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Financial Statement Literacy of Individual Investors in China

K. ***Kishan**** *and Ervina* ***Alfan*****
Department of Accountancy, Faculty of Business and Accountancy,
University of Malaya

Abstract

Financial statement literacy is vital in helping individuals make good long-term stock investment decisions and is especially relevant in China where individual investors account for 85 per cent of stock market activity. To delve more into this issue, we examine relevant literature on individual investor behaviour, financial literacy and investment analysis respectively. We note an overall lack of financial literacy studies in China. Furthermore, financial statement literacy has received limited attention in all three streams of literature. This is possibly due to the lack of a systematic model for measuring financial statement literacy. Indeed, current studies tend to rely on secondary data and financial statement literacy is measured in a limited manner. We therefore propose a model in which financial statement literacy is evaluated through three dimensions, namely knowledge, attitudes and behaviour. The model can be extended to examine the influence of financial statement literacy on stock investment decision-making.

Keywords: *financial literacy, investment decision-making, financial statements, investor education*

1. Introduction

High financial literacy is useful for stock investors. It is especially important in China for the following reasons. Firstly, China has the largest population of individual investors in the world with 200 million people trading in its stock markets[1] (Fahey & Chemi, 2015). Secondly, unlike stock markets in other countries which are largely driven by institutional investors, 85 per cent of stock trades in China are by individual investors (Shen & Goh, 2015). Therefore, in light of the great significance of individual investors in China's stock markets, it is vital that these investors possess sufficient knowledge and skills to make effective stock investment decisions.

Although joint-stock companies shares were traded in Shanghai as early as the 1870s (Chen, 2013), it was only in 1990 that the modern stock exchanges in Shanghai[2] and Shenzhen[3] were formally established (Cai & Chen, 2015). Hence, the equity markets in China are relatively new. Nonetheless, these markets registered phenomenal growth and by 2012, market capitalization had increased to almost RMB21 trillion (Chen, 2013). A notable development was that from 2010, a change in policy by the China Securities Regulatory Commission (CSRC) reversed longstanding prohibitions on short-selling and margin-trading which increased the volume of short-selling and debt funded trades (Chang, Lou, & Ren, 2014). Further impetus came in the form of a state-media drive to encourage stock investing (Li & Zhou, 2016).

The influx of capital and trading led to a stock market bubble and consequent stock market turbulence in mid-2015 (Shen & Goh, 2015) and early 2016 (Bradsher & Tsang, 2016), causing numerous investors to incur substantial losses. Upon closer inspection, ignorance stemming from financial illiteracy led many novices to have a distorted view of stocks. Instead of investing for the long term, equity investing was treated as a type of gambling. Overtrading was rampant with a reported 81 per cent of individuals trading on a monthly basis and many invested with borrowed money with the naïve belief that stock prices would rise indefinitely (Fahey & Chemi, 2015).

Overtrading and poor stock picking decisions among individual investors are commonplace in stock markets worldwide, and have some impact on stock prices (Barber, Odean, & Zhu, 2009). However, because individual investors constitute the bulk of stock activities in China's stock markets, their actions profoundly influence these markets. Indeed, Ying, Kong and Luo (2015) reported that stock prices in China are largely driven by the emotional behaviour of individual investors instead of fundamental values, thus contributing to market inefficiency. It is possible that having a significant proportion of investors who have a long-term orientation towards stock investing would have a stabilizing effect on the stock market.

Yet, long-term stock investing requires a different approach from trading. This includes the ability to utilize financial statements to identify investment prospects with sound long-term fundamentals, or what is termed financial statement literacy, which is the ability of investors to "make judicious use of financial statement for their investment decisions" (Callen, Lai, & Wei, 2016, p. 573). Studies indicate that financial statements contain useful information for investment decision-making (Brimble & Hodgson, 2007; Francis & Schipper, 1999) that should be heeded by investors.

This paper has two main objectives. Firstly, it seeks to examine existing literature relevant to financial statement literacy and secondly it aims to

develop a model for evaluating financial statement literacy based on the previous literature.

From the literature review, we note an overall lack of financial literacy studies on China. More importantly, considering the significance of well-informed and sophisticated individual investors for China's stock markets, there is unfortunately a paucity of research on financial statement literacy. Therefore, this study is intended to partially fill this gap. Moreover, existing studies make inferences from secondary stock trading data (Callen et al., 2016), rather than assessments through surveys, hence actual financial statement literacy levels of individual investors in China are unknown. Furthermore, the effects of financial statement literacy on stock investment decision-making and investor portfolio returns are unexamined.

This study contributes to the literature by providing a model for evaluating financial statement literacy of investors that encompasses three dimensions – knowledge, attitudes and behaviour. The model can be used as an end in itself to measure financial statement literacy levels or extended to examine how it functions as part of the stock investment decision-making process. It differs from existing financial literacy models by specifically evaluating financial statement literacy instead of general financial literacy[4], or stock market literacy[5]. It is also more holistic insofar that attitudes relating to financial statement usage as well as usage behaviour are incorporated into the model, as many financial literacy models are confined to assessing financial knowledge alone. While the model is intended for a study in China, we believe that the three elements are universal and therefore applicable in other countries as well. However, some modifications may be warranted in the wording of research instruments, specifically in assessing financial statement knowledge and behaviour owing to differences in financial statement nomenclature across different financial reporting jurisdictions.

