The Definitions and Measurements of Debt Literacy: A Review

Mahdhir Abdullah

The Definitions and Measurements of Debt Literacy: A Review

Mahdhir Abdullah

Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia, Bandar Baru Nilai, 71800 Nilai, Negeri Sembilan, Malaysia

Abstract
The aftermath of the 2008 world financial crisis has stimulated a lot of research regarding individual and household debt. Studies pertaining individual and household debt generally discussed the element of financial literacy and its connection with individual and household indebtedness, however there was a lack of discussion on debt literacy. The objective of this article is to review the definition and measurement of debt literacy, a more specific aspect of financial literacy. The study is conducted by critically reviewing articles with a search word "debt literacy" in SCOPUS database in December 2018. The findings of this paper highlight common definitions and measurements of debt literacy, and suggest an appropriate definition and measurement for future research.
Keywords: Debt Literacy, Financial Literacy, Individual Indebtedness, Household Debt, Definition, Measurement.

Introduction
Global financial crisis in 2008 has seen the emergence of academic researches pertaining individual and household debt, and indebtedness. Many studies on individual indebtedness included financial literacy in their discussion (Mainal, Ho, & Yusof, 2017; Shih & Ke, 2014; Brown, Van Der Klaauw, Wen, & Zafar, 2013; Disney & Gathergood, 2011), however there were not so many studies that relate it with debt literacy. Early work on debt literacy was traced back in 2009 pionereed by Lusardi and Tufano (Cwynar, Cwynar & Wais, 2018). Since then, studies on debt literacy started to emerge and most of the researchers benchmarked their studies with the work of Lusardi and Tufano. In this paper, the concept of debt literacy is discussed based on the review of published articles in SCOPUS database, with emphasis on the definition and measurement of debt literacy.

Methodology
The sample of peer-reviewed English-language academic journal articles was retrieved through a literature search on debt literacy from SCOPUS database. The search was conducted in the month of December 2018. The search string specified the word "debt literacy" whether the word appears in either the article title, the abstract or the keywords. The search was first performed without any filter

on the years of publication, and the search results showed that the oldest document on debt literacy was published in 2012. Since the works on debt literacy were still fairly new in academia, the search was not filtered further in terms of years of publication. The results of the search showed nine documents containing the term "debt literacy" including seven articles, one article in press, and one review article. In terms of the years of publication, the distribution of the data by year of publication is as follows – 2012 (1), 2013 (1), 2014 (2), 2015 (1), 2016 (1), 2017 (1), and 2018 (2). These articles were reviewed critically in such a way to find common definition and measurement of debt literacy, that will become a source of reference in future studies.

Analysis of Article Review
In this section, the analysis of articles review is discussed in great detail with emphasis on the definition and measurement of debt literacy. Eight out of nine SCOPUS articles with a search word "debt literacy" were reviewed and the summary of the review is tabulated in Table 1. In addition, a few seminal papers that have been repeatedly cited by most of the authors were also reviewed in order to grasp meaningful links between them. The definitions and measurements of debt literacy were analyzed in parallel, rather than separately, in order to obtain the connection between the definition and measurement used by each author. The following paragraph will discuss the similarities and differences in the definitions of debt literacy by the authors. The subsequent paragraph will discuss the review of debt literacy measurements. The last paragraph will discuss the findings of the article review and their implications for future research.

