A COMPARISON BETWEEN HOUSEHOLD WEALTH ACROSS THE WEALTH SPECTRUM IN SOUTH AFRICA

by

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DECLARATION

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I declare that A COMPARISON BETWEEN HOUSEHOLD WEALTH ACROSS THE WEALTH SPECTRUM IN SOUTH AFRICAN is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

_____ 30 November 2016

SIGNATURE DATE

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ABSTRACT

South African households are concerned with their financial wellness. This is evident through the recent social unrest, violent labour strikes and protest against government policies such as the demand for free higher education. The South African government's redistributive policy to transfer funds from the financially well to the increasing number of financially unwell households are narrowing as the financially well households are declining in proportion to the total households. It is palpable that the situation is critical and decisive intervention is needed from the South African government, the private sector and labour unions.

The main objective of this study was to investigate the main differences between households on the bottom end of the wealth spectrum compared to those on the top end in order to identify differentiating characteristics of the various groups in order to suggest targeted policy recommendations for the South African government to improve stability and increase the number of financially well households.

In order to achieve this objective, the study was done in two phases. Phase 1 consisted of a traditional literature review where the balance sheet composition and characteristics across disaggregated households on a local and international level was examined. The purpose of phase 1 was to gain insight into the trends and characteristics of different categories of households internationally and in South Africa. Phase 2 consisted of secondary data analysis which was performed in three sub-phases. In sub-phase 2.1 the household balance sheet was used to determine the per asset and liability class contribution to total assets and liabilities for each of the disaggregated financial wellness categories. Each asset and liability class component was ranked according to its contribution percentage within each of the financial wellness categories. The outcome of the ranking highlighted differences in the asset and liability classes' contribution to total assets within each financial wellness grouping. Sub-phase 2.2 evaluated the optimality of the household balance sheet composition of a financial wellness category in relation to the next financial wellness category by making use of game theory. The last sub-phase (2.3)

examined possible reasons, through correlation, for the sub-optimality found in phase 2.2.

The results of the study indicated differences in each financial wellness category asset and liability compositions in the household balance sheet. Age, gender and number of household members did not affect household wealth in this study. In contrast, income level, employment status, home ownership, education and marital status affected household wealth. Game theory indicated that the highest financial wellness category (Anchored Well) did not have the strongest balance sheet. Possible reasons were identified as the composition of financial assets.

Keywords:

- Financial Wellness
- Wealth
- Balance sheet
- Assets
- Liabilities
- Household
- Game theory
- South Africa

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LIST OF ACRONYMS AND ABBREVIATIONS

A$	Australian Dollar
ABS	Australian Bureau of Statistics
BMR	Bureau for Market Research
CATI	Computer-aided telephone interviews
Conceptual Framework	Conceptual Framework for Financial Reporting
ECB	European Central Bank & Eurosystem
EFF	Spanish survey of Household Finances
GDP	Gross domestic product
IASB	International Accounting Standards Board
ICW Framework	Framework for Statistics on the Distribution of Household Income, Consumption and Wealth
IFRS	International Financial Reporting Standards
LSM	Living Standards Measure
NIDS	National Income Dynamics Study
OECD	Organisation for Economic Co-operation and Development
PFRU	Personal Finance Research Unit
R	South African Rand
$	United States Dollar
SAARF	South African Audience Research Foundation
SARB	South African Reserve Bank
SCF	Survey of Consumer Finances
SCF Turkey	Survey of Consumer Finances in Turkey
Stats SA	Statistics South Africa
TL	Turkish Lira
UK	United Kingdom
USA	United States of America
WAS	Wealth and Assets survey

CHAPTER 1
INTRODUCTION

"The starting point of all achievement is desire"

– Napoleon Hill (Brainyquote.com, 2016)

1.1 BACKGROUND TO THE RESEARCH PROBLEM

According to the Momentum/Unisa Household Financial Wellness Index of 2012 (2012:8), only 26.4% of households in South Africa are content with their financial wellness. Financial wellness is represented by a household's "quality of life" and "a sense of personal wellness" (Unisa & Momentum, 2011:2). In the context of this study, a household refers to an economic unit consisting of a single person, or people living together in the same private dwelling where expenditures are shared (Personal Finance Research Unit, 2012:4; Australian Bureau of Statistics [ABS], 2013:77).

Households are dissatisfied with their circumstances. This is evidenced by the numerous labour strikes, public demonstrations (against sub-standard infrastructure and municipal service delivery), and the objection against the Gauteng e-tolling system (Unisa & Momentum, 2014:3). Government's redistributive policy where funds are transferred from the financially well to the increasing number of financially unwell households are failing because the financially well households are declining in proportion to the total households (Unisa & Momentum, 2012:8). It is therefore evident that the current financial wellness situation of households in South Africa deserves critical attention. Decisive intervention is needed from government, the private sector and labour unions to convert the number of the financially unwell households to financially well households.

In an attempt to assist households to improve their financial wellness, one initiative proposed by the government in the 2012 Budget speech to encourage savings by South Africans, was by proposing tax-preferred savings and investment accounts as alternatives to current tax-free interest income caps (SARS Tax proposals Budget, 2012:5). Aggregated annual contributions was limited to R30 000 per year per

taxpayer at the time, with a lifetime limit of R500 000, to ensure that high net-worth individuals do not benefit disproportionally (SARS Tax proposals Budget, 2012:5). The design and costs will be regulated to help lower income earners to participate in tax saving accounts (SARS Tax proposals Budget 2012:5). The question remains if the tax proposals by Budget 2012 were enough to transform and assist the financially unwell household categories in their journey to financial wellness.

The Organisation for Economic Co-operation and Development (OECD) (2011:4) states that there are concerns that standard macro-economic statistics, such as *gross domestic product* (GDP), which is used as proxies to measure well-being, failed to give a true account of current and future living conditions. After the financial crisis of 2011 it is widely recognised that the GDP provide only a partial perspective on the broad range of factors that matters in people's lives (OECD, 2011:4).

In order to identify which factors matter in people's lives, the OECD led and participated in the international reflection on measuring well-being and societal progress and the first World forum on "Statistics, knowledge and policies" which was held in 2004. Two additional forums were held during 2007 and 2009 to discuss the issues further. Due to this and other efforts within the international community, measuring well-being and progress is now at the forefront of national and international statistical and political agendas (OECD, 2011:14).

In 2011, the OECD launched the OECD Better Life Initiative and published the document "*How's life, measuring well-being",* which is the first attempt at an international level to go beyond the conceptual stage and to present a large set of comparable well-being indicators for OECD countries and other major economies. This document is a response to the needs of citizens for better information on well-being and to give a more accurate picture about societal progress to policy makers. Individual well-being is broken down in two groups, namely Quality of life and Material living conditions (OECD, 2011:9). The quality of life group consists of health status; work and life balance; education and skills; social connections; civic engagement and governance; environmental quality; personal security; and subjective well-being. The material living condition group consists of income and wealth; jobs and earnings; and housing.

In focusing on Material living conditions, especially on income and wealth, in 2013 the OECD developed an internationally agreed framework to support the joint analysis of micro level statistics on household income, consumption and wealth, called the "*OECD Framework for statistics on the distribution of household income, consumption and wealth"* (ICW framework) (OECD, 2013a:3). The aim of the framework is to extend existing international guidance for measuring household income, consumption and wealth and to provide a new focus on income, consumption and wealth as three separate but interrelated dimensions of people's economic well-being (OECD, 2013:3).

South Africa was not part of this OECD task group, but two collaborative studies were conducted by Momentum and UNISA in 2011 and 2012. The 2011 was referred to as the Momentum/Unisa Household Financial Wellness Index of 2011 (Wave 1) and the 2012 study the Momentum/Unisa Household Financial Wellness Index of 2012 (Wave 2). These two studies incorporate several of the second group of OECD indicators, focusing predominantly on income and wealth. According to the holistic financial wellness approach developed by the Unisa team (PFRU, 2012:1), households possess five types of capital which can be measured to determine the level of their financial wellness. They are:

- Physical capital (Income and Expenditure)
- Asset capital (Assets, Liabilities, Net Wealth)
- Human capital (Education, Skills)
- Environmental capital (Dwelling type)
- Social capital (Personal empowerment)

Momentum and Unisa utilised the above holistic approach when calculating the Momentum/Unisa South African Household Financial Wellness Index in 2011 (Wave 1) and 2012 (Wave 2) (PFRU, 2012:1; Unisa & Momentum, 2011:2). It is important to note that each type of capital is not mutually exclusive from the other types of capital. Each type of capital is inextricably linked to each of the other types of capital and, as such, they influence each other's performances. Following the measurement of each household's level of financial wellness, they are categorised in four groups, namely the Anchored Unwell, the Drifting Unwell, the Drifting Well, and the Anchored Well

(Unisa & Momentum, 2011:7). The following provides a short description of each category of financial wellness (Unisa & Momentum, 2011:7):

- Anchored Unwell: Household is deeply rooted in a financially unwell position. Major outside assistance is required for improvement.

- Drifting Unwell: Household is not entrenched in a financially unwell position, but its financial position is very unstable. Adverse/positive circumstances can change its position to Anchored Unwell/Drifting Well.

- Drifting Well: As is the case with the Drifting Unwell, the household's situation is unstable. It can easily become Drifting Unwell, but may also move toward the Anchored Well position with assistance.

- Anchored Well: The household is financially well. However, adverse circumstances may alter this situation.

In the Momentum/Unisa Household Financial Wellness Index released in 2013, it was found that the South African household sector remained in the Drifting Well category during 2012, but moved closer to the Drifting Unwell category. In essence it means that on average the South African household's financial wellness remained unstable. In comparison to the Momentum/Unisa Household Financial Wellness Index of 2011, more households are Anchored Unwell (5.6% vs 4.5%) and fewer are Anchored Well (26.4% vs 27.2%).

Against this background, the focus of this study was to conduct a quantitative comparative study making use of secondary data analysis to compare the differences between households on the bottom end of the wealth spectrum with those on the top end. First, an international comparison of previous household wealth studies as reflected in household balance sheets was conducted to examine the trends and characteristics of different categories of households. It is important to note however, that the term 'balance sheet' has now been replaced with the 'Statement of Financial Position in Accounting Sciences', but in the field of

household finances, the term ‘balance sheet’ is still used extensively and will be used for the purposes of this study. Second, game theory was used to determine the optimality of the South African household balance sheet composition. Game theory is a mathematical approach to real-life situations that involves two or more decision makers, where each decision maker has a number of different actions available and the ultimate outcome depends on both decision makers’ actions (Rosenthal, 2011:3). Finally, correlation was used to examine the reasons why the current South African household balance sheets across disaggregated households’ locally are not optimal.

The balance sheet was used as the measurement instrument of wealth. The reason is that the balance sheet measures the financial position of a household at a specific date or a specific point in time in terms of assets, liabilities and wealth (Keown, 2014:37; Botha, Rossini, Geach, Goodall, Du Preez & Rabenowitz, 2013:1026). The study concludes with recommendations to improve South African households’ financial wellness.

1.2 PROBLEM STATEMENT

Forty eight percent (48%) of South Africans are living below the poverty line (National Planning Commission, 2011). To complicate matters, a skew wealth distribution is evidenced due to the fact that 84% of total wealth is held by 10% of the South African population (Daniels, Finn & Musundwa, 2014:43). This trend is also demonstrated in international balance sheet studies, where a small percentage of the population is holding more than 80% of wealth (ABS, 2013:6; European Central Bank & Eurosystem [ECB], 2013:72; Chamberlain, 2015b:7; Board of Governers of the Federal Reserve System [FRS], 2013; Banco de España [España], 2014; Yilmazer, 2010). Unfavourable macroeconomic indicators, such as slow economic growth, increasing consumer inflation and increasing unemployment rates, make it hard for households to become or stay economically stable. These factors negatively affect household’s income earning capability; the ability to finance expenses; the ability to accumulate wealth and improve their dwellings; as well as prospects to better their education or skills (Unisa & Momentum, 2012:3).

The South African government redistributive policy to transfer funds from the top wealth households to the increasing number of bottom wealth households are narrowing as the top households are declining in proportion to the bottom households. Therefore, the solution implemented by the South African government will not be sustainable in future (Unisa & Momentum, 2012:8). It is therefore necessary to seek alternative solutions. This study seeks to compare the main differences between households on the bottom end of the wealth spectrum with those on the top end in order to propose recommendations for policy-makers to improve South African households' financial wellness.