The rest of the paper is organized as follows. Section 2 outlines the methodology while Section 3 comprises the literature review. This is followed by the findings in Section 4 and the proposed model in Section 5. The managerial implication and policy implications are discussed in Sections 6 and 7 respectively while Section 8 concludes.

2. Methodology

We reviewed relevant literature to fulfil the first research objective. Initially, studies published from December 2010 to August 2016 were reviewed. This starting date was selected because it marked the 20th anniversary of the establishment of China's stock exchanges. However, the scope was expanded to include selected scholarly articles published before December 2010 owing to their significance to the research objectives. The review was then extended

to include research papers by reputable institutions such as the World Bank and Organisation for Economic Co-Operation and Development (OECD). Furthermore, while the focus is on China, studies in other countries were reviewed to examine worldwide trends. ABI/INFORM Complete, EBSCO Discovery Service, JSTOR, Emerald and ScienceDirect electronic databases were accessed for screening and selecting appropriate research articles. Keywords used in the search were: *financial literacy*, *financial statement usage*, *individual investor behaviour*, and *financial statement literacy*. Additional keywords used were *technical analysis* and *fundamental analysis*.

We reviewed 88 articles for this study. Table 1 provides a summary of the scope of articles reviewed. Studies are classified based on country with China forming one category and those from other countries another category.

Table 1 Summary of Articles Reviewed

Scope of Article	*China*	*Other Countries*	*Total*
Individual investor behaviour	17*	20	37
Financial literacy	4**	32	36
Investment analysis	1	14	15
Total	22	66	88

Notes: * In accordance with the One China policy, the study on Taiwan is included as part of China.

** The study by Klapper, Lusardi and van Oudheusden (2015) includes China.

To fulfill the second research objective, a conceptual model was then developed based on the extant literature and research gaps.

3. Literature Review

This section reviews literature relevant to financial statement literacy. Three streams of literature were examined, namely on individual investor behaviour, financial literacy and investment analysis. The papers reviewed are summarized in Tables 2 to 4.

As evident in the tables, while there are many studies on individual investor behaviour in China, particularly on their behavioural limitations, there are few papers on financial literacy there and a lack of research on the extent to which individual investors in China rely on fundamental analysis when making stock investment decisions. A detailed discussion on the articles reviewed is given in the following subsections.

Table 2 Articles on Individual Investor Behaviour

Author(s)	*Year*	*Country*	*Methodology*	*Scope*
Abreu and Mendes	2012	Portugal	Secondary data analysis	Information and trading frequency
Barber, Lee, et al.	2009	Taiwan	Trading data analysis	Overtrading
Barber and Odean	2000	USA	Analysis of trading data	Overtrading
Barber and Odean	2013	USA	Literature review	Individual investor weaknesses
Barber et al.	2009	USA	Trading data analysis	Effects of small traders on stock prices
Cai and Chen	2015	China	Secondary data analysis	Individual investors following analysts' recommendations
Chandra and Kumar	2012	India	Survey	Psychological biases
Chang et al.	2014	China	Secondary data analysis	Short-selling
Chang et al.	2016	USA	Trading data analysis	Disposition effect
Chen	2013	China	Commentary	China's stock market evolution
Clark-Murphy and Soutar	2004	Australia	Survey	Stock investing behaviour
Dichev et al.	2014	USA	Experiment	Effects of overtrading on the economy
Drake et al.	2016	USA	Secondary data analysis	Investors' usage of historical annual reports
Fama	1970	USA	Secondary data analysis	Efficient market hypothesis
Feng and Hu	2014	China	Secondary data analysis	Attention span
Feng et al.	2014	China	Secondary data analysis	Mutual fund picking skills
Garling et al.	2009	USA	Literature review	Psychological biases
Hu et al.	2013	China	Secondary data analysis	Influence of blogs on individual investor behaviour
Johansen and Plenborg	2013	Denmark	Survey	Examine user satisfaction of annual report items
Kahneman and Tversky	1979	USA	Mathematical modelling	Prospect theory
Kong et al.	2015	China	Secondary data analysis	Disposition effect
Kumar	2009	USA	Secondary data analysis	Gambling tendencies of individual investors
Kumar et al.	2013	India	Survey	Usage of technical and fundamental analysis for different user groups
Kumar and Goyal	2015	India	Literature review	Behavioural biases of individual investors
Law	2010	Macau, China	Survey	Gambling tendencies of professional accountants
Li and Zhou	2016	China	Secondary data analysis	Politicization of China's stock markets

Table 2 (continued)

Author(s)	*Year*	*Country*	*Methodology*	*Scope*
Li et al.	2014	China	Secondary data analysis	Effects of attention-grabbing stocks on investors
Li et al.	2016	China	Secondary data analysis	IPO investors
Ng and Wu	2010	China	Secondary data analysis	Peer effects of individual investors' trading decisions
Pandit and Yeoh	2014	India	Survey	Psychological tendencies of individual investors
Prosad et al.	2015	India	Survey	Behavioural biases of individual investors
Sahi and Arora	2012	India	Interviews	Individual investor biases
Tversky and Kahneman	1992	USA	Experiment	Prospect theory
Wang et al.	2011	China	Experiment	CSR and individual investors
Wang et al.	2006	China	Survey	Psychological tendencies of individual investors
Ying et al.	2015	China	Secondary data analysis	Individual investors' attention
Yu et al.	2013	China	Secondary data analysis	Aggressive reporting and stock prices