From Table 1, it is gathered that there were three different but slightly similar definitions of debt literacy. First, Li, Baldassi, Johnson, and Weber (2013) referred to Lusardi and Tufano (2009, p. 1) who defined debt literacy as "the ability to make simple decisions regarding debt contracts, applying basic knowledge about interest compounding to everyday financial choices". The same definition was used by Lusardi and Tufano in 2015. Second definition was self-developed by Lee and Mueller which stated that student debt literacy as "the ability to identify, understand, interpret, and navigate student loan options, principles, and practices associated with responsible borrowing and debt management" (Lee & Mueller, 2014, p. 714). Thirdly, Cwynar, Cwynar, Wais and Parda (2017) used the definition by Disney and Gathergood (2011, p. 1) that defined debt literacy as the "capacity of individuals to make simple financial calculations concerning debt". The three definitions of debt literacy above have common similarities in the following manner – 1) incorporation of the elements of "understand (knowledge)" and "use (application)"; and 2) focus on debt matters. Knowledge and application are two fundamental elements of literacy such as in defining financial literacy (Huston, 2010). Thus, the definitions of debt literacy used in the reviewed articles satisfied the underlying concepts of literacy. With regards to focusing on debt matters, all the three definitions above distinguished themselves from a broader definition of financial literacy by specifying matters

Table 1. A Summary Review of SCOPUS-listed Articles on the Concept of Debt Literacy

Author and Year	Definition	Measurement
Gaurav, S. and Singh, A. (2012)	Did not specify the definition of debt literacy.	Adapted 3-question instrument from Lusardi and Tufano (2008) with modification to suit Indian context.
Li, Y., Baldassi, M., Johnson, E.J. and Weber, E.U. (2013)	Referred to Lusardi and Tufano (2009, p.1).	Adapted 3-question instrument from Lusardi and Tufano (2009).
Lee, J. and Mueller, J.A (2014)	Self-developed.	Adapted from Porter's Debt Management Survey (1999).
Schicks, J. (2014)	Did not specify the definition of debt literacy.	Adapted 3-question instrument from Lusardi and Tufano (2009) with some modifications. Schicks removed the choices "*Do not know*" and "*Prefer not to answer*" from the answer choices.
Lusardi, A. and Tufano, P. (2015)	Self-developed. The definition is similar to that of Lusardi and Tufano (2009).	Self-developed three-question instruments. Similar to that of Lusardi and Tufano (2009).
van Ooijen, R. and van Rooij, M.C.J. (2016)	Did not specify the definition of debt literacy.	Adapted 3-question instrument from Lusardi and Tufano (2015).
Cwynar, A., Cwynar, W., Wais, K. and Parda, R. (2017)	Cited from Disney and Gathergood (2011, p.1).	Adapted from Lusardi and Tufano (2009) and complemented the measurement with self-developed subjective questions. The questionnaire consisted of 22 closed and semi-open questions and 12 "true/false/do not know" questions.
Cwynar, A., Cwynar, W. and Wais, K. (2018)	Did not specify the definition of debt literacy.	Self-developed 22 closed and semi-open questions, 12 "true/false/do not know" questions, and 5 sociodemographic and economic traits questions.

pertaining debt. According to Huston (2010), based on a body of literature, financial literacy covered at least four contents of financial matters namely money basics, borrowing, investing, and protection. Financial literacy, therefore, would be too broad to be employed in a research that studies individual indebtedness, while debt literacy is more suited for such researches. In the same line of thinking, Lusardi and Tufano (2009, 2015) developed a definition and a measurement that explicitly related to

debt and debt instruments. In contrast to common similarities, the three definitions of debt literacy above have a number of differences. The most noticeable difference is that the definitions by Lusardi and Tufano (2009, 2015) and by Lee and Mueller (2014) have the element of decision making, while Disney and Gathergood's definition lacked this element. The element of decision making in those definitions provided an indication that debt literate individuals would use the knowledge about debt to develop attitudes towards debt and actual behavior of taking up debt. This makes Lusardi and Tufano's and Lee and Mueller's definitions of debt literacy to be more comprehensive compared to that of Disney and Gathergood. Second difference is that Lusardi and Tufano's definition covered understanding of two components namely the characteristics of debt products and the workings of time value of money. It did not attempt to test the calculation of interest compounding, but to assess the understanding of interest compounding intuitively. In contrast, the definition by Disney and Gathergood but did not mention about understanding debt products and how time value of money works. The summary of common similarities and differences between the three definitions are presented in Table 2. From the table, it can be seen that Lusardi and Tufano's definition of debt literacy is more comprehensive compared to the other two definitions by having the dimensions of knowledge, application, and debt matters. Furthermore, it consists of the elements of decision-making, understanding the characteristics of debt products or contracts, and understanding the workings of time value of money.