1.3 RESEARCH QUESTIONS

Based on the problem statement, the following central research question was asked:

What are the main differences between South African households on the bottom end of the wealth spectrum compared to those on the top end?

In order to answer the central research question, one theoretical and three empirical questions were formulated. A theoretical question is a question about the meaning of scientific concepts, questions about trends or about competing theories (Babbie & Mouton, 2001:75). Babbie and Mouton (2001:75) define an empirical question as a question which addresses a real-life problem.

Sub-question 1 (Theoretical question):

What is the balance sheet composition and characteristics across disaggregated households, internationally and in South Africa? (Literature review and ranking exercise – Chapter 2)

Sub-question 2 (Empirical question):

Is the household balance sheet composition across disaggregated households optimal in South Africa? (Game theory – Chapter 4)

Sub-question 3 (Empirical question):

If the household balance sheets across disaggregated households in South Africa are not optimal, what are the reasons for the sub optimality? (Correlation analysis – Chapter 4)

Sub-question 4 (Empirical question):

What policy recommendations can be implemented by the South African government to improve stability and increase the number of financially well households? (Conclusion – Chapter 5)

1.4 PURPOSE AND OBJECTIVES OF THE STUDY

The overall purpose of this study was to investigate the main differences between households on the bottom end of the wealth spectrum compared to those on the top end in order to propose policy recommendations for the South African government to improve stability and increase the number of financially well households.

Four sub-objectives were formulated in order to meet the main objective.

- The first sub-objective was to examine the balance sheet composition and characteristics across disaggregated households on a local and international level.

- The second sub-objective was to determine if the household balance sheet composition across disaggregated households in South Africa is optimal.

- The third sub-objective was to examine possible reasons for the sub optimality if the household balance sheets across disaggregated households in South Africa were not optimal.

- The fourth sub-objective was to propose policy recommendations for the South African government to improve stability and increase the number of financially well households.

1.5 SIGNIFICANT CONTRIBUTION

There is currently limited research on the topic of financial wellness in South Africa. This is evidenced by a ProQuest search that was done on 26 October 2016. The key words used for the search included “Household wealth”, “Financial Wellness”, and “South Africa”; only one hit was found. Consequently, this study aimed to bridge the identified lack of theoretical knowledge about the distribution of wealth over the wealth spectrum, both locally and internationally in the field of personal finance. The researcher envisions that the results of the comparison of South African households with their international counterparts will extend insight about financial wellness trends and characteristics of households on a local and international level.

The use of game theory represents an innovative way to investigate real-life situations that involves two or more decision makers, with a number of different actions available for each decision maker. The ultimate outcome of the game depends on both decision makers’ actions (Anderson, Sweeney, Williams, Camm & Martin, 2013:166). It is envisioned that if policy makers know what actions would benefit the players (households), it will assist the policy makers to draw up policies that would enhance households’ financial wellness.

The OECD (2013a:13) states that the design of social and economic policies benefit considerably from distributional data on economic resources among disaggregated households. This data highlights the income circumstances, consumption patterns, and asset and liability distribution of the disaggregated households (OECD, 2013a:13). The distribution of each type of economic resource is analysed in isolation, with each category considered as a separate representative of household economic well-being. These distributions enable analysts to obtain additional insight into the economic well-being of the population, such as identifying households who may be at risk of poverty or economic distress (OECD, 2013a:13). Therefore, the third envisioned contribution was to enable policymakers to develop policies and programmes that target households in need. These policies hold the promise of improving the economic well-being of households and better outcomes of social concerns.

1.6 DEFINITION OF KEY TERMS

For the purposes of this study, 'financial wellness' is the key term. Secondary terms include 'well-being', 'wealth', 'household', 'balance sheet', 'assets' and 'liabilities'. These terms are discussed next.

1.6.1 Financial wellness

Joo (1998:12) conceptualises financial wellness as the satisfaction with material and non-material aspects of one's financial situation; perception of financial stability, including adequacy of financial resources; and the objective amount of material and non-material financial resources that each individual possesses. Kahler (2010:3) defines financial wellness as a balanced integration of financial, emotional and physical health; therefore, it comprises of having adequate cash flow, sufficient assets, the absence of illness and the presence of emotional well-being. The Momentum Unisa Household Financial Wellness Index (Unisa & Momentum, 2011:2) follows a holistic approach where household financial wellness is characterised by a high quality of life and a sense of personal wellness. For this study, the Momentum Unisa Household Financial Wellness Index definition is used.

1.6.2 Well-being

The Organisation for Economic Co-operation and Development (OECD) (2011:18) states that well-being is challenging to define. However, experts around the world agree that well-being requires meeting various human needs. Essential needs include the ability to pursue one's goals and to thrive and feel satisfied with one's life. The OECD (2011:19) identifies three pillars for understanding an individual's well-being. According to the OECD (OECD, 2013a:27) these pillars are:

- *material living conditions (also called economic well-being), which determines the consumption possibilities and command over resources;*

- *quality of life, which is a set of non-monetary attributes that shape the individual's opportunities and life changes which has an intrinsic value under different cultures and contexts; and*

- *the sustainability of socio-economic and natural systems where individuals live and work and which is important for well-being to last over time. Sustainability depends on how current human activities impact on stocks of different types of capital (natural, economic, human and social) that underpin well-being.*

This study will focus on economic well-being and economic capital defined in the next section. However, it is important to understand that economic well-being and economic capital are only elements of an individual's well-being (OECD, 2011:19).

1.6.3 Economic well-being

The OECD (OECD, 2013a:27) defines economic well-being as material living conditions which determine peoples' consumption possibilities and their command over resources. The OECD (2011:19) further states that economic well-being consists of income and wealth; jobs and earnings; and housing. In this study the focus is on wealth.

1.6.4 Wealth

Wealth, also known as "net wealth" or "net worth", is the value of all assets owned by a household less the value of all the household's liabilities owed by the household (ABS, 2013:4; Chamberlain, 2015b:3; Daniels, *et al.* 2014:32; Bricker, Dettling, Henriques, Hsu, Moore, Sabelhaus, Thomson & Windle, 2014:8; ECB, 2013:107; OECD, 2013b:41).

1.6.5 Household

The Personal Finance Research Unit (2012:4) and the ABS (2013:77) define a household as an economic unit consisting of a person living alone; or a group of

people living together in the same private dwelling where expenditures (including the joint provision of the essentials of living) are shared.

1.6.6 Balance sheet (also referred to as statement of financial position)

Keown (2014:37) and Botha, *et al.* (2013:1026) describe a balance sheet (also known as a statement of financial position) as a statement that measures the financial position of a household at a specific date or a specific point in time. The balance sheet is used in this study as the measurement instrument of wealth.

Optimal is defined as the best or most favourable (Oxford Dictionary, 2015:428). In this study, an optimal balance sheet is therefore the best or most favourable balance sheet. The optimality in this study is calculated in section 3.4.2.5(b) by making use of game theory.

1.6.7 Assets

The Framework for Statistics on the Distribution of Household Income, Consumption and Wealth (ICW framework) (OECD, 2013a:123) defines an asset as “a store of value represented by a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time”. Similarly the International Financial Reporting Standards (IFRS), as published by the International Accounting Standards Board (IASB) (2014b:A33), defines an asset through the Conceptual Framework for Financial Reporting (Conceptual framework) as “a resource controlled by the entity as a result of past events and from which economic benefits are expected to flow to the entity”. For this study it was important to expand assets into its sub-categories. This enabled the researcher to identify the differences in asset holdings between the disaggregated groups of the disaggregated household balance sheets. Table 2.1 (Section 2.3) provides the expansion of assets that was used in previous balance sheet studies done by the South African Reserve Bank (Aron, Muellbauer & Prinsloo, 2006), ICW framework (OECD, 2013b:13), and the micro level framework developed by Scheepers (2014).

1.6.8 Liabilities

The ICW framework interprets loan liabilities as obligations that are created when a creditor lends funds directly to a debtor and the creditor's claims are evidenced by non-negotiable documents (OECD, 2013a:123). The same meaning is given in the IFRS Conceptual Framework (IASB, 2014b:A36-A37), namely that a liability is a present obligation of an entity arising from past events, where the settlement is expected to result in an outflow from the entity of resources embodying economic benefits. It is important to expand liabilities into different sub-categories to enable the researcher to identify the differences in the liability holdings between the disaggregated groups of the disaggregated household balance sheets. Table 2.2 (Section 2.3) provide the liability sub-categories.

1.7 RESEARCH DESIGN AND METHODS

A research design provides the structure for the procedures the researcher follows, the data the researcher collects, and the data analysis the researcher conducts (Leedy & Ormrod, 2015:92). The research methodology refers to the approach the researcher takes in carrying out the research project (Leedy & Ormrod, 2015:92).

1.7.1 Research design

A quantitative research design that was comparative in nature was used to address the problem as identified in Section 1.2. The design followed was quantitative, because the purpose of the research is to identify relationships among two or more variables, and based on the results, confirm or modify existing theories or practices (Leedy & Ormrod, 2015:98). A comparative design was deemed appropriate. A comparative design focusses on the similarities and differences between groups of units (Mouton, 2005:104), which is also the focus of this study. Therefore, a quantitative comparative research design was adopted. The research design is discussed in more detail in Chapter 3 (Section 3.3).

1.7.2 Research methods

The research design was operationalised through the use of a secondary data analysis strategy. Secondary data analysis is the reworking of already analysed data over which the researcher had no direct control or direct involvement (De Vos, Strydom, Fouche & Delport, 2011:383). The Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) dataset was used. The data set originated from a survey that has been conducted yearly, since 2011 by Momentum and Unisa to measure the South African households' financial situation. The results presented in this study are based on the questions related to the household's assets and liabilities included in the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2). Based on the initial visual inspection of the data fields, it was concluded that the survey would be appropriate and the secondary data could be utilised. The next section provides an overview of the different phases that were implemented to achieve the overall purpose of the research. Each phase was selected to address a specific research question and sub-objective as set out below.

1.7.2.1 Phase 1: Literature review

A traditional literature review was performed in Chapter 2 to examine the balance sheet composition and characteristics across disaggregated households on a local and international level (sub-question 1). This was necessary to gain insight into the trends and characteristics of different categories of households internationally and in South Africa. A traditional literature review is a written appraisal of existing knowledge on a topic (Jesson, Matheson & Lacey, 2011:10). Primary and secondary literature resources were studied to gather information to provide a theoretical overview. As part of the literature review the composition of the household balance sheet as a wealth measurement instrument was discussed. Secondly, the composition of household balance sheets from an aggregate perspective and micro perspective in various developed and developing countries, both locally and internationally, were compared. Finally, the characteristics for differences in the micro perspective balance sheets were examined. Chapter 3 (Section 3.4.1.) offers a more in-depth description of this phase.

1.7.2.2 Phase 2: Secondary data analysis

In this section an outline of phase 2 of the study is provided with reference to the unit of analysis; the secondary data set; sampling; reliability and validity; and secondary data analysis.

a) Unit of analysis

Babbie (2016:534) states that the unit of analysis is the “what” or “whom” being studied. In this study, the unit of analysis is households. Households are defined in Section 1.6.5. Refer to Chapter 3 (Section 3.4.2.1) for a detailed description about the unit of analysis.

b) Secondary data set

As previously mentioned, the secondary data set selected for this study consisted of the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2). This aggregated data set consisted of seven sections. Five sections were purposively selected for use in this study (demographics, environment, household assets, household liabilities and sources of funding), while two sections were excluded (financial behaviour and monthly household expenditure). Refer to Chapter 3 (Section 3.4.2.2) for a detailed description of the secondary data set. The sampling strategy that was employed is addressed next.

c) Sampling strategy

Sampling is the process of selecting units for a study that will be representative of a population so that the researcher can make generalisations about that population (Tucker, 2011:390). There are different sampling strategies in a quantitative study, where the most selected strategy is probability sampling. However, in the context of this study a non-probability sampling technique called ‘purposive sampling’ was used. Purposive sampling is where the sample is selected entirely on the judgement of the researcher, resulting in a sample which is composed of elements that contain the most characteristic, representative or typical attributes of the population that best

serve the purpose of the study (De Vos, *et al.* 2011:232). Based on the balance sheet framework required to populate the composition across various groups of households, it was necessary to determine whether the survey of the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) addressed the various components of the balance sheet as well as several characteristics which were identified to influence the balance sheet composition. This mapping of questions used in this study is reflected in Chapter 3, Table 3.3. Coverage is also achieved as the target population is South African households, the time frame is 2012, and the variables needed are available. Another important finding was that this study used the same definition of a household as the one used in the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2). As a result, the identified five sections of the secondary data set as indicated in Section 1.7.2.2 (b) were deemed to be suitable to achieve the purpose of the study. The sample strategy is discussed further in Chapter 3 (Section 3.4.2.3).

d) Reliability and validity

Secondary data sources may appear relevant but on closer examination it can be found inappropriate to address the research questions or objectives (Saunders, Lewis & Thornhill, 2009:273). Consequently, it is important to evaluate the suitability of the secondary data sources. The secondary data source that was evaluated is the dataset obtained from the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2). The first step in secondary data evaluation is to assess the overall suitability of data to the research questions and objectives (Saunders, *et al.* 2009:273). Once satisfied, the next step is to evaluate the precise suitability of data needed for analysis to answer the research questions and objectives (Saunders, *et al.* 2009:273). The last step of evaluating secondary data sources is to judge whether to use the data based on an assessment of costs and benefits in comparison to alternative sources (Saunders, *et al.* 2009:273). These three steps are discussed in Chapter 3 (Section 3.4.2.4) and it was found that all three requirements were met. The dataset is therefore suitable for this study.

e) Secondary data analysis

The secondary data analysis phase consisted of three sequential sub-phases, as illustrated by Figure 1.1. An outline of these phases is provided in this section. Secondary data in the form of balance sheets of households per financial wellness category was used from the financial wellness database.