Table 3 Articles on Financial Literacy

Author(s)	*Year*	*Country*	*Methodology*	*Scope*
Abreu and Mendes	2010	Portugal	Survey	Financial literacy and portfolio diversification of individual investors
Agarwalla et al.	2013	India	Survey	Financial literacy of urban working youths
Alessie et al.	2011	Nether-lands	Survey	Financial literacy and retirement preparedness of adults
Ali et al.	2015	Malaysia	Survey	Financial literacy and financial satisfaction of adults
Arora and Marwaha	2013	India	Survey	Financial literacy and stock market awareness among investors
Asaad	2015	USA	Survey	Financial knowledge and confidence
Atkinson and Messy	2012	14 coun-tries	Survey	Financial knowledge, attitudes and behaviour
Babiarz and Robb	2014	USA	Survey	Financial literacy and emergency savings
Behrman et al.	2012	Chile	Survey	Financial literacy and household wealth accumulation
Callen et al.	2016	China	Secondary data analysis	Financial statement literacy and return revisions

Table 3 (continued)

Author(s)	*Year*	*Country*	*Methodology*	*Scope*
Clark et al.	2014	USA	Survey and secondary data analysis	Retirement fund investment performance
Delavande et al.	2008	USA	Secondary data analysis	Financial literacy and retirement preparedness
Gallery et al.	2011	Australia	Conceptual paper	Financial literacy and superannuation investing
Hüsser	2015	Switzerland	Experiment	Financial literacy and assessment of risk disclosure in mutual fund advertisements
Hung et al.	2009	USA	Survey	Measuring financial literacy
Huston	2010	USA	Literature review	Measuring financial literacy
Ibrahim et al.	2009	Malaysia	Survey	Financial literacy of degree students
Jappelli and Padula	2011	14 countries in Europe	Econometric modelling and secondary data analysis	Financial literacy and savings decisions
Klapper et al.	2015	140 countries	Surveys	Financial literacy levels
Landerretche and Martinez	2013	Chile	Survey	Pension financial literacy
Loke	2016	Malaysia	Survey	Financial literacy and living beyond one's means
Lusardi and Mitchell	2011	8 countries	Surveys	Financial literacy levels
Lusardi and Mitchell	2014	USA	Econometric modelling and secondary data analysis	Human capital theory in the context of financial literacy
Lusardi et al.	2014	USA	Survey	Financial literacy among the older population
Messy and Monticone	2016	Multinational	Literature review	Financial education policies in Asia and the Pacific
Mouna and Jarboui	2015	Tunisia	Survey	Financial literacy and portfolio diversification
Robb	2011	USA	Survey	Financial knowledge and credit card behaviour of college students
Sabri and MacDonald	2010	Malaysia	Survey	Effects of financial literacy on savings behaviour and financial problems among college students
Santos and Abreu	2013	Portugal	Secondary data analysis	Influence of financial literacy on financial behaviour and indebtedness
Spataro and Corsini	2013	Italy	Mathematical modelling	Effects of financial literacy on savings and stock market participation

Table 3 (continued)

Author(s)	*Year*	*Country*	*Methodology*	*Scope*
Tan et al.	2011	Malaysia	Survey	Financial literacy and personal financial planning
van Rooij et al.	2007	Nether-lands	Secondary data analysis	Financial literacy and stock market participation
Wang	2009	USA	Survey	Financial knowledge and risk taking
Xia et al.	2014	China	Secondary data analysis	Financial literacy and stock market participation
Xu and Zia	2012	Multi-national	Literature review	Financial literacy levels
Yao and Xu	2015	China	Survey	Investment knowledge and stock market participation

Table 4 Articles on Investment Analysis

Author(s)	*Year*	*Country*	*Methodology*	*Scope*
Abarbanell and Bushee	1998	USA	Secondary data analysis	Fundamental analysis signals and strategy
Al-Ajmi	2009	Bahrain	Survey	Individual investors' financial statements usage
Brimble and Hodgson	2007	Australia	Secondary data analysis	Value relevance of financial statement information
Balsara et al.	2007	China	Secondary data analysis	Random walk and technical analysis
Cohen et al.	2011	Israel	Survey	Fundamental and technical analysis among users
De Zoysa and Rudkin	2010	Sri Lanka	Survey	Annual report usage among different user groups
Drake et al.	2016	USA	Secondary data analysis	Individual investors' reliance on historical financial statements
Francis and Schipper	1999	USA	Secondary data analysis	Value relevance of financial statements
Irwin and Park	2007	USA	Literature review	Technical analysis
Lo et al.	2000	USA	Secondary data analysis	Technical analysis computa-tions inferences
Markowitz	1952	USA	Secondary data analysis	Portfolio selection
Nagy and Obenberger	1994	USA	Survey	Individual investors' investment decision-making behaviour
Piotroski	2000	USA	Secondary data analysis	Value investing
Richardson et al.	2012	USA	Secondary data analysis	Fundamental analysis and stock price movements
Seng and Hancock	2012	USA	Secondary data analysis	Fundamental analysis and earnings predictions

3.1. Individual Investor Behaviour

Of interest in this study is how individuals make investment decisions based on financial statements usage. Therefore, a brief general explanation of individual investor behaviour is needed. Numerous theories have been devised to explain investor decision-making behaviour. They can be classified based on the assumption of investor rationality or irrationality. The first group of theories assumes that investors are rational insofar they invest in a systematic manner based on expected risks and returns to maximize wealth. Such investors would therefore be more reliant on financial statement usage when making investment decisions. These theories include utility theory (Clark-Murphy & Soutar, 2004; Kahneman, 2012; Kumar & Goyal, 2015), portfolio theory (Markowitz, 1952) and the efficient market hypothesis (EMH) (Fama, 1970).