Table 2. Analysis of the Definitions of Debt Literacy

Dimensions and Elements	Definition 1 Lusardi and Tufano (2009)	Definition 2 Lee and Mueller (2014)	Definition 3 Disney and Gathergood (2011)
Dimensions:			
1. Knowledge	√	√	√
2. Application	√	√	√
3. Debt matters	√	√	√
Elements:			
1. Decision making	√	√	X
2. Understanding the characteristics of debt products or contracts	√	√	X
3. Understanding how time value of money works	√	X	X

With regards to the measurement of debt literacy, most of the articles attempted to assess the knowledge about interest compounding, time value of money, and the characteristics of debt contracts. From the analysis, it is observed that five of the reviewed articles adapted the instrument by Lusardi and Tufano (2009) with minor modifications to suit the context of each individual study. The instrument by Lusardi and Tufano (2009) is available in Appendix A for reference. The

measurement comprised of the components of understanding the knowledge and application of debt contracts. The instrument used credit card and loan arising from the purchase of an appliance as examples of debt contracts. The questions also assessed the ability to understand the workings of time value of money in intuitive manner. The questions were multiple choice questions and were very objective rather than self-assessed or perception-based. Gaurav and Singh (2012) measured the ability to understand three dimensions of debt literacy namely interest compounding, debt burden, and time value of money, by adapting three-question instrument by Lusardi and Tufano (2009) with slight modifications to suit the Indian context. Li, Baldassi, Johnson, and Weber (2013) also used the instrument by Lusardi and Tufano (2009) to measure the knowledge of compound interest and credit card debt. Schicks (2014) in her study modified Lusardi and Tufano's instruments by removing the choices "Do not know" and "Prefer not to answer" from the answer choices. By removing the two denial statements above, the respondents were left with less number of answer choices, thus improving the probability of answering correctly. van Ooijen and van Rooij (2016) adapted Lusardi and Tufano's instrument with minor alteration by rephrasing the questions based on familiarity of the debt product in the Netherlands. They changed credit card debt in the original instrument to personal loan extended by a bank to suit the Netherland's context. From the works of Gaurav and Singh (2012), Li, Baldassi, Johnson and Weber (2013), Shicks (2014), Lusardi and Tufano (2015), and van Ooijen and van Rooij (2016), it can be gathered that all the authors referred to Lusardi and Tufano's measurement as the main reference. Cwynar, Cwynar, Wais and Parda (2017) extended the measurement of debt literacy to include the aspect of knowledge about technical and legal issues of debt contracts. They also referred to Lusardi and Tufano's three-question measurement as a basis, and complemented it with 22 self-developed closed ended and semi-open questions and 12 "True/False/Do not Know" questions. Cwynar, Cwynar and Wais (2018) developed debt literacy instrument to "find out what people really know about credits and loans in terms of both professional (technical) issues as well as legal (contractual) ones" (Cwynar, Cwynar and Wais, 2018, p.8). They added 5 questions on sociodemographic and economic traits, in addition to the 34 questions in Cwynar et al., (2017). A large set of questions by Cwynar et al., (2017) and Cwynar, Cwynar and Wais (2018) covered a broader scope of debt literacy and answered both objective and self-assessed questions. Among the reviewed articles, one article by Lee and Mueller (2014) was different from the other articles in terms of the measurement of debt literacy. Lee and Mueller conducted a study on students debt literacy and referred to the measurement by Porter's (1999) Debt Management Survey which was very specific towards students debt. Porter's Debt Management Survey were measuring students' perception about their own debt management knowledge and the perception about the financial aid counselling practices. As compared to the measurement of debt literacy by Lusardi and Tufano (2009), Porter's measurement was subjective and perception-based. Based on the analysis of the article review, the contents of the measurements are summarized in Table 3. From the summary in Table 3, it was found that the measurement by Cwynar et al. (2017) and Cwynar, Cwynar and Wais (2018) contained the most number of elements, however some of the elements were not aligned with the definition of debt literacy that they referred to, which is the definition by Disney and Gathergood (2011).