- **Sub-phase 2.1: Examine the current balance sheet composition**

The balance sheet drawn up from the secondary data (household balance sheet) was used to determine asset and liability class contribution and ranking. The outcome of the ranking highlighted differences in the asset and liability classes' contribution to total assets within disaggregated households in South Africa. This enabled the researcher to understand the balance sheet composition and characteristics across disaggregated households (sub-question 1). Sub-phase 2.1 is discussed in more detail in Chapter 3 (Section 3.4.2.5 (a)).

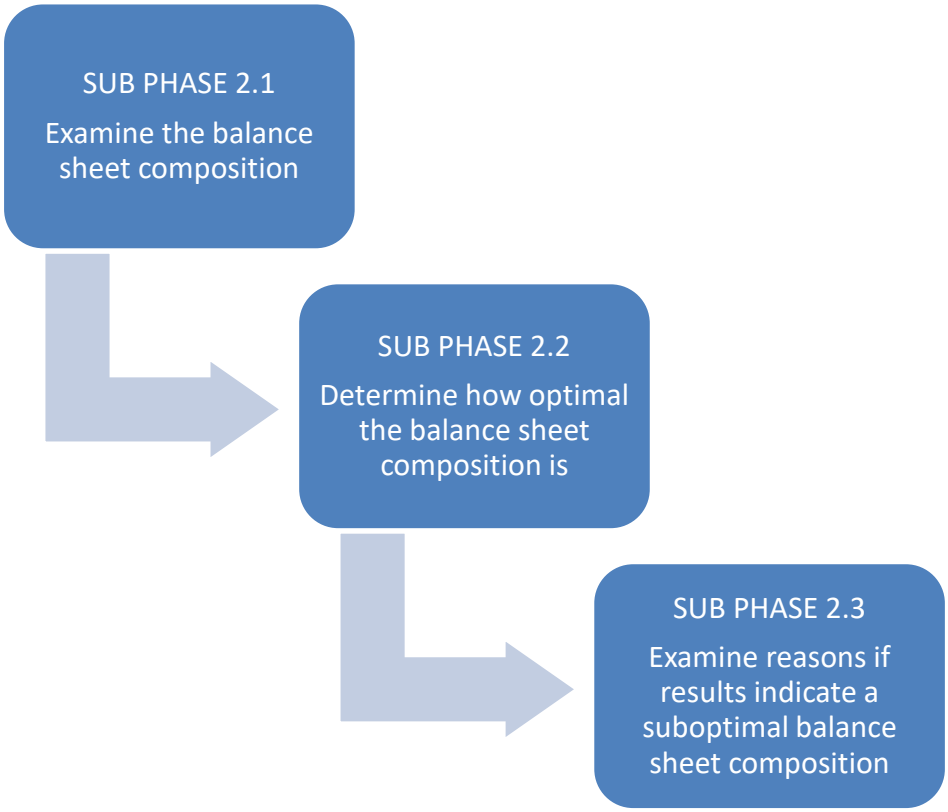


Figure 1.1: Phase 2: Secondary Data analysis phase

Source: Researcher's own compilation

- **Sub-phase 2.2: Determine the optimality of the balance sheet contribution**

The household balance sheet composition per financial wellness category was evaluated in relation to the next financial wellness category by making use of game theory. Sub-phase 2.2 is discussed in more detail in Chapter 3 (Section 3.4.2.5 (b)).

- **Sub-phase 3.3: Examine reasons if the results indicate a suboptimal balance sheet composition**

Correlation analysis was performed to examine possible reasons if any sub-optimality is found in the disaggregated household balance sheets in South Africa (as indicated in sub-phase 2.2). Sub-phase 2.3 is discussed in more detail in Chapter 3 (Section 3.4.2.5 (c)).

Finally, the conclusions on the above sub-questions enabled the researcher to recommend proposed policy interventions which can be implemented by the South African government to improve stability and increase the number of financially well households. The conclusions and policy recommendations are discussed in Chapter 5 (Section 5.3).

1.8 ETHICAL CONSIDERATIONS

Ethical considerations refer to a set of expected behaviours which are required if the researcher is to work within or along a group. A good code of ethics includes honesty, professionalism, and care not to harm others (Remenyi & Bannister, 2013:115). The researcher adhered to the ethical stipulations set out by the University of South Africa's Policy on Research Ethics (2014). In addition, the researcher reflected on the ethical considerations relevant to the usage of secondary research data (Saunders, *et al.* 2009:168). The ethical considerations are described in more detail in Chapter 3.

1.9 LIMITATIONS OF SCOPE

The unit of analysis of this study was secondary data obtained from an omnibus study which is representative of South African households. The limitations of secondary data, according to Saunders, *et al.* (2009:269-272) is:

- The data could have been collected for a specific purpose that differs from the researcher's research question.

- The data may lack a key variable or variables.

- Where data has been collected for commercial reasons, gaining access to the data could be difficult and costly.

- The researcher who makes use of secondary data does not have control over the quality of the data.

1.10 CHAPTER LAYOUT

Chapter 1: Introduction

Chapter 1 provided background information to the research problem; the problem statement; research questions; purpose and significance of the study; significant contribution; definition of key terms; research and design methods; ethical considerations; limitations of scope; and brief chapter overviews.

Chapter 2: Literature review

Chapter 2 firstly discuss the household balance sheet as a wealth measurement tool. Thereafter local and international household balance sheets from an aggregate perspective are compared. Reasons for differences in distribution and composition results are discussed. Thereafter, local and international household balance sheets from a micro perspective are compared. The chapter concludes by highlighting similar characteristics found in specific disaggregated households (lowest, middle and highest) which has an effect on household wealth, which in turn influence the household balance sheet.

Chapter 3: Research methodology

In Chapter 3 the research design and methods, which include a literature review and secondary data analysis, are discussed. Ethical considerations and the limitations of the study are also addressed.

Chapter 4: Data analysis

Chapter 4 focus on the presentation and analysis of the research findings. Ranking, game theory and correlation analysis on the secondary data is conducted, reported and interpreted.

Chapter 5: Conclusion

Chapter 5 concludes the research. Conclusions of research sub-questions one to four are provided. This enables the researcher to provide proposed policy recommendations, which can be implemented by the South African government to improve stability and increase the number of financially well households (sub-question five). The limitations to the study and the recommendations for further research are also considered.

1.11 CLOSING REMARKS

This chapter started with background information to the research problem, followed by the problem statement, in which the research questions were formulated. Next, the purpose and significance of the study was explained along with the significant contribution. The key terms used in this study and on international and local balance sheet studies were provided. Furthermore, the research design and methods were discussed, the ethical considerations were considered and the limitations of scope were provided. The chapter concluded with an overview of the chapter layout.

CHAPTER 2
LITERATURE REVIEW

"Every financial worry you want to banish and financial dream you want to achieve comes from taking tiny steps today that put you on a path towards your goals"
– Suze Orman (Brainyquote.com, 2015.)

2.1 INTRODUCTION

Chapter 1 established the main objective of this study: To investigate the main differences between households on the bottom end of the wealth spectrum compared to those on the top end in order to propose policy recommendations for the South African Government to improve stability and increase the number of financially well households.

The aim of this chapter is to address the following sub-question through a traditional literature review: What is the balance sheet composition and characteristics across disaggregated households internationally and in South Africa (sub-question 1)?

To answer this sub-question the balance sheet components' contribution and ranking for each of the disaggregated groups of the disaggregated household balance sheets were compared (Section 2.5). Then reasons for the differences in household balance sheet compositions (in other words, the characteristics of asset holdings and debt usage) was obtained and compared, based on the ranking and contribution of information obtained (Section 2.5).

The chapter commences with the composition of the household balance sheet as a wealth measurement instrument being described (Section 2.2) in order to conduct the ranking to determine the priority composition (sub-question 1).

The chapter continues with an investigation of the composition of household balance sheets from an aggregate perspective (Section 2.3) in various developed and developing countries. Subsequently, reasons for differences in distributional and compositional results are (Section 2.4) discussed. The chapter concludes with an

investigation of the composition of household balance sheets from a micro perspective (Section 2.5) and potential reasons for differences depicted in these balance sheets. This data is used in section 2.5 to address the first sub-research question as stated in section 1.3.

It is however, important to note that household data is difficult to obtain, especially household balance sheet data (Heath, 2013:4). Consequently, the first criteria in selecting these countries were that institutions in these countries were able to gather household balance sheet data at a disaggregated level, i.e. household survey level. Furthermore, given that these type of surveys are very sensitive to conduct due to the financial information required, are quite expensive, household balance sheet composition data doesn't change significantly over a short period of time and the analyses of the data is very time consuming, these types of surveys are not conducted on an annual basis but are repeated every two to five years, depending on the specific country. The datasets used in this study was the latest available datasets as on 1 November 2016 and ranged from 2012 to 2015, country specific.

Therefore, the main purpose of Chapter 2 was to explore the contribution percentages and ranking for international studies and local studies to gain insight to possible balance sheet composition elements across households. Households were classified according to available information ranging van those at the bottom end of the wealth spectrum to those at the high end of the spectrum. Based on the literature provided, additional potential characteristics of households were explored that could further provide possible reasons for the perceived differences of the household balance sheet compositions of the various clusters of households. It is important to note that the purpose of this exploratory phase was not to determine whether the perceived differences were statistically but purely exploratory of nature to describe potential characteristics for purposes of construction of the heuristic model. The analysis was a synthesis of the limited literature available to construct a possible heuristic framework that would be tested in the remainder of the chapters. The objective was not to provide an opinion on why differences are occurring between these studies. This objective was met as characteristics between these studies were identified.

Before the realised composition of household balance sheets can be discussed in Section 2.3, it is necessary to provide a brief description of the composition of the household balance sheet as a wealth measurement instrument. Therefore, the composition of the household balance sheet as a wealth instrument will be discussed, next.

2.2 THE COMPOSITION OF THE HOUSEHOLD BALANCE SHEET AS A WEALTH MEASUREMENT INSTRUMENT

2.2.1 Introduction

The aim of this section is to discuss how the household balance sheet is compiled to measure wealth for households. Thus, this section identifies and defines the components of the household balance sheet.

2.2.2 Components of the household balance sheet

The household balance sheet is compiled by using sections for assets, liabilities and equity (Keown, 2014:37; Botha, *et al.* 2013:1026; IASB, 2014:A848). In the case of a household balance sheet, ‘equity’ is replaced by the term ‘wealth’, also known as ‘net worth’ (Keown, 2014:37).

Assets and liabilities are defined in Chapter 1 (Section 1.6.7 and 1.6.8). To identify differences in asset and liability holdings between the disaggregated groups of the disaggregated household balance sheets, it is necessary to identify asset and liability components used in previous studies. This is limited to a summary of the macro perspective household balance sheet as prescribed by the System of National Accounts applied by the South African Reserve Bank. The macro perspective is supplemented with more detailed descriptions by the micro level descriptors.