In contrast, the second group of theories assumes that investors are irrational and make investment decisions based on behavioural considerations. The most well-known among these theories is prospect theory (Kahneman, 2012; Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). Additionally, researchers examine cognitive factors that influence decision-making, such as heuristics and biases (Kumar & Goyal, 2015; Pandit & Yeoh, 2014; Sahi & Arora, 2012). The second group of theories emerged to explain types of investor behaviour that do not seem to conform to the assumptions of rationality. In fact, scholars find empirical evidence of significant behavioural shortcomings among individual investors. These include overtrading, overconfidence and others which are summarized as follows.

Overtrading stems from investors' belief that they can successfully beat the market through active trading. Overtrading is prevalent among individual investors even though studies demonstrate that it generally leads to wealth destruction (Barber, Lee, Liu, & Odean, 2009; Barber & Odean, 2000). Notably, overtrading in China is significantly higher than in the United States (Fahey & Chemi, 2015) which should be cause for concern because studies show that it increases stock market volatility and is detrimental to the economy (Dichev, Huang, & Zhou, 2014; Garling, Kirchler, Lewis, & van Raaij, 2009). Researchers find that overtrading among individual investors is closely associated with overconfidence (Abreu & Mendes, 2012), which is another common behavioural shortcoming (Barber & Odean, 2000).

The disposition effect (tendency to sell winning investments but holding on to losers) is also present among individual investors (Barber & Odean, 2013; Chang, Solomon, & Westerfield, 2016; Prosad, Kapoor, & Sengupta, 2015). However, Kong, Bai and Wang (2015) found no evidence of the disposition effect among individual investors in China, though they concede that this is partly because short selling was prohibited during the period of study.

Individual investors generally have limited attention (Barber & Odean, 2013), even in China (Feng & Hu, 2014). Consequently, Chinese investors are drawn to stocks that attract their attention (Ying et al., 2015), are influenced by blog coverage (Hu, Dong, Liu, & Yao, 2013) as well as their peers (Ng & Wu, 2010). Unsophisticated small investors in China are more inclined to chase after attention-grabbing stocks (Li, Shi, Chen, & Kargbo, 2014). Issues like corporate social responsibility do not attract their attention (Wang, Qiu, & Kong, 2011) and they are less reliant on corporate governance information (Li, Wang, & Dong, 2016) and accounting information (Callen et al., 2016). Instead, individual investors in China are sensitive to market sentiments and have herding tendencies (Li, Wang and Rhee (2015), cited in Li et al., 2016), even though some tend to follow analysts' recommendations (Cai & Chen, 2015). Hence, in China's stock market, over-reaction and under-reaction based on market sentiment is evident (You (2010), cited in Li et al., 2016).

The Chinese believe that good luck leads to business success and enables them to win when gambling (Law, 2010). Individual investors who display gambling traits are more inclined to place a great store on luck when trading stocks (Chandra & Kumar, 2012; Kumar, 2009). A study by Wang, Shi and Fan (2006) revealed that individual investors in China have speculative tendencies and low levels of risk perception. Furthermore, the researchers found that individual investors lack investment knowledge and skills. According to Feng, Zhou and Chan (2014), individual investors have no ability to select mutual funds, suggesting that financial illiteracy is widespread among investors in China. Indeed, individual investors' reliance on heuristics and biases and the poor investment decisions they make spring partly from lack of knowledge and limited information processing skills (Barber & Odean, 2013), which can be mitigated by higher financial literacy. Financial literacy will be further discussed in the next section.

3.2. Financial Literacy

Generally, there are various definitions of financial literacy, though financial knowledge and application are emphasized (Huston, 2010). A few of these definitions are discussed as follows. According to Xu and Zia (2012, p. 2), financial literacy is a broad term that comprises "concepts ranging from financial awareness and knowledge, including of financial products, institutions and concepts, financial skills such as the ability to calculate compound interest payments; and financial capability more generally, in terms of money management and financial planning". Lusardi and Mitchell (2014, p. 6) described it as "peoples' ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions". A more comprehensive definition is provided by the Organisation

for Economic Co-operation and Development (OECD) whereby financial literacy is "a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing" (Atkinson & Messy, 2012, p. 14). Here, apart from financial knowledge and behaviour, attitude is also considered.

Much research has been done assessing financial literacy levels worldwide. According to Xu and Zia (2012), low financial literacy is prevalent even in high income countries, though it is significantly lower in low income countries. Research by Atkinson and Messy (2012) revealed similar findings. Klapper et al. (2015) found that only 28 percent of adults in China are financially literate.

