would you say that you undertake systematic analysis, using information, as a basis for your online investing decisions? If so, does this make you feel confident? If not, is this a concern to you?

iii. Are you prepared to pay for information or advice? Why or why not?

3. The investment decision
   a. Do you have clear investment goals (retirement provision, school fees, trading for more immediate profit, leisure and fun, a hobby)? Do you think of your investing as being for "personal, domestic, or household" use?
   b. Do you have an asset allocation strategy, and how important is this in your investment decisions?
   c. How much time would you take to make most investment decisions (hours, days, weeks, or months)? Why?
   d. What factors weigh most heavily with you in making an investment decision? Why?
      - Yield?
      - Perceived sustainability of yield?
      - Gaps in or current weighting of your existing portfolio?
      - P/E ratio? (share price to earnings ratio—the higher the better, usually)
      - The management of the company?

      Could you place them in a rough hierarchy for us?
   e. Are there some types of investments available through online brokers that you would never purchase (e.g., CFDs contracts for differences—a leveraged investment)? Why?
   f. Do you see yourself more as an investor (longer term) or as a trader (shorter term)?
   g. Do you use investment software to make your investment decisions? Why or why not?
   h. How do you rate yourself as an investment decision maker? Well informed? Casual? Bold? Successful?

4. Customer/Broker Agreement
   a. Do you remember reading your customer/broker agreement? Was it on screen (are you a good "on screen" reader?) or printed out?
   b. If yes, do you remember being concerned or puzzled by any aspect of it? Which aspect(s)? Why? What did you do to meet that concern?
   c. If no: why do you think you might not have read the agreement?
   d. Are you aware of your legal rights in relation to your broker?
      - For example, do you know that it is likely that there are very wide exemption clauses in the agreement you have with your broker? This means that the damages you could get for any loss your broker has caused you are very, very limited.

        - For example, do you know that it is likely that under your broker-customer agreement you have agreed not to take action in relation to damage caused by your broker's associates (e.g., providers of information on the broker's website or other entities to which your order may be routed on the way to market)?
    e. Are you aware of your broker's legal rights against you?
        - For example: do you know that it is likely that your broker can take control of the funds in your investment bank account in some situations?
    f. What steps do you think would be available to you in the event of a serious dispute with your broker?
    g. Do you know that in some cases brokers can change the terms of the customer agreement without your agreement?
    h. Do you remember reading any other documents when you entered into your online investing contract (FSG, advertising for the broker/chess sponsorship agreement)?

5. Offer documents [I want to ask this question where possible, but if the questions re the customer agreement demonstrate the respondent doesn't read legal documents, then I have left it out.]
    a. Do you read prospectuses? Why? Why not?
    b. Do you find them useful to your investment decision? Are any of the factors discussed in relation to the investment decision question above satisfied by prospectuses?
    c. Is there anything that might make them more helpful to your investment decision making?

6. Margin loans
    a. Have you ever made a margined loan and bought securities with those funds? Why? Why not?
    b. How did you come to use a margined loan the first time?
        - The advertising in relation to margin loans?
        - Your adviser suggested it in the period when you still used an adviser?
        - Some reason to do with your then current financial circumstances?
        - What were your feelings and expectations about it?
    c. If yes, what was your experience of getting a margined loan?
        - Was it easy to get the loan?
        - Was it easy to understand the way it worked?
        - Do you think you understood the risks at the time you entered it?

- Did you suffer any losses because of taking out the loan?
- Would you do it again?

d. Do you remember reading your customer-broker margin loan agreement? Was it on screen (are you a good "on screen" reader?) or printed out?
e. If yes, do you remember being concerned or puzzled by any aspect of it? Which aspect(s)? Why? What did you do to meet that concern?
f. If no, why do you think you might not have read the agreement?
g. Do you know what your rights and remedies are if you have a dispute with your broker about the margined loan?
h. Did you know that, unlike most other types of loans, margined loans are most likely not covered by any special consumer credit or financial services regulation?

7. Online investing advertising
   a. What aspects of online investing advertising do you notice most?
   b. How do you feel about this advertising (bolder and encouraged to trade, that the service will assist you, that you will make a lot of profit)?
   c. Does the advertising make you want to trust your online broker?
   d. Does it make you want to trade more frequently?

8. Cookies, data-mining, privacy, and scams
   a. How would you feel if you thought your broker was tracking your surfing around its website and analyzing the products and trades you execute as a result? Would you feel the same way if this happened on other sites you visited?
   b. How would you feel if you found out your broker (and sponsors of other sites) was using this "click-stream" information to send you emails and other advertising and offers, such as IPOs?
   c. Have you ever received a "cold-call" offer of securities from someone you don't know?
   d. Have you ever received securities information (maybe hyping a stock) in what is obviously a mass email (spam)? Very often? How often? What have you done about it?

9. Dialogue boxes and warnings.
   a. Have you ever read warnings or disclaimers in the "website terms and conditions" that most online brokers have on their sites? They usually say something like

- The information on this site has been prepared without taking account of the objectives, financial situation, or needs of any particular individual. For this reason, any individual should, before acting on the information on this site, consider the appropriateness of the information, having regard to the individual's objectives, financial situation, and needs, and, if necessary, seek appropriate professional advice. You should also read our Financial Services Guide (FSG), which provides you with information about us and services we can provide. You can access the FSG using the following link.

b. Do you think they are prominently placed or easy to find? Do you think they are clear and you know what they mean? How do you feel about the language and presentation (font size and colour, legalism in the wording)?
c. If so, has this altered your behaviour? For instance, have you sought advice elsewhere? Have you reviewed your personal financial circumstances more carefully as a result, before trading, or decided not to trade after all?
d. How do you feel about dialogue boxes that come up in the course of your visit to an online investing site? What do you do about them?
e. Can you suggest any other way that online site sponsors might introduce crucial information that you need to know?

10. Making sell decisions, losses, and second thoughts
    a. Do you think that your online investing transactions have been profitable? Why? Why not?
    b. What makes you sell a security? How do you feel about this? Is it more difficult than the decision to buy?
    c. If you have made losses, why do you think they happened? How did you feel about the losses? Did you tell anyone?
    d. Do you ever think of stopping online investing? What would make you do this? How would you feel about it?