The South African Reserve Bank has provided the only official household balance sheets since 2006 (Aron, *et al.* 2006:61) and is given in the first column of Table 2.1 for assets and Table 2.2 for liabilities. Two micro level frameworks were used in this study. The first is the ICW framework (OECD, 2013b:13), which is an international

framework displayed in the second column of Table 2.1 (Asset Class) and Table 2.2 (Liability Class). The second micro level framework was developed by Scheepers (2014:iv) specifically for South Africa and is displayed in the third column of Table 2.1 (Asset Class) and Table 2.2 (Liability Class).

Table 2.1: Asset components of balance sheet

	MACRO	**MICRO**	
ASSET CLASS	**South African Reserve Bank** (Aron, *et al.* 2006)	**ICW Framework – Generic** (OECD, 2013)	**Developing a statement of financial position model for the South African household sector – Country specific** (Scheepers, 2014)
Non-financial assets			
Residential buildings	• Capital stock at constant prices calculated according to the perpetual inventory method (PIM) inflated by an average house price index. Land value is a ratio of the housing value.	• Market value of principle residence, other owner-occupied dwellings and other real estate.	• Market value of residential property and other properties.
Other non-financial assets	• Non-residential buildings and non-residential land estimated indirectly from the capital stock at constant prices adjusted with indexes derived from the Economic Activity Surveys (EAS). Land value is derived indirectly as a ratio of the value of non-	• Market value of cars, motor cycles, boats, aircraft, content, valuables, intellectual property and other non-financial assets.	• Market value of boats, planes, content, collectibles and valuables, vehicles, net business and trust assets.

	MACRO	MICRO	
ASSET CLASS	**South African Reserve Bank** (Aron, *et al.* 2006)	**ICW Framework – Generic** (OECD, 2013)	**Developing a statement of financial position model for the South African household sector – Country specific** (Scheepers, 2014)
	residential buildings. • Construction works, machinery and equipment, computer equipment, transport equipment and orchards. • Inventories of the total industry at their carrying amount.		
Financial assets			
Assets with monetary institutions	• Deposits with banks and mutual banks, the Land and Agricultural Bank, Postbank and the value of notes and coins held by households. The value of notes and coins is the difference between the total value of notes and coins issued by banks minus those held by banks.	• The values of currency and claims (transaction accounts, saving accounts and fixed term deposits).	• The values of cheque accounts, mzansi accounts, savings accounts, money market investments, fixed deposits, investments in stokvels and unbanked cash.

	MACRO	MICRO	
ASSET CLASS	**South African Reserve Bank** (Aron, *et al.* 2006)	**ICW Framework – Generic** (OECD, 2013)	**Developing a statement of financial position model for the South African household sector – Country specific** (Scheepers, 2014)
Interest in pension funds and long-term insurers	• The investment in official (Department of Finance, Transnet, Telkom and the Post Office) and private self-administered pension and provident funds. • The investment in long-term insurance.	• The values of mutual investment funds, life insurance funds and pension funds.	• The values of pension fund assets, funeral policies, specific needs policies, education policies, burial society policies.
Other financial assets	• Investment in government and public entities stock.	• The values of bonds and debt securities, equity in own unincorporated enterprises, shares in corporations and other financial assets.	• Collective investment values, retail savings bonds, listed and unlisted share values, employee share scheme values, loan accounts in businesses and trusts, debtors, offshore assets/investments and other financial assets.

Table 2.2: Liability components of balance sheet

	MACRO	MICRO	
LIABILITY CLASS	**South African Reserve Bank** (Aron, *et al.* 2006)	**ICW Framework – Generic** (OECD, 2013)	**Developing a statement of for the South African household sector – Country specific** (Scheepers, 2014)
Mortgage advances	• Consists of the loan financing from the commercial banking sector.	• The value of principle residence, other owner-occupied and other real estate loans.	• Mortgage values for residential and other properties.
Other debt	• Trade credit (open account credit). Includes retail debt and amounts owning to buy-aid institutions. • Personal bank loans include overdraft facilities and other advances granted. • Credit card debt. • Instalment sales and lease agreements. The commitments of hire purchase agreements and financial lease agreements are included. • Other personal loans include loans granted by long-term insurers. • Non-bank loans	• The value of financial asset loans, valuable loans, intellectual property loans, vehicle loans, other consumer durable loans and education loans.	• Debt on vehicles, boats, planes, household content, bank overdrafts, credit cards, store cards, petrol cards, student loans, personal loans, cash loans, employer loans, loans from individuals, hire purchases, cell phone contracts and other loans as well as the following households bills payable: municipal accounts, airtime, arrear rent, alimony, school fees, television, medical expenses and other bills

	MACRO	MICRO	
LIABILITY CLASS	**South African Reserve Bank** (Aron, *et al.* 2006)	**ICW Framework – Generic** (OECD, 2013)	**Developing a statement of for the South African household sector – Country specific** (Scheepers, 2014)
	consist mainly of credit granted by micro-lenders.		

2.2.3 Concluding remarks

In Table 2.1 and Table 2.2 the components of assets and liabilities were listed and described by comparing the South African Reserve Bank's household balance sheet, the ICW framework and Scheepers' household balance sheet. The South African Reserve Bank (Aron, *et al.* 2006) focusses on a macro perspective while the ICW framework (OECD, 2013a) and Scheepers (2014) focus on a micro perspective. As this study is done in South Africa and the focus is also on a micro perspective, Scheepers' (2014) composition of the household balance sheet for the South African household sector is followed. However, due to data quality on individual items, the level of discussion will be limited to the main asset and liability types as used by both Scheepers (2014) and the Reserve Bank (2006). Based on the stated reason, the household balance sheet that will be used throughout the rest of this study is displayed in Table 2.3.

Table 2.3: Household balance sheet

ASSETS	**Rand**
Residential property	Xxx
Other non-financial assets	Xxx
Financial Assets	Xxx
Interest in pension funds and long term insurers	Xxx
Assets with Monetary institutions	Xxx
Other financial assets	Xxx
TOTAL ASSETS	**Xxx**

LIABILITIES	
Mortgage advances	Xxx
Other debt	Xxx
TOTAL LIABILITIES	**Xxx**
TOTAL EQUITY / WEALTH	

Source: Researcher's own compilation

It should be noted that financial assets are broken down into three categories: (i) interest in pension funds and long term insurers; (ii) assets with monetary institutions; and (iii) other financial assets. One of the reasons for the breakdown is that financial assets held by households carry different risk levels which in turn may affect household wealth (OECD, 2016). Another reason is that financial assets are the main asset class for many households but ownership of the various components differentiate among different groups (OECD, 2016). Subsequently, reasons for differences in distributional and compositional results are discussed (Section 2.4).

2.3 A COMPARISON OF THE COMPOSITION OF HOUSEHOLD BALANCE SHEETS FROM AN AGGREGRATED PERSPECTIVE

2.3.1 Introduction

As stated in the introduction, this section aims to investigate the differences of the composition of household balance sheets and potential reasons for differences depicted in balance sheet studies. Based on the balance sheet as illustrated in Table 2.3, household balance sheets from various developed and developing countries are discussed on an aggregate level (the macro perspective), based on the household balance sheets collectively for all the households in the specific country in this section.

The purpose of drawing up the balance sheet on an aggregate level is to enable the researcher to compare balance sheets between specific countries. Another reason is to identify which distribution group's balance sheet (Section 2.5) represents the national balance sheet.

Wealth studies discussed in the following section were performed in Australia, Europe, Great Britain, South Africa, Spain, Turkey and the United States of America (USA). It is important to note that household data is difficult to obtain, especially household balance sheet data (Heath, 2013:4). Consequently, the first criteria in selecting these countries were that institutions in these countries were able to gather household balance sheet data. Australia, Europe, the United Kingdom and the United States of America were selected because they have a long history in gathering household balance sheet data and compiling household balance sheets. It should be noted that these countries are classified by the World Bank as high income OECD members while South Africa is classified as an upper-middle income economy (World Bank, 2016). This is also the main reason that Turkey was selected because Turkey is in the same World Bank lending group classification as South Africa (the upper-middle income economies).

Spain is classified by the World Bank in one group higher, the high income OECD members, and it will be worthwhile to compare South Africa with Spain, as South Africa is a member of the G20 countries with a well-developed banking system which compares favourably with those of industrialised countries (The Banking Association South Africa, 2016).

To summarise, the aim of the following section is to compare the household balance sheet composition on a national level across the various countries. To understand the composition of the household balance sheet in the various countries, the aggregate level balance sheet is presented with a ranking and contribution percentage per balance sheet item. Asset classes' contribution percentage is calculated as a contribution percentage of total assets; and the liability classes as a percentage of total liabilities. Each asset and liability class component is ranked according to its contribution percentage. The outcome of the ranking highlights differences in the asset and liability classes' contribution to total assets and liabilities. This is done to understand the contribution composition of the balance sheet on a national level. The aggregate level balance for the various countries is compiled from sources as displayed in Table 2.4:

Table 2.4: Sources of household balance sheets

Australia	The Australian Bureau of Statistics (ABS) presents estimates of assets, liabilities, net worth and other characteristics of households and persons living in private dwellings in Australia. The data is obtained and compiled from the 2011/2012 survey of Income and Housing and it includes estimates of the distribution of wealth across the population of Australia (ABS, 2013:4).
Europe	The Eurosystem Household Finance and Consumption survey (HFCS) was conducted in 2010, and is a joint product of all of the central banks of the Eurosystem (ECB) and three National statistical institutes. The HFCS covered 15 euro areas for a sample of 62 000 households. The areas covered were Belgium, Germany, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland. This survey provides detailed house-level data on various aspects of household balance sheets and related economic and demographic variables (ECB, 2013:4).
Great Britain	The Wealth and Assets Survey (WAS) was conducted for the period July 2012 till June 2014 and achieved a sample size of 20 247 households (Chamberlain, 2015a:2).
United States of America	The Survey of Consumer Finances (SCF) is a triennial survey conducted by the Federal Reserve Board. The SCF collects information on family incomes, net worth, balance sheet components, credit use and other financial outcomes of households in the United States of America (Bricker, *et al.* 2014:1).
Spain	The Spanish survey of Household Finances (EFF) is a survey conducted by Banco de España that collects information about income, assets, debts and consumption at household level. The fourth edition of the EFF (EFF2011) refers to December 2011. Data were collected from the first quarter of 2009 to the end quarter of 2011. The EFF sample represents 6 106 households across Spain (Bover, *et al.* 2014).
Turkey	In 2008 Adaman, Kaytaz and Yilmazer, conducted the survey of Consumer Finances in Turkey (SCF Turkey). The reason for this survey was that household data on assets and liabilities is limited and calculations of household assets are based on aggregated figures and macro level data (Yilmazer, 2010:1). The SCF Turkey is a comprehensive household-level survey of 4 432 households which includes detailed information on assets; liabilities; income; attitudes towards saving and borrowing; and other financial characteristics of households in Turkey (Yilmazer, 2010:4). Data were collected from October 2007 till January 2008.
South Africa	The South African Reserve Bank has provided the only official household balance sheets since 2006 (Aron, *et al.* 2006:61). The balance sheet used is the 2015 household balance sheet.

Source: Researcher's own compilation

The results of the contribution ranking across the various countries are presented in Table 2.5.

2.3.2 Australia

For Australian households, total assets comprise of 58.1% of residential property (see Table 2.5), followed by financial assets of 31.8% and other non-financial assets, which are only 9.8% of total assets. Household liabilities consist predominantly of mortgages (89.8%), with other debt contributing only 10.2% to total liabilities.

Households owning residential property are 67.4% (ABS, 2013:20) while fewer than 20% of households own property other than the dwelling they live in. This includes residential and non-residential property for rent and holiday homes (ABS, 2013:4). The value of these properties accounted for 15% of the total property assets (part of residential property in Table 2.5). Vehicles (part of other non-financial assets in Table 2.5) are owned by 90.8% of households in Australia (ABS, 2013:20).

Furthermore, the ABS (2013:4) expresses the superannuation funds balances as the largest financial asset (part of financial assets in Table 2.5) held by households, and that 80% of households had some superannuation assets. A superannuation asset is a long term savings arrangement which operates primarily to provide income for retirement (ABS, 2013:81).

However, a relative small number of households have high superannuation balances in contrast with a large number of households with zero or low superannuation balances.