Low levels of financial literacy should be of great concern because studies reveal that financial literacy is correlated with numerous financial outcomes throughout our life-cycle. For example, college students with low financial literacy typically experience money management and credit card problems (Ibrahim, Harun, & Isa, 2009; Robb, 2011; Sabri & MacDonald, 2010). Financial exclusion in the adult population is partly due to low financial knowledge (Messy & Monticone, 2016). Adults with low financial literacy have a higher risk of experiencing financial distress (Santos & Abreu, 2013), tend to engage in risky and costly financial behaviour (Asaad, 2015) and lack emergency savings (Babiarz & Robb, 2014). Poor financial decisions among senior citizens is also due to low financial literacy (Lusardi, Mitchell, & Curto, 2014). Several researchers find a link between financial literacy and wealth accumulation (Behrman, Mitchell, Soo, & Bravo, 2012; Jappelli & Padula, 2011) while others demonstrate that financial literacy is an important antecedent to financial planning (Ali, Rahman, & Bakar, 2015; Hung, Parker, & Yoong, 2009; Tan, Hoe, & Hung, 2011).

3.3. Financial Literacy and Stock Investing

Since financial literacy is associated with numerous types of financial behaviour and outcomes as discussed in the preceding section, it is unsurprising that it impacts stock investing. Unfortunately, there are comparatively few financial literacy studies that focus on stock investing. In an exploratory study, Arora and Marwaha (2013) examined financial literacy levels of individual investors in Punjab, India. While they reported that individual investors have high financial knowledge, the effects of financial literacy on stock investing behaviour and returns are not examined. Nonetheless, van Rooij, Lusardi and Rob (2007) provided survey evidence that stock market participation is influenced by financial literacy, though instrument used merely assesses basic financial knowledge. They reported that individuals with higher financial literacy have a significantly higher

likelihood of investing in stocks compared to those with low financial literacy. This position is supported in a mathematical model by Spataro and Corsini (2013). Financial literacy is also found to influence portfolio diversification (Abreu & Mendes, 2010; Mouna & Jarboui, 2015; Xia, Wang, & Li, 2014; Yao & Xu, 2015). Therefore, these studies indicate that financial literacy not only influences individuals to invest in stocks but also enables them to be better at risk diversification.

While there is limited research on how financial literacy impacts stock investing returns, there are studies that examine the importance of financial literacy when making pension plan and mutual fund decisions and returns. High financial literacy enables employees to earn as much as 130 basis points more per year in their retirement accounts than their contemporaries (Clark, Lusardi, & Mitchell, 2014), while inertia in making employment retirement plan decisions is attributed to low financial literacy (Gallery, Newton, & Palm, 2011). As for investing in mutual funds, Wang (2009) demonstrated that financial risk taking is influenced by financial literacy. According to Feng et al. (2014), Chinese investors lack mutual fund selection ability (along with what they describe as the "dumb money effect" – the inability to transfer funds to winner or out of losers), which can be attributed to lack of financial literacy. Since financial literacy is evidently so important even for investment decisions in which the investor abrogates responsibility to third parties consisting of financial professionals (such as retirement funds or mutual funds), it should be even more so for stock investing where the onus on portfolio management rests entirely with the individual himself. Therefore, the paucity of research on how financial literacy impacts stock investment decisions is regrettable.

From these discussions, it is apparent that the influence of financial literacy on stock investing strategy is significant; thus it is crucial that this aspect is examined further. Before that, a distinction must be made between investing in stocks for the long-term and trading, because different approaches are required. For stock trading or speculating, technical analysis is widely used (Cohen, Kudryavtsev, & Hon-Snir, 2011; Kumar, Mohapatra, & Sandhu, 2013). The goal of technical analysis is "to identify regularities in the time series of prices by extracting nonlinear patterns from noisy data" (Lo, Mamaysky, & Wang, 2000, p. 1708). However, there is still inconclusive evidence whether technical analysis is a good investment strategy. Advocates such as Lo et al. (2000) and Balsara, Chen and Lin (2007) stressed that technical analysis is effective. Yet, a review paper by Irwin and Park (2007) reported that while many studies find empirical evidence on the predictive ability of technical analysis, they are subjective and context specific.

Stock investing for the long-term entails different strategies. One approach, popularized by Benjamin Graham (Graham & Dodd, 2009; Graham

& Zweig, 2006), is referred to as value investing. Essentially, it entails identifying and investing in underpriced stocks for the long term. Value investing has been demonstrated to deliver superior returns (Piotroski, 2000). A central feature of value investing is fundamental analysis, which is defined by Abarbanell and Bushee (1998, p. 20) as "a practice that relies heavily on the analysis of current and past financial statement data to identify when underlying firm value differs from prevailing market prices." The principle underlying fundamental analysis is that the intrinsic value of a security equals the discounted values of its expected future cash flows (Richardson, Sloan, & You, 2012). Fundamental analysis is favoured by institutional investors (Cohen et al., 2011; Kumar et al., 2013). Empirical findings show that financial statements provide very useful information about future earnings changes and returns (Seng & Hancock, 2012) which is why they form the bedrock of fundamental analysis. Hence, it is essential that investors who adopt value investing have the ability to analyse financial statements for investment decision-making purposes. In other words, they require financial statement literacy.

3.4. Financial Statement Literacy

In the US, individual investors regard financial statements as important sources of information (Nagy & Obenberger, 1994) and rely on historical accounting reports for investment decision-making (Drake, Roulstone, & Thornock, 2016). Reliance on financial statements among individual investors is reported in other Asian countries such as Bahrain (Al-Ajmi, 2009) and Sri Lanka (De Zoysa & Rudkin, 2010). However, comparable research on Chinese individual investors appears to be lacking.