Table 3. Analysis of the Measurements of Debt Literacy

Contents	Measurement 1 Lusardi and Tufano (2009)	Measurement 2 Cwynar, Cwynar, Wais and Parda (2017)	Measurement 3 Cwynar, Cwynar and Wais (2018)	Measurement 4 Porter (1999)
1. Knowledge	√	√	√	√
2. Application	√	√	√	√
3. Debt matters	√	√	√	√
4. Decision making	√	√	√	√
5. Understanding the characteristics of debt products or contracts	√	√	√	√
6. Understanding how time value of money works	√	√	√	X
7. Knowing technical issues regarding debt	X	√	√	X
8. Knowing legal issues regarding debt	X	√	√	X
9. Aware of current issues pertaining interest rates, lending institutions, and debt products	X	√	√	X
10. Objective measure	√	√	√	X
11. Subjective measure	X	√	√	√

Based on the analysis of the definitions and measurements of debt literacy discussed in the previous paragraphs, here are the findings of the article review. First, it was found that the work of Lusardi and Tufano in 2009 has become a breakthrough in the field of consumer finance as other researchers benchmarked their debt literacy studies with that of Lusardi and Tufano. The definition of debt literacy by Lusardi and Tufano was considered as all-inclusive as it consisted the components of knowledge and application of debt, decision making, understanding the characteristics of debt contracts, and understanding how time value of money works. Most debt literacy studies also referred to Lusardi and Tufano's debt literacy measurement as their main reference. Second, from the review analysis, it can be concluded that there was a strong alignment between the definition and the measurement of debt literacy by Lusardi and Tufano (2009). The dimensions in the debt literacy measurement were found to be aligned to the definition of debt literacy. Moving forward, the implications of these findings are two-fold. First, the findings of this review can be applied in instrument development process. Lusardi and Tufano's measurement can be used as a basis of debt literacy measurement. In addition, modifications can be done to suit the context of the respondents. For instance, if the respondents are residing in a country where credit card is not a common form of

consumer credit, then Lusardi and Tufano's questionnaire item on credit card can be changed to other type of debt that is more common in that particular country. Moreover, modification to Lusardi and Tufano's instrument can also be made to customize to individual study's research questions and research objectives. Second implication of the findings is the applicability of the definition and measurement of debt literacy in future research pertaining debt literacy, individual and household debt, and indebtedness. Since the terminology "debt literacy" is fairly new and there is still a handful research on debt literacy, there is a vast potential for research in this area.

Conclusion

It is notable to see the connection between the definitions and the measurements of debt literacy used in academic research. The work by Lusardi and Tufano in 2009 has been a breakthrough as it is the most referred article by other researchers in the field. Thus, the concept of debt literacy pioneered by Lusardi and Tufano moulded the research path in the area of debt literacy, individual and household debt, and indebtedness. The definition of debt literacy by Lusardi and Tufano can be considered as an all-inclusive definition by having the dimensions of knowledge and application of debt, and the elements of decision making, understanding debt contracts, and understanding the working of time value of money. The measurement of debt literacy Lusardi and Tufano was aligned to their definition of debt literacy. Thus, Lusardi and Tufano's definition and measurement are good references for instrument development and future research pertaining debt literacy.

Acknowledgement

Corresponding Author

Mahdhir Abdullah is a lecturer at Universiti Sains Islam Malaysia, Malaysia. He can be contacted via email at mahdhir@usim.edu.my. His corresponding address is Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia, Bandar Baru Nilai, 71800 Nilai, Negeri Sembilan, Malaysia.