Lastly stated on the composition of assets is that the values of unincorporated and incorporated businesses (part of financial assets in Table 2.5) are measured on the net basis (value of assets less value of liabilities), and that the net value of incorporated businesses is 10.1%, and unincorporated businesses is 7.6% of total assets (ABS, 2013:5, 18).

Table 2.5: Household balance sheet on a national level

	Australia		Europe		Great Britain		USA		Spain		Turkey		South Africa	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	58.1%	1	82.1%	1	40.5%	2	33.6%	2	81.3%	1	83.6%	1	21.0%	2
Other non-financial assets	9.8%	3	4.3%	3	9.4%	3	3.0%	3	7.1%	3	4.9[1%]	3	14.1%	3
Financial Assets	31.8%	2	13.6%	2	50,1%	1	63.4%	1	11.6%	2	11.5%	2	64.9%	1
TOTAL ASSETS	**100%**		**100%**		**100%**		**100%**		**100%**		**100%**		**100%**	
LIABILITIES														
Mortgage advances	89.8%	1	90.4%	1	91.3%	1	85.5%	1	89.7%	1	[2]	NA	48.9%	2
Other debt	10.2%	2	9.6%	2	8.7%	2	14.5%	2	10.3%	2	[2]	NA	51.1%	1
TOTAL LIABILITIES	**100%**		**100%**		**100%**		**100%**		**100%**				**100%**	

Source: Researcher's own compilation compiled from ABS (2013), ECB (2013), Chamberlain (2015b), Chamberlain (2015c), Chamberlain 2015e), Board of Governers of the Federal Reserve System [FRS] (2013), Banco de España [España] (2014), Yilmazer (2010), South African Reserve Bank (2016).

1 Financial assets excludes pension funds

2 The SCF Turkey has information on liabilities but this is not sufficient to provide a break-down in liabilities between mortgage advances and other debt

On the liability side, the ABS (2013:5) finds loans on owner-occupied dwellings to be the largest household liability, accounting for 57% of average household liabilities while loans outstanding for other property was 36% (both loans are part of mortgage advances in Table 2.5).

2.3.3 Europe

The ranking of assets in Europe is the same as the Australian ranking where residential property is ranked first, financial assets second and other non-financial assets third. On the liability side the ranking is also the same, where mortgage advances are ranked first and other debt second. But the contribution percentages differ.

Total assets of Europe comprises of 82.1% (58.1% in Australia) of residential property (see Table 2.5) followed by financial assets of 13.6% (31.8% in Australia) and other non-financial assets at 4.3% (9.8% in Australia). Household liabilities in Europe consist of mortgages of 90.4% (89.8% in Australia) with other debt contributing only 9.6% (10.2% in Australia) of total liabilities.

The composition of assets is driven by participation rates (ownership rates) and the value of the assets that a household holds (ECB, 2013:31). The ECB (2013:22) divides household assets between real assets (residential property plus other non-financial assets) and financial assets. Most real assets held by households in Europe are residential property (60.1% ownership) and vehicles (75.7% ownership). Residential property ownership is slightly below the Australian ownership rate of 67.4%, but vehicle ownership of Europe is more than 15% below that of Australian households.

The lesser held assets in Europe are valuables (44.4% ownership), other real estate property (23.1% ownership) and self-employed businesses (11.1% ownership) (ECB, 2013:22). In comparison with Australia, European households own slightly more other real estate property (Australia 19.9%) but less self-employed businesses (Australia 17.7%).

Financial assets (with the exception of transactional accounts) are the result of pure portfolio allocation decisions (ECB, 2013:35). Different financial assets also have different risk profiles, and transaction costs, and some are more widely known by the broader public (ECB, 2013:35). The ECB (2013:35) distinguishes between three types of financial assets, namely deposits; bonds, shares and mutual funds; voluntary private pension plans; and whole life insurance. Deposits are held by 96.4% of euro area households (ECB, 2013:38). Between 5% and 12% of euro area households own bonds, publicly traded shares or mutual funds (ECB, 2013:41). The participation in the stock market is clearly below what economic theory suggests, namely that all households with a positive net worth should hold some publicly traded shares (also called the "stock market participation puzzle") (ECB, 2013:41). Only 33.0% of euro area households own a voluntary private pension plan or whole life insurance policy (ECB, 2013:44).

In Australia, 97% of households own accounts with financial institutions (ABS, 2013:20) which is almost the same as with European households (96.4%). Households in Australia participate more in shares (25.5%) (ABS, 2013:20) than their European counterparts (between 8%-12%). Lastly, Australian households are more active in saving for retirement, evidenced by the participation rate of 80% in superannuation in contrast with European households' participation rate of 33% in voluntary private pension plans or whole life insurance policies.

On the liability side, the ECB (2013:50) reports that more than half of euro area households are not indebted; therefore, only 43.7% participate in the credit market. Households that have mortgage debt are reported to be 23.1% (ECB, 2013:58). This is in contrast with Australia, where 57% of households are reported to have mortgage debt. The bulk of this debt is related to the household residence where only 5.6% (Australia 36%) relates to having a mortgage loan related to other property (ECB, 2013:58). The prevalence of mortgage debt is largely correlated with the ownership of the household's main residence (ECB, 2013:58).

Non-mortgage debt (other debt) can be distinguished between overdraft debt, credit card debt and other non-mortgage debt. These types of debt are common, even

more so than mortgage debt, where 29.3% of all households report having this kind of debt (ECB, 2013:58).

2.3.4 Great Britain

The ranking of households of Great Britain differs from the ranking of Australia and Europe. In Great Britain, financial assets are ranked first (second in Australia and Europe), residential property second (first in Australia and Europe), and other non-financial assets third (the same as Australia and Europe). Liabilities are ranked the same for the above three countries.

Financial assets (see Table 2.5) comprise of 50.1% of total assets (31.8% for Australia; 13.6% for Europe), followed by residential property at 40.5% (58.1% for Australia; 82.1% for Europe) and other non-financial assets the rest at 9.4% (9.8% for Australia; 4.3% for Europe) for households in Great Britain. Household liabilities consist of mortgages of 91.3% (89.8% for Australia; 90.4% for Europe) with other debt contributing only 8.7% (10.2% for Australia; 9.6% for Europe) of total liabilities.

Around 66% of households in Great Britain own their main residence (which is similar to Australia's 67.4% and higher than Europe's 60.1%), which includes households owning it outright (33%) and through a mortgage (34%) (Chamberlain, 2015c:4). The remaining households (34%) rent their main residence (Chamberlain, 2015c:4). Some households (11%) own property other than their main residence which includes buy-to-let properties (4%) and second homes (3%) (Chamberlain, 2015c:4). The ownership of property other than the main residence is higher for households in Australia (20%) and Europe (23.1%).

Other non-financial assets can be broken down into household contents of the main residence, which accounts for over three-quarters of the total at 78%, while the value of vehicles contributes 16%. The rest consists of valuables (4%), household contents of other local properties (2%), and household contents of overseas properties (1%) (Chamberlain, 2015d:17). Every household in Great Britain reports to have household contents, while only 78% report to have vehicles and 12% valuables

(Chamberlain, 2015d:4, 9, 11). Vehicle ownership is similar to Europe (75.7%) but lower than Australia (90.8%).

Chamberlain (2015e:15) calculates financial wealth as the sum of formal financial assets, informal financial assets held by adults, financial assets held by children, and endowment for the purpose of mortgage repayments. Ninety-eight percent of households have formal financial assets (Chamberlain, 2015e:5). This is similar to Australia (97%) and Europe (96.4%). The most common financial asset in Great Britain is the current account which is held by 96% of all households, while 57% percent of households report having a savings account, 48% ISA accounts (tax free savings account), and 23% National Savings Certificates and bonds (Chamberlain, 2015e:5).

Only 8% of households hold informal financial assets valued at over £250, where 5% of households report saving informally and 4% informally lend money to other households (Chamberlain, 2015e:10). Chamberlain (2015e:10) acknowledges that there might be an underestimation of households participating in informal savings due to the £250 limit. The remaining financial assets, Child Trust Funds, were held by 13% and endowment policies by 2% of all households (Chamberlain, 2015e:12, 14).

Total pension wealth consists of current pension wealth (39%); retained pension wealth (12%); and pensions in payment wealth (49%) (Chamberlain, 2015f:31). In the private sector only 35% of adults sixteen and over contribute to a private pension while only 42% of these employees belong to a current occupational pension scheme (Chamberlain, 2015f:1). Eighty-four percent of employees in the public sector belong to a current occupational pension scheme while 24% of households in Great Britain have no private pension wealth (Chamberlain, 2015f:1). This is in contrast with Australia where 80% of households participate in superannuation. European households' participation in pension plans is similar at 33%.

Households who have a mortgage on their main residence is 34% (in contrast with Australia's 57% and similar to Europe's 23.1%), while the percentage of households who have a mortgage on other property is 5% (in contrast with Australia's 36% and

similar to Europe's 5.6%) (Chamberlain, 2015c:4). Forty-six percent of households report having some form of other debt (Chamberlain, 2015e:15). This includes credit and charge cards (23%), overdrafts (16%), formal loans (15%), hire purchases (14%), student loans (5%), mail orders (5%), store accounts (4%), and informal loans (1%) (Chamberlain, 2015e:16).

2.3.5 United States of America

Households of the United States of America (USA) and those of Great Britain's assets are ranked the same. But it differs from the ranking of households of Australia and Europe. In the USA and Great Britain, financial assets are ranked first (second in Australia and Europe), residential property second (first in Australia and Europe), and other non-financial assets third (the same as Australia and Europe). However, liabilities are ranked the same for all of these countries.

For USA households, total assets comprise of 63.4% financial assets (see Table 2.5) (31.8% for Australia; 13.6% for Europe, 50.1% for Great Britain), followed by residential property of 33.6% (58.1% for Australia; 82.1% for Europe; 40.5% of Great Britain), and other non-financial assets only comprising 3% (9.8% for Australia; 4.3% for Europe, 9.4% for Great Britain) of total assets. Household liabilities consist predominantly of mortgages at 85.5% (89.8% for Australia; 90.4% for Europe; 91.3% for Great Britain) with other debt contributing only 14.5% (10.2% for Australia; 9.6% for Europe; 8.7% for Great Britain) to total liabilities.

The SCF reports that 65.2% of households own their primary residence (which is similar to Australia's 67.4%, Great Britain's 66% and Europe's 60.1%). According to the SCF, the mostly held asset is vehicles. More than 86% of households own vehicles (which is similar to Australia's 90.8%; lower than Great Britain's 78% and Europe's 75.7%) (Bricker, *et al.* 2014:17).

Financial asset ownership (excluding business equity) is high at 94.5% at a median value of $21 200 (Bricker, *et al.* 2014:15). The most commonly held financial asset is transaction accounts with an ownership rate of 93.2% (similar to Australia (97%); Europe (96.4%); Great Britain (98%)). The ownership of business equity is 13.3%

(Bricker, *et al.* 2014:16) which is lower than Australia (17.7%) but similar to Europe (11.1%).

Home secured debt is the most common type of debt held by households (42.9%) (Bricker, *et al.* 2014:21), which is higher for households in Australia (57%), but lower for households in Europe (23.1%) and Great Britain (34%). Typical other debt instruments owned by households is instalment loans (47.2% ownership) and credit card balances (38.1% ownership) (Bricker, *et al.* 2014:23).

2.3.6 Spain

For Spain, the ranking of assets is the same as for the households in Australia and Europe, but differs from the households of the USA and Great Britain. In Spain, Australia and Europe, residential property is ranked first (second in USA and Great Britain), financial assets second (first in USA and Great Britain), and other non-financial assets third (the same as Australia, Europe and USA). Liabilities are ranked the same for all of these countries.

The number one ranked asset for Spanish households is residential property at 81.3% (58.1% for Australia; 82.1% for Europe; 40.5% of Great Britain; 33.6% of USA) (see Table 2.5) followed by financial assets at 11.6% (31.8% for Australia; 13.6% for Europe, 50.1% for Great Britain; 63.4% of USA), and other non-financial assets at 7.1% (9.8% for Australia; 4.3% for Europe, 9.4% for Great Britain; 3% for USA). Household liabilities consist predominantly of mortgages at 89.7% (89.8% for Australia; 90.4% for Europe; 91.3% for Great Britain; 85.5% for USA) with other debt contributing only 10.3% (10.2% for Australia; 9.6% for Europe; 8.7% for Great Britain; 14.5% for USA) to total liabilities.