Studies show that financial statements contain value relevant information that is useful for investment decision-making (Brimble & Hodgson, 2007; Francis & Schipper, 1999). To be successful at financial statement analysis for investment decision-making, financial statement literacy is needed. Callen et al. (2016, p. 573) define financial statement literate investors as "investors who make judicious use of financial statement for their investment decisions". In their pioneering paper, Callen et al. (2016) compared how financial statement literacy influences return expectations of investors, though the scope is on cash flow statements and it makes inferences from secondary accounting data and stock market information of firms listed on China's stock exchanges from 1995 to 2006. They found that foreign investors with higher financial statement literacy tend to make revisions to their returns expectations compared to Chinese investors who had lower financial statement literacy. This indicates that high financial statement literacy enables investors to revise their estimates of firm returns and therefore valuation, thus influencing their

investing strategy. A few other papers, while not explicitly examining financial statement literacy, explored related areas. For instance, using trading data of all listed Chinese firms from 2000 to 2009, Yu, Li, Tian and Zhang (2013) documented how aggressive financial reporting increases the "noise" of small traders who are less knowledgeable than professional and institutional investors. Findings suggest that investors who lack sufficient financial statement knowledge are more easily swayed by good news reported in firms' financial statements.

Yet, on the whole, financial statement literacy remains a new field of study. Indeed, issues such as whether individual investors have sufficient knowledge to understand financial statements, the relationship between financial statement knowledge and financial statement usage, the extent to which financial statement literacy influences portfolio decisions and returns remain unanswered. Addressing them would provide richer insights into individual investor behaviour in relation to financial statements usage. The next section discusses the key findings of this review.

4. Findings

From the preceding literature review, four main points are noted. Firstly, there is a lack of studies documenting financial statements usage for investment decision-making among individual investors in China. Callen et al. (2016) implied it is low but further investigation is needed for verification. By way of contrast, in Western countries, numerous studies have been conducted on financial statements usage among individual investors (for example, Drake et al., 2016; Johansen & Plenborg, 2013). Financial statements usage is an indicator of investor sophistication which is why ascertaining current levels in China matters.

Secondly, individual investors in China share with their international counterparts several behavioural shortcomings such as limited awareness of investing risk and a reliance on luck. However, a tendency towards overtrading is more pronounced. It also appears that generally, individual investors in China lack investment knowledge and skills, preferring instead to trade based on their emotions. Hence, they are unfamiliar with more sophisticated long-term investment strategies and have a misplaced view of the stock market. This also relates to the first point of an apparent lack of financial statements usage for investment decision-making.

Thirdly, studies demonstrate that financial literacy is important in our daily lives especially when making major investment decisions. While there are few studies on the implications of high financial literacy on stock investing, researchers document how it translates into superior retirement plans and mutual fund investment decisions. Therefore, inferences can be

made that high financial literacy is as equally important when making stock investment decisions. Unfortunately, research shows that financial literacy is generally low in China, and presumably among its individual investors, judging from the studies that find them lacking in knowledge and skills.

Fourthly, financial statement literacy is relatively unexplored in the literature, which is unfortunate considering its relevance when analyzing a firm's fundamentals to make long-term stock investment decisions. Out of the 88 studies reviewed only one makes explicit reference to the term "financial statement literacy". Considering that its stock markets are dominated by individuals, a higher level of sophistication among its investors, including the ability to understand and analyze financial statements is particularly significant in China. The implications of low investor sophistication are individual wealth destruction and increased stock market volatility.

It must be noted that while immensely useful, financial statements are technical documents that require specialized knowledge to understand and utilize effectively. Yet, little research is done on ascertaining the current level of financial statement literacy among individual investors in China, though it must be conceded that the literature is also silent on financial statement literacy in other countries. Furthermore, existing studies (such as Callen et al., 2016) relied on secondary data instead of surveys, which more accurately appraise financial literacy levels and are the preferred choice in numerous financial literacy studies as shown in Table 3. Therefore, evaluating current financial statement literacy levels is a crucial first step in formulating policies for elevating investor sophistication and for addressing the issues raised in the previous section. This move should be aligned with China's aspirations to increase the wealth of its citizens via stock market participation.

Due to it being a nascent field of study, an appropriate research instrument to evaluate financial statement literacy is apparently lacking. In light of this matter, a conceptual model is therefore developed to construct a comprehensive instrument to assess financial statement literacy among individual investors in China.