References

Abdullah, M. (2019). The Definitions and Measurements of Debt Literacy: A Review. *International Journal of Academic Research in Business and Social Sciences*, *9*(5), 981–990.

Brown, M., Van Der Klaauw, W., Wen, J., & Zafar, B. (2013). *Financial Education and the Debt Behavior of the Young*. *Federal Reserve Bank of New York Staff Reports* (Vol. 634). https://doi.org/10.1093/rfs/hhw006

Cwynar, A., Cwynar, W., & Wais, K. (2018). Debt Literacy and Debt Literacy Self-Assessment: The Case of Poland. *The Journal of Consumer Affairs*, 1–34. https://doi.org/10.1111/joca.12190

Cwynar, A., Cwynar, W., Wais, K., & Parda, R. (2017). Personal Loan Companies in Poland: Does Empirical Evidence Justify Regulatory Transition? *Prague Economic Papers*, *26*(4), 377–396.

Disney, R., & Gathergood, J. (2011). *Financial Literacy and Indebtedness: New Evidence for U.K. Consumers*. *SSRN*. https://doi.org/10.2139/ssrn.1851343

Gaurav, S., & Singh, A. (2012). An Inquiry into the Financial Literacy and Cognitive Ability of Farmers:

Evidence from Rural India. *Oxford Development Studies*, *40*(3), 358–380. https://doi.org/10.1080/13600818.2012.703319

Huston, S. J. (2010). Measuring Financial Literacy. *Journal of Consumer Affairs*, *44*(2), 296–316. https://doi.org/10.1111/j.1745-6606.2010.01170.x

Lee, J., & Mueller, J. A. (2014a). Student Loan Debt Literacy: A Comparison of First-Generation and Continuing-Generation College Students. *Journal of College Student Development*. https://doi.org/10.1353/csd.2014.0074

Lee, J., & Mueller, J. A. (2014b). Student Loan Debt Literacy: A Comparison of First-Generation and Continuing-Generation College Students. *Journal of College Student Development*, *55*(7), 714–719. https://doi.org/10.1353/csd.2014.0074

Li, Y., Baldassi, M., Johnson, E. J., & Weber, E. U. (2013). Complementary cognitive capabilities , economic decision making , and aging. *Psychology and Aging*, *28*(3), 595–613. https://doi.org/10.1037/a0034172

Lusardi, A., & Tufano, P. (2009). *Debt Literacy, Financial Experiences, and Overindebtedness* (NBER Working Paper No. 14808). Cambridge, MA. https://doi.org/10.2174/138920312803582960

Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and overindebtedness. *Journal of Pension Economics and Finance*. https://doi.org/10.1017/S1474747215000232

Mainal, S. A., Ho, C. S. F., & Yusof, J. M. (2017). Household Behavior towards Debt in a Challenging Financial Environment in Malaysia. *Journal of Behavioural Studies*, *2*(7), 21–29. https://doi.org/10.21834/ajbes.v2i7.39

Porter, J. Y. (1999). *The Role of Financial Aid Counseling in Students' Understanding of Student Loan Management.* Louisiana State University.

Schicks, J. (2014). Over-Indebtedness in Microfinance – An Empirical Analysis of Related Factors on the Borrower Level. *World Development*, *54*, 301–324. https://doi.org/10.1016/j.worlddev.2013.08.009

Shih, T. Y., & Ke, S. C. (2014). Determinates of financial behavior: Insights into consumer money attitudes and financial literacy. *Service Business*. https://doi.org/10.1007/s11628-013-0194-x

van Ooijen, R., & van Rooij, M. C. J. (2016). Mortgage risks, debt literacy and financial advice. *Journal of Banking and Finance*. https://doi.org/10.1016/j.jbankfin.2016.05.001