España reports housing as the most important asset held by households due to the high percentage of housing assets to total assets (España, 2014:19). On the financial asset side, bank accounts make up nearly 40.3% of the value in financial assets, followed by pension plans (18,4%), unlisted shares (17.2%), listed shares (9%), investment funds (5.4%), and fixed income securities (1.7%). The percentage of households owning a financial asset is 93.9% for bank accounts (similar to

Australia (97%); Europe (96.4%); Great Britain (98%) and USA (93.2%)), 11% for listed shares (similar to Europe which is between 8%-12%; but lower than Australia at 25.5%), 1.8% of unlisted shares, 2.1% for fixed income securities, 26.5% for pension schemes (lower than Europe (33%), Great Britain (35%) and Australia (80%)), and 11.9% for other financial assets (España, 2014:24,30,31).

The amount outstanding in relation to the purchase of the main residence is 62.5% of household debt, while other real estate property debt is 24.4% (España, 2014:32). On other debt, the most prevalent kind of debt is personal loans which are incurred by 19.3% of all households (España, 2014:37).

2.3.7 Turkey

The ranking of assets in Turkey is the same as for the households in Australia, Europe and Spain, but differs from the households of the USA and Great Britain. In Turkey, Spain, Australia and Europe, residential property is ranked first (second in USA and Great Britain), financial assets second (first in USA and Great Britain), and other non-financial assets third (the same as Australia, Europe and USA). The liability rankings are the same for all of these countries.

For Turkish households, total assets comprise of 83.6% of residential property (see Table 2.5) (58.1% for Australia; 82.1% for Europe; 40.5% of Great Britain; 33.6% of USA; 81.3% for Spain) followed by financial assets of 11.5% (31.8% for Australia; 13.6% for Europe, 50.1% for Great Britain; 63.4% of USA; 11.6% for Spain), and other non-financial assets at only 4.9% (9.8% for Australia; 4.3% for Europe, 9.4% for Great Britain; 3% for USA; 7.1% for Spain) of total assets.

SCF Turkey (Yilmazer, 2010:37) analysed the composition of assets and states that 53.5% of households own their main residence (which is lower than Australia's (67.4%), Great Britain's (66%), Europe's (60.1%) and USA (65.2%); 10.1% of households own property other than the dwelling they live in; and 13.6% own other property and land (part of residential property in Table 2.5). Of the households in Turkey, 25.6% own a vehicle (part of other non-financial assets) which is significantly lower to Australia's (90.8%); Great Britain's (78%), Europe's (75.7%) and USA (86%).

On the financial assets ownership, 29.9% of all households own some type of financial asset excluding pension funds.

2.3.8 South Africa

For South Africa the ranking of assets is the same as for the households in the USA and Great Britain but differs from the households in Australia, Europe, Turkey and Spain. In South Africa, Great Britain and the USA, financial assets are ranked first (second in Australia, Europe, Turkey and Spain), residential property second (first in Australia, Europe, Turkey and Spain), and other non-financial assets third (the same as Australia, Europe, USA, Spain and Turkey). The liability rankings for South Africa differs from Australia, Europe, USA, Spain and Turkey, where other debt is ranked first in South Africa (second for Australia, Europe, USA, Spain and Turkey) and second for mortgage advances (first for Australia, Europe, USA, Spain and Turkey).

Total assets comprise of 64.9% financial assets (31.8% for Australia; 13.6% for Europe, 50.1% for Great Britain; 63.4% of USA; 11.6% for Spain; 11.5% for Turkey) (see Table 2.5) ,followed by residential property of 21% (58.1% for Australia; 82.1% for Europe; 40.5% of Great Britain; 33.6% of USA; 81.3% for Spain; 83.6% for Turkey), and other non-financial assets at 14.1% (9.8% for Australia; 4.3% for Europe, 9.4% for Great Britain; 3% for USA; 7.1% for Spain; 4.9% for Turkey). Household liabilities consist of mortgages at 48.9% (89.8% for Australia; 90.4% for Europe; 91.3% for Great Britain; 85.5% for USA; 89.7% for Spain) with other debt contributing slightly more at 51.1% (10.2% for Australia; 9.6% for Europe; 8.7% for Great Britain; 14.5% for USA; 10.3% for Spain) to total liabilities. The Reserve Bank did not elaborate on the composition of the 2015 balance sheet as displayed in Table 2.5.

In the next section the reasons for differences in the distribution and composition of household balance sheets are discussed. This is done to identify and clarify the main characteristics identified in the international balance sheet studies, discussed in Section 2.6.

2.4 IDENTIFICATION OF REASONS FOR DIFFERENCES IN DISTRIBUTION AND COMPOSITION RESULTS

2.4.1 Introduction

In Section 2.5 the characteristics of each wealth group is investigated to identify possible reasons why the group's wealth differs on the respective group's balance sheet. This section focusses on the main characteristics, which affect household wealth, as identified in the balance sheet studies conducted in Australia, Europe, Great Britain, USA, Spain, Turkey and South Africa.

The characteristics identified in the above balance sheet studies are age, home ownership, household size, income, employment status, level of education, household type, gender, and marital stuatus. Given the paucity of household data on a micro level, the characteristics discussed in the following section is not an exhaustive list but have been discussed by the majority of the studies selected.

2.4.2 Age

Wealth shows a hump shape trend with age. Net wealth peaks where the reference person is between 55 and 64 years old and declines afterwards (ECB, 2013:74). This is due to the consumption smoothing motive and the increasing wealth profile early in life, which is driven by saving for a down payment on a house and the accumulation of a precautionary buffer of wealth (ECB, 2013:74). After retirement (later in life), households tend to de-cumulate part of their wealth because they spend their savings and down-size their households (ECB, 2013:74).

This is illustrated by households accumulating housing until the age of 60 and then tending to de-cumulate later in life (ECB, 2013:74). Financial assets follow the same trend but liabilities do not. Liabilities peak at the age of 40, when households often buy their first house, and then declines as they pay the mortgage off (ECB, 2013:74).

2.4.3 Home ownership

Home ownership increases wealth. The ABS (2013:9) states that there is a strong correlation between wealth and home ownership. This is because for many households their dwelling is their main and most valuable asset (ABS, 2013:9; ECB, 2013:74). This is illustrated by households in the USA where households who are owners of a primary residence holds median wealth of $187 000, compared to renter's $5 400 (Bricker, *et al.* 2014:12).

2.4.4 Household size

Household size also affects wealth. Household wealth is substantially lower for households with one member because they tend to have fewer wage earners. For households with more members, wealth does not systematically rise with size. This is evidenced by households with four or more members which account for 7.5% of the euro zone net wealth, in contrast with households with one, three and four members at 18%, each and households with two members at 38.9%. (ECB, 2013:74).

2.4.5 Income

Wealth increases with higher income. Net wealth is strongly correlated with income. This is due to high earners who tend to save more and consequently accumulate more wealth (ECB, 2013:74).

This is illustrated by households in Europe where the bottom income quintile of the income distribution accounts for 7.7% of household wealth, while those in the top 20% of the income distribution holds 48% of household wealth (ECB, 2013:74). The WAS used a process of household "income equivalisation" to get the distinct effect of income. "Income equivalisation" is a process where household income is adjusted to compensate for household size and household composition (Chamberlain, 2015b:17). For households in Great Britain the lowest income band (median income of £34 000) had the lowest median wealth, while households in the highest income

band (median income of £225 100) had the highest median wealth (Chamberlain, 2015b:17).

2.4.6 Employment status

Employment status has an effect on wealth. The ECB (2013:78) found that wealth by employment status, of the household's reference person, is partly driven by a combination of income and age. Households with a self- employed reference person tend to earn a higher income and are wealthier due to the business assets they hold for their professional activity (ECB, 2013:78). Next are the households where the reference person is retired, and lastly is the households where the reference person is unemployed or inactive (ECB, 2013:78). These unemployed or inactive households own little wealth in absolute value and in terms of wealth share (ECB, 2013:78).

Chamberlain (2015b:33) similarly states that individuals living in the bottom wealth quintile is the economically inactive, which consist of sick or disabled individuals (36%), and unemployed individuals (36%). The retired or self-employed individuals are the least likely (7%) to be found in the bottom quintile (Chamberlain, 2015b:33). In contrast, individuals living in the top wealth quintile were most likely to be retired (18%) (Chamberlain, 2015b:33). Only 3% of the sick/disabled is living in the top wealth quintile (Chamberlain, 2015b:33).

2.4.7 Level of education

Education also has an effect on wealth. Wealth ownership rises with education because educated households receive a higher income and make better investment decisions (ECB, 2013:78).

Households with no high school diploma has the lowest median net worth, followed by households with some college education, and then by households with a high school diploma (Bricker, *et al.* 2014:12). Households with a college degree has the highest median of net worth (Bricker, *et al.* 2014:12).

2.4.8 Household type

The next characteristic that affects household wealth is household type. The median value of household wealth is the highest for couple households without children, where one person is over and the other under the age of sixty or sixty-five (Chamberlain, 2015b:25). Next are couples without children over state pension age, followed by couple households with non-dependent children (Chamberlain, 2015b:25). In contrast, the lowest median household is for lone parents with dependent children (Chamberlain, 2015b:17).

2.4.9 Gender and marital status

There is a minor difference caused by gender in the overall distribution of wealth, in contrast with marital status. Married men and women are more likely to live in households with higher wealth (Chamberlain, 2015b:26). There are two reasons for this. Firstly, married individuals are generally older than single individuals, which enables them access to higher earnings and the accumulation of more wealth (Chamberlain, 2015b:26). The other reason is the higher joint income by married households when both individuals are working (Chamberlain, 2015b:26).

2.4.10 Race

The last characteristic that affects household wealth is race. This is evidenced in the USA by white non-Hispanics' net median wealth of $142 000, in contrast with non-white or Hispanic's median wealth of $18 100 (Bricker, *et al.* 2014:12).

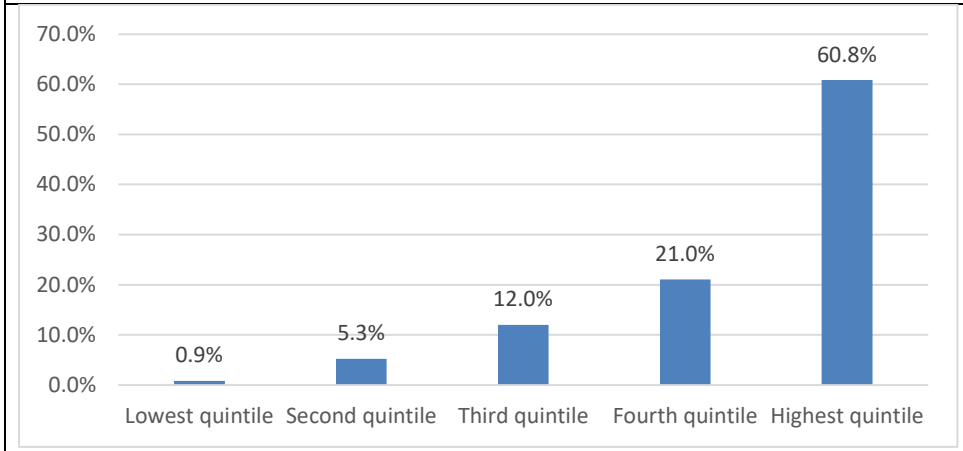
2.5 A COMPARISON OF THE COMPOSITION OF HOUSEHOLD BALANCE SHEETS FROM A MICRO PERSPECTIVE

2.5.1 Introduction

The same method to determine the contribution and ranking as calculated per the aggregate level is followed for purposes of the micro level aggregate balance sheets per wealth quintile.