5. Proposed Conceptual Model

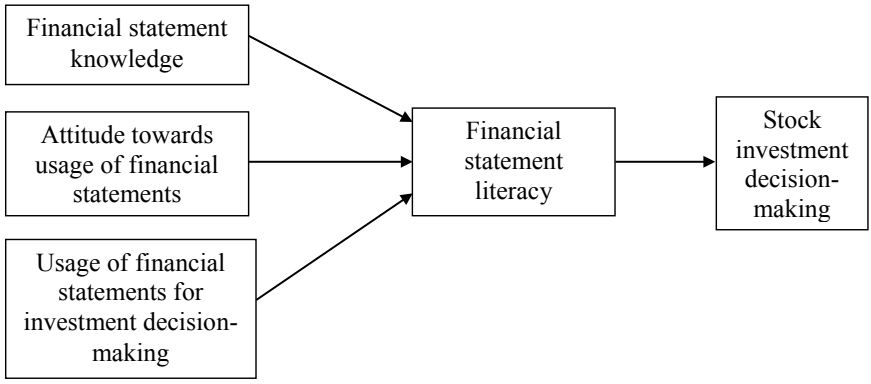
In this conceptual model, we define financial statement literacy as the combination of knowledge, attitudes and usage of financial statements for investment decision-making. The conceptual model suggests that financial statement literacy, which is the dependent variable, is measured by the following independent variables, namely, (1) financial statement knowledge, (2) attitude towards financial statement usage and (3) usage of financial statements for investment decision-making. The model is adapted from Atkinson and Messy (2012). While the latter examine general financial

literacy, we differ by contextualizing the variables specifically in the context of financial statement literacy. These three independent variables can also be viewed as a variation of the knowledge, attitudes and practice model (Chatterjee, Bhanot, Frank, Murphy, & Power, 2009; Lund & Aarø, 2004) or the information-motivation-behavioural skills model (Fisher, Fisher, Bryan, & Misovich, 2002). Financial statement literacy can be evaluated as an end in itself as per the numerous studies that assess financial literacy shown in Table 3.

Nonetheless, the model can be extended to examine its influence of stock investment decision-making behaviour. It is anticipated that high financial statement literacy will have a positive effect on investment decision-making that leads to superior portfolio returns, since the literature indicates that financial statements contain value relevant information and reliance on them leads to better portfolio performance. In the extended model, financial statement literacy can be regarded as one of several factors that influence stock investment decision-making. For example, among China's individual investors, risk tolerance and speculative tendencies are high. These factors can be examined together with financial statement literacy to ascertain which predictor variables have greater influence on stock investment decision-making. The proposed extended conceptual model is outlined in Figure 1.

We suggest measuring financial statement literacy based on the weighted scores of financial statement knowledge, attitude towards financial statement usage and usage of financial statements for investment decision-making, consistent with the method used by Atkinson and Messy (2012) and adopted by others (such as Agarwalla, Barua, Jacob, & Varma, 2013). Each of these shall be explained in the subsequent paragraphs.

Figure 1 Conceptual Model for Measuring Financial Statement Literacy and Its Influence on Stock Investment Decision-making



5.1. Financial Statement Knowledge

Financial knowledge is defined as "some basic knowledge of key financial concepts and the ability to apply numeracy skills in financial situations" (Atkinson & Messy, 2012, p. 16). Huston (2010) described financial knowledge as the "stock of knowledge acquired through education and/or experience specifically related to essential personal finance concepts and products" and stressed that it is not equivalent to financial literacy.

However, there are more context specific definitions of financial knowledge depending on financial outcomes. For instance, Landerretche and Martinez (2013) examined pension financial knowledge (despite being dubbed "literacy") which is knowledge regarding pension (such as contribution rate, how funds are invested and pension account balance). Similarly, Hüsser (2015) cast financial knowledge in terms of investors' knowledge of stocks, bonds and mutual funds as the focus of his study was on mutual funds.

Accordingly, Delavande, Rohwedder, and Willis (2008) regarded financial knowledge as a finite resource and that the cost of acquiring financial information would be lower for individuals with high financial knowledge compared to individuals with low financial knowledge. In addition, individuals with low financial knowledge have to spend more effort to learn or to gain advice from others. An example is financial statement knowledge, which those outside the sphere of accounting and finance do not possess, which novice investors must acquire it through learning or by seeking professional advice.

In the context of this research model, financial statement knowledge is defined as the actual knowledge level of individual investors of three main financial statements. These are the statement of financial position, income statement and cash flow statement. Knowledge of key terms, concepts and the ability to calculate financial ratios from information contained in these financial statements constitute financial statement knowledge.

5.2. Attitude towards Usage of Financial Statements

Apart from financial statement knowledge, in accordance with the proposed conceptual model, another important variable that may influence financial statement literacy is attitude towards usage of financial statements.

Several studies documented the influence of attitudes on financial literacy (Alessie, van Rooij, & Lusardi, 2011; Atkinson & Messy, 2012; Loke, 2016; Lusardi et al., 2014). What constitutes these attitudes depends on the nature of the study. For instance, Ali et al. (2015) examined attitudes towards money. Besides attitudes towards money, Atkinson and Messy (2012) also studied planning for the future in their research for the OECD. Agarwalla et al. (2013)

adopted the OECD measures when examining financial attitudes in their study on financial literacy among working urban youths in India. Ibrahim et al. (2009) explored financial attitudes in the context of college students because some items in their scale apply specifically to them (for example, one item is on whether the student will consider dropping out of college). Hence, investor attitude towards the importance of using financial statements for investment decision-making purposes constitutes an element of measuring financial statement literacy.

5.3. Usage of Financial Statements for Investment Decision-making

The third variable specified in the proposed conceptual model is usage of financial statements for investment decision-making, which is a type of financial behaviour. Financial behaviour is a broad spectrum of actions ranging from making loan payments to saving for retirement. Atkinson and Messy (2012) contextualized financial behaviour in terms of financial well-being which encompasses saving, budgeting, borrowing to make ends meet and paying bills on time, among others.