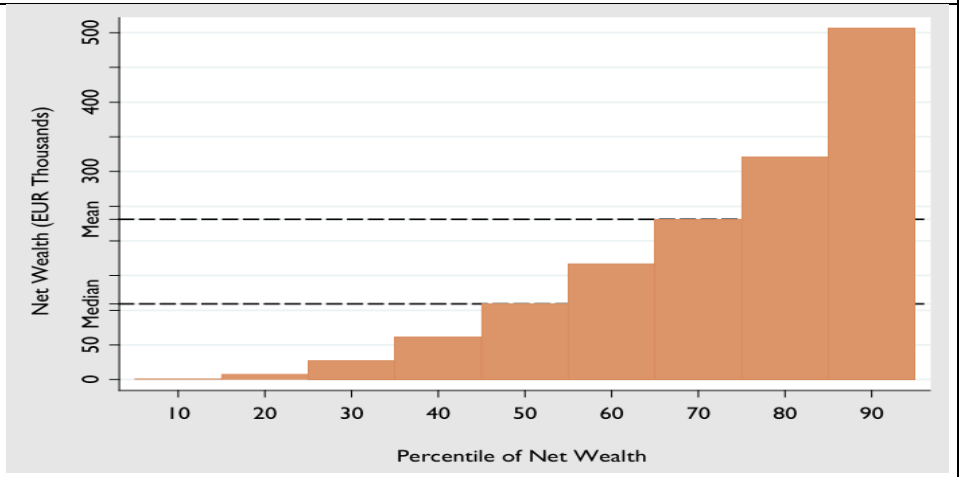
Australia

Percentage share of total wealth per quintile, 2011-2012



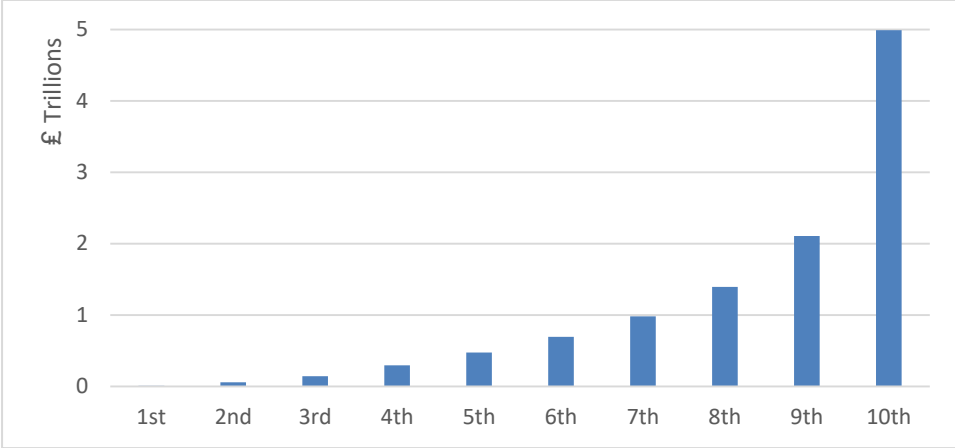
Europe

Net wealth by percentile (EUR thousands), 2010



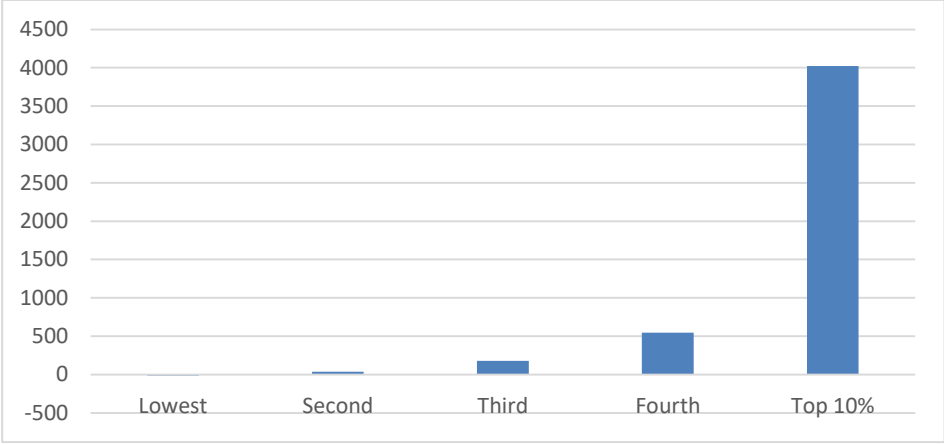
Great Britain

Breakdown of aggregate wealth by deciles



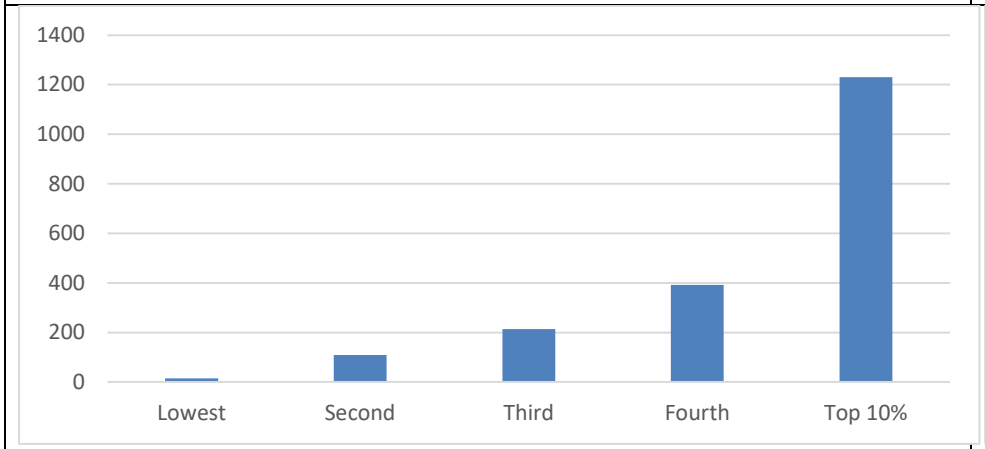
United States of America

Mean net worth per wealth quintile, 2013



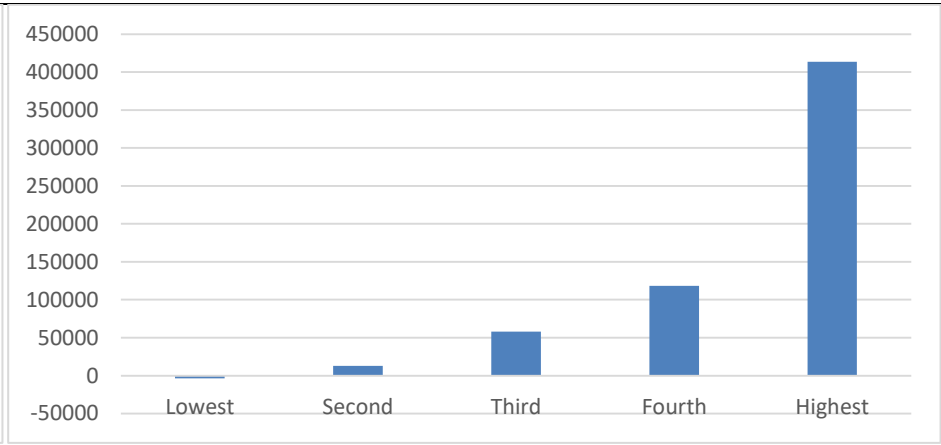
Spain

Mean net worth per wealth quintile, 2013



Turkey

Mean net worth per wealth quintile, 2008



South Africa

Median net worth per wealth decile, 2013

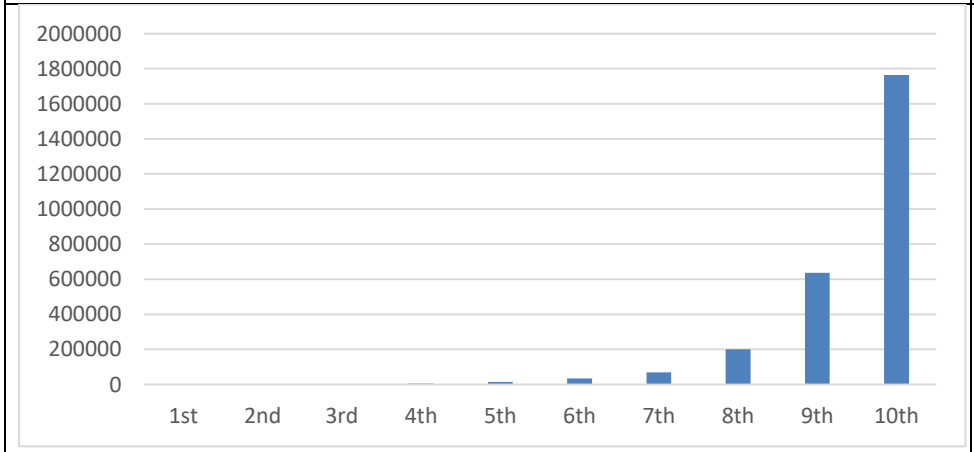


Figure 2.1: Wealth distribution around the world (ABS, 2013:6; ECB, 2013:72; Chamberlain, 2015b:7; FRS, 2013; España, 2014; Yilmazer, 2010; Daniels, *et al.* 2014:43)

Figure 2.1 illustrates wealth distribution for countries selected in this study. The distribution of wealth is skewed, where the vast majority of wealth is held by the top quintiles.

It is therefore necessary to investigate wealth distribution on different levels of wealth holdings. As evidenced in the balance sheet studies selected, there is no consistency across the various countries on the basis of disaggregation. Some countries provide distribution data on households divided into quartiles or quintiles based on wealth. For comparability purposes, the trend of composition of household balance sheets for those at the bottom of the distribution will be compared to those at the middle and high end of the distribution.

The micro level balance sheet for the various countries is compiled from the same sources as the macro level balance sheets (Table 2.4), except in the case of South Africa, which is compiled from the sources displayed in Table 2.6.

Table 2.6: Sources of micro level balance sheets

South Africa (NIDS)	The NIDS conducted a national representative household survey in South Africa to obtain sufficient information to calculate individual and household worth which covered the period 2010 and 2011. This dataset contains information on concepts related to wealth, such as income, expenditure, savings and debt (Daniels, *et al.* 2014).
South Africa (Momentum)	Momentum and Unisa started in 2011 to measure financial wellness of households in South Africa (Unisa & Momentum, 2014:3). To derive an overall South African Household Financial Wellness Index score, a multiplicative approach is applied where the financial wellness result is the product of the interactiveness of the five types of household capital. The five types of capital are physical capital (the income statement of the household determined by the state of income and expenditure); asset capital (the household's balance sheet as determined by the state of assets, liabilities and net wealth); human capital (the state of the household's education status determined by their qualification and skill levels); environmental capital (the quality of the environment within which the household lives as predetermined by the quality of the dwelling); and social capital (the household's personal empowerment as determined by factors affecting the control over the financial situation and trust in institutions that affect their personal empowerment)(Unisa & Momentum, 2014:3 & 6).

	The Momentum/Unisa South African Household Financial Wellness Index of 2013 also compiled a balance sheet composition per wellness quintile for 2013.

Source: Researcher's own compilation

2.5.2 Australia

To get a better understanding of potential differences in household composition the ABS balance sheet per wealth quintile's ranking and contribution percentage will be explored. This is provided in Table 2.7. It should be noted that the contribution percentages were calculated by the ABS, and any contribution percentages not adding up to 100% is due to rounding. More detail on the identification of the lowest, middle, and highest wealth quintile are provided in Appendix B. The characteristics of the lowest, middle and highest quintiles are discussed in Table 2.8.

Table 2.7: Australian household balance sheet composition per wealth quintile: 2011-2012

	Lowest		Middle		Highest	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	25.4%	3	68.2%	1	53.8%	1
Other non-financial assets	42.9%	1	14.2%	3	5.9%	3
Financial assets	31.4%	2	17.4%	2	40.0%	2
TOTAL ASSETS	**100%**		**100%**		**100%**	
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	66.1%	1	64.2%	1	42.1%	2
Assets with monetary institutions	28.0%	2	22.9%	2	12.2%	3
Other financial assets	5.9%	3	12.9%	3	45.7%	1
TOTAL FINANCIAL ASSETS	**100%**		**100%**		**100%**	
LIABILITIES						
Mortgage advances	64.6%	1	92.8%	1	89.0%	1
Other debt	35.4%	2	7.2%	2	11.0%	2
TOTAL LIABILITIES	**100%**		**100%**		**100%**	

Source: Researcher's own compilation compiled from ABS, 2013:21

Table 2.8: Australian household composition and characteristics per wealth quintile

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: total assets	The lowest quintile's biggest asset class is other non-financial assets (42.9%) (Table 2.7), followed by financial assets (31.4%) and then residential property (25.4%). The ABS does not elaborate on the reasons for the 43% holding on non-financial assets, but Evans, *et al.* (2015:33) confirm in the report "Inequality in Australia, a nation divided", that most of the wealth of the bottom 20% is made up of low value assets like vehicles and home contents.	Quintile 3's (also called the middle wealth quintile) biggest asset class is residential property (68.2%) (Table 2.7), followed by financial assets (17.4%) and the rest non-financial assets (14.2%). No reason is given by the ABS for the 14% holding on non-financial assets.	The highest quintile's biggest asset class is residential property (53.8%) (Table 2.7), followed by financial assets (40%) and the rest non-financial assets (5.9%). The ABS does not elaborate on the reasons for the 6% holding on non-financial assets.
Ranking results: Financial assets	Financial assets consist of 66.1% (Table 2.7) in interest in pension and long term insurers; 28% in assets with monetary institutions and the remaining 5.9% in other financial assets. Superannuation (part of interest in pension	Financial assets consist of 64% (Table 2.7) in interest in pension and long term insurers; 23% in assets with monetary institutions and the remaining 13% in other financial assets. Superannuation (part of interest in pension	Financial assets consist of other financial assets (45.7%) (Table 2.7), interest in pension and long term insurers (42.1%) and the remaining 12.2% in assets with monetary institutions.