Similar to financial knowledge and financial attitudes, the term "financial behaviour" is sometimes defined in a context specific way depending on the nature of the study. For instance, a study by Robb (2011) on credit card usage defined financial behaviour in this context while another by Santos and Abreu (2013) on indebtedness examined financial behaviour in terms of financial distress, arrears and foreclosure.

We define financial behaviour as the extent to which the individual investor uses financial statements as a source of information when making decisions whether to buy, hold or sell particular stocks.

As mentioned earlier, a model comprising the abovementioned three elements is sufficient to evaluate financial statement literacy. Such information is useful for determining demographic differences among individual investors and to gauge overall levels in China. However, researchers can extend the model to examine the influence of financial statement literacy on individual investor behaviour, such as portfolio choice and returns.

Having discussed the proposed conceptual model in ascertaining financial statement literacy, the following section discusses the managerial implications of the study.

6. Managerial Implications

Greater awareness of the importance of financial statement literacy in stock investing would benefit the financial services sector in several ways. For investors who find acquiring financial statement literacy challenging, the

alternatives would be investing in mutual funds or engaging the services of financial planners. This presents numerous opportunities for financial service professionals. Even investors with some financial statement knowledge stand to benefit from the advice of financial experts. For example, research shows that individual investors who follow analysts' recommendations tend to profit more in the mid- to long-term (Cai & Chen, 2015). Financial professionals can also capitalize on the surge in the demand for reading material and courses related to financial statement literacy for individual investors who would like to increase their store of knowledge in the field. In addition to the managerial implications, this study also has some policy implications, which will be discussed in the next section.

7. Policy Implications

Ascertaining the current level of financial statement literacy among individual investors will help facilitate more effective investor education programmes by agencies such as the China Securities Investor Protection Fund (SIPF). These programmes should not only endow investors with greater financial knowledge but also shape attitudes that elicit positive stock investing behaviour. Educating individuals to make good stock investment decisions is beneficial at the individual and national level. Investors would be less inclined to speculate in the stock market and view equity investments as a form of long-term savings, thereby minimizing the risk of losses due to speculations. Financial statement literacy helps investors evaluate the financial fundamentals of companies thereby enabling them to make better long-term investments. Aggregated at the national level, investors with better financial statement literacy contribute to greater stock market stability because they are less swayed by short-term noise and focus more on long-term fundamentals. This is especially crucial in China which not only has the largest population of individual investors in the world but also in the light of the growing international importance of China's stock markets.

8. Conclusion

This paper has two main objectives. The first is to examine existing literature relevant to financial statement literacy. We find few studies on financial literacy in China. Furthermore, while financial literacy is a growing field of study internationally, research on financial literacy vis-à-vis stock investing is lacking, despite of its potential to offer many rich insights on how financial literacy impacts portfolio choice and returns. Financial statement literacy is an even more niche area of study and there is an absence of primary research on the subject. The second objective of this study is to propose a model for

evaluating financial statement literacy. In our model which is derived from the literature, financial statement literacy comprises three elements, which are financial statement knowledge, attitude towards usage of financial statements and usage of financial statements for investment decision-making. This model can be employed to assess financial statement literacy alone or it can be extended to examine the influence of financial statement literacy on stock investment decision-making. Hence, we hope the model can be a starting point for future research in the area.

Trading in the stock market is inherently exciting with its allure of instant riches. However, empirical evidence shows that investors, no matter how successful initially, can never outperform the market in the long-term. Therefore, it would be more prudent for individuals to invest in a diversified portfolio of stocks for the long-term, and profit through dividends and stock price appreciations. Given China's ability to excel at various fields within a short period, creating a large pool of sophisticated investors can be achieved through education. Hence, research on financial statement literacy of individual investors in China is a crucial first step to ascertain current levels and to formulate more effective investor education programmes.

Notes

* K. Kishan recently passed his PhD *viva voce* examination at the Department of Accountancy, Faculty of Business and Accountancy, University of Malaya. He is also a Certified Financial Planner (CFP) and a member of the Malaysian Association of Company Secretaries (MACS). He can be reached at <kishan_krishnen@yahoo.com>.

** Dr Ervina Alfan is currently serving the Department of Accounting, Faculty of Business and Accountancy, University of Malaya as a Senior Lecturer. Graduated from University of Manchester, United Kingdom in 2010 with a PhD degree in Accounting, she is also involved in administrative duties in addition to her teaching and supervision duties. Dr Ervina is currently serving the faculty as the Programme Coordinator for Masters in Accounting (Reporting and Accountability) and as the Managing Editor of the Faculty's journal *Asian Journal of Accounting Perspective* (AJAP), which is indexed in the Malaysian Citation Centre (MyJurnal). Her research interest includes financial reporting and accountability, sustainability reporting and firm performance and accounting education. She can be reached at <ervina_alfan@um.edu.my>.

1. China has two stock markets, namely the Shanghai Stock Exchange and the Shenzhen Stock Exchange.
2. On 26 November 1990.
3. On 1 December 1990.
4. Knowledge of interest compounding, inflation and risk diversification (Lusardi & Mitchell, 2011) as well as financial attitudes and behaviour associated with it (Atkinson & Messy, 2012).

5. Familiarity with concepts such as transaction costs, settlements and stock splits (Arora & Marwaha, 2013).

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