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	and long term insurers) is 66% of financial assets (and 20.8% of total assets) (ABS, 2013:19). Other financial assets consists of own businesses (2.2% of financial assets), private trusts (1.6% of financial assets) and shares (1.9% of financial assets). (ABS, 2013:21).	and long term insurers) is 64% of financial assets (and 11.2% of total assets) (ABS, 2013:21). Other financial assets consists of own businesses (6.3% of financial assets), private trusts (1.1% of financial assets) and shares (3.4% of financial assets) (ABS, 2013:21).	Superannuation (part of interest in pension and long term insurers) is 42% of financial assets (and 16.8% of total assets) (ABS, 2013:21). Other financial assets consists of own businesses (22.3% of financial assets), private trusts (11.8% of financial assets) and shares (7.8% of financial assets) (ABS, 2013:21).
Ranking results: Liabilities	The lowest quintile's biggest liability class is mortgage advances (64.6%) (Table 2.7) and then other debt (35.4%). Although 65% seems high, when only 9% of the lowest quintile are home owners, the mean value of these loans are A$11 200. This is consistent with Meng & Mounter (2009:14) who state housing assets as the most important determinant of household debt.	The middle quintile's biggest liability class is mortgage advances (92.8%) (Table 2.7) and then other debt (7.2%).	The highest quintile's biggest liability class is mortgage advances (89%) (Table 2.7) and then other debt (11%).

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Age (reference person) (ABS, 2013:9)	This quintile has an average age of 41 (the youngest age for all the other wealth quintiles)	This quintile has an average age of 54 (thirteen years older than the lowest quintile)	This quintile has an average age of 57 (3 years older than the middle quintile)
Income level (ABS, 2013:19)	This quintile earns on average A$920 per week	This quintile earns on average A$1305 per week	This quintile earns on average A$2 183 per week
Number of household members (ABS, 2013:19)	The average number of members in a household for the lowest quintile is 2.3 members	The average number of members in a household for the middle quintile is 2.5 members	The average number of members in a household for the highest quintile is 2.8 members
Employment status (ABS, 2013:19)	On average 0,9 members of these households are employed	On average 1,2 members in these households are employed	On average 1,5 members of these households are employed
Family type (ABS, 2013:19)	The family composition of this quintile consists of 35% lone persons	The family composition of this quintile consists of 29% couples with dependent children and 28% lone persons	The family composition of this quintile consists of 36% couples only and 20% couples with dependent children
Home ownership (ABS, 2013:19)	For the lowest quintile, 9% are home owners while 91% of this quintile is renters	For the middle quintile 91% of this quintile are home owners	For the highest quintile 96% of this quintile are home owners

2.5.3 Europe

As in the case with Australia, the household composition of the ECB balance sheet per wealth quintile's ranking and contribution percentage will be explored in order to

get a better understanding of potential differences in household composition. This is provided in Table 2.9. The characteristics of the lowest, middle and highest quintiles are discussed in Table 2.10. The balance sheet for Europe is provided in Appendix B.

Table 2.9: European household balance sheet composition per wealth quintile: 2010

	Lowest		Middle		Highest	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	74.6%	1	84.0%	1	81.2%	1
Other non-financial assets	13.4%	2	5.0%	3	3.2%	3
Financial Assets	12.0%	3	11.0%	2	15.6%	2
TOTAL ASSETS	**100%**		**100%**		**100%**	
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	21.6%	2	29,2%	2	18.5%	3
Assets with Monetary institutions	65.7%	1	53.6%	1	34.5%	2
Other financial assets	12.7%	3	17.2%	3	47.0%	1
TOTAL FINANCIAL ASSETS	**100%**		**100%**		**100%**	
LIABILITIES						
Mortgage advances	82.4%	1	93.5%	1	90.8%	1
Other debt	17.6%	2	6.5%	2	9.2%	2
TOTAL LIABILITIES	**100%**		**100%**		**100%**	

Source: Researcher's own compilation compiled from ECB, 2013:23, 27, 36, 39, 51 & 55

Table 2.10: European household composition and characteristics per wealth quintile

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: total assets	The lowest quintile's biggest asset class is residential property (74.6%) (Table 2.9), followed by other non-financial assets (13.4%) and then	The middle quintile's biggest asset class is residential property (84.0%) (Table 2.9), followed by financial assets (11.0%) and then non-financial	The highest quintile's biggest asset class is residential property (81.2%) (Table 2.9), followed by financial assets (15.6%) and then non-financial

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	financial assets (12.0%).	assets (5.0%).	assets (3.2%).
Ranking results: Financial assets	The lowest quintile's biggest financial asset class is assets with monetary institutions (65.7%) (Table 2.9), followed by interest in pension funds and long term insurers (21.6%) and then other financial assets (12.7%).	The middle quintile's biggest financial asset class is assets with monetary institutions (53.6%) (Table 2.9), followed by interest in pension funds and long term insurers (29.2%) and then other financial assets (17.2%).	The highest quintile's biggest asset class is other financial assets (47.0%) (Table 2.9), followed by assets with monetary institutions (34.5%) and then interest in pension funds and long term insurers (18.5%). Other financial assets are generally held mostly by the upper wealth quintile (ECB, 2013:48). The ECB (2013:48) reports households with higher net wealth portfolios became more diverse and included more risky assets. These included an increased likelihood of owning self-employed business wealth, publically traded shares, mutual funds and bonds (ECB, 2013:48). Own businesses are mostly held by the highest quintile (34.8%), in contrast with almost nothing

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
			(3.3%) in the bottom quintile.
Ranking results: Liabilities	The lowest quintile's biggest liability class is mortgage advances (82.4%) (Table 2.9), followed by other debt (17.6%). Only 5.6% of households in the lowest quintile have mortgage debt which is consistent with the ECB (2013:58) statement that poor households tend to hold mainly non-mortgage debt (other debt).	The middle quintile's biggest liability class is mortgage advances (93.5%) (Table 2.9), followed by other debt (6.5%).	The highest quintile's biggest liability class is mortgage advances (90.8%) (Table 2.9), followed by other debt (9.2%).
Age (ECB, 2013:74)	Households under the age of 35 have a very low share (4.9%) of total net wealth, which peaks when the reference person is between ages 55 and 64 (25.5%), declines when the household is between 64 and 75 (17.8%) and further declines when the household reaches 75 year and older (12.7%).		
Income level (ECB, 2013:74)	Households' wealth rises with income where households in the bottom income quintile of the income distribution account for 7.7% of household wealth, while those in the top 20% of the income distribution holds 48% of household wealth.		
Number of household members (ECB, 2013:74)	Wealth does not systematically rise with household size. This is evidenced by households with four or more members which account for 7.5% of the euro zone net wealth, in contrast with households with one, three and four members at 18% each and households with two members at 38.9%.		
Employment status (ECB, 2013:78)	Employment status affects wealth. This is partly driven by a combination of income and age. Households with a self- employed reference person tend to earn higher income and are wealthier due to the business assets they hold for their professional activity. Next are the households where the reference person is retired and lastly is the		

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	households where the reference person is unemployed or inactive. These unemployed or inactive households own little wealth in absolute value and in terms of wealth share. Self-employed households constitute 9% of total households but hold 22.8% of total wealth, and retirees hold 34.8% of total wealth and constitute 31.7% of the population.		
Home ownership (ECB, 2013:74)	Housing status is an important determinant of net wealth. Among house owners the main residence is by far the most valuable asset. Mortgages are collateralised by the main residence and account a significant portion of the household's total liabilities. Outright home owners constitutes 69.1% of total wealth, while owners with a mortgage is lower 22.4% and renters only at 8.6%.		
Education (ECB, 2013:75,78)	Wealth ownership rises with education because educated households receive a higher income and make better investment decisions. The primary or no education group hold 24.7% of total wealth; secondary education 36.7% and tertiary education 38.5%.		

2.5.4 Great Britain

As in the case with Australia and Europe, the household composition the WAS balance sheet per wealth quintile's ranking and contribution percentage will be explored in order to get a better understanding of potential differences in household composition. This is provided in Table 2.11. The characteristics of the lowest, middle and highest quintiles are discussed in Table 2.12. The balance sheet for Great Britain is provided in Appendix B.

The WAS balance sheet is grouped differently than balance sheet studies in other countries. The WAS groups certain assets and liabilities to give a net figure. Property wealth is residential property less mortgage advances (Chamberlain, 2015c:3), financial wealth is financial assets less financial liabilities (other debt) (Chamberlain, 2015e:4), and physical wealth is non-financial assets (Chamberlain, 2015d:3).

Table 2.11: Great Britain household balance sheet composition per wealth quintile: 2012 – 2014

	Lowest		Middle		Highest	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Property Wealth (net)	(1.3%)	2	45.0%	1	32.4%	2
Financial Wealth (net)	0.0%	3	36.9%	2	61.4%	1
Physical Wealth	101.3%	1	18.1%	3	6.2%	3

Source: Author's own compilation compiled from Chamberlain (2015b), Chamberlain (2015c), Chamberlain (2015d), Chamberlain (2015e).

Table 2.12: United Kingdom household composition and characteristics per wealth quintile

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: net assets	The lowest quintile's biggest asset class is physical wealth (101.3%) (Table 2.12), followed by property wealth (0.0%) and financial wealth the rest (-1.3%). The contributions for property wealth are negative for the lowest quintile. This is due to households in this quintile with no property wealth and negative property wealth. Also in this quintile is households, which are property owners, with high debts. (Chamberlain, 2015b:8).	The middle quintile's biggest asset class is property wealth (45.0%) (Table 2.12), followed by financial wealth (36.9%) and the rest physical wealth (18.1%).	The highest quintile's asset class is financial wealth (61.4%) (Table 2.12), then property wealth (32.4%) and the rest physical wealth (6.2%).

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Age (Chamberlain, 2015b:28)	Individuals in the lowest age groups (below thirty-five) are most likely to live in households with the lowest amounts of wealth. Only 21% of individuals in the age bracket below fifteen years old, 21% in the age bracket sixteen to twenty-four and 21% in the age bracket twenty-five till thirty-six live in households with a total wealth of less than £20 000. In contrast individuals between the ages of fifty-five and sixty-four are living in households with a total wealth of one million pound or more. This age bracket falls in the wealth accumulation phase where income enable opportunities to increase total wealth. The least likely age of individuals to live in the top wealth band is twenty-five to thirty-four years (4%).		
Income level (Chamberlain, 2015b:17)	Income affects household wealth. Households in the lowest income band had the lowest median wealth (median wealth of £34 000), while households in the highest income band had the highest median wealth (median wealth of £225 100).		
Employment status (Chamberlain, 2015b:33)	Individuals living in the bottom wealth quintile are the economically inactive which consist of sick or disabled individuals (36%) and unemployed individuals (36%). In contrast the retired or self-employed individuals are the least likely (7%) to be found in the bottom quintile. Individuals living in the top wealth quintile were most likely to be retired (18%). In contrast only 3% of the sick/disabled is living in the top wealth quintile.		
Family type (Chamberlain, 2015b:17,25)	Household type affects household wealth. The median value of household wealth is the highest for couple households without children, where one person is over and the other under the age of sixty or sixty-five (£678 000). Next are couples without children over state pension age (£549 700), followed by couple households with non-dependent children (£466 000). In contrast the lowest median household is for lone parents with dependent children (£28 300). The most common household type is couple households with dependent children, which has a median of £190 600.		
Education (Chamberlain, 2015b:29)	Individuals who are educated to ‘degree level or above’ are the least likely (6%) to live in households in the lowest wealth quintile and the most likely (23%) to live in households with total wealth of one million pound or more. The highest percentage of individuals living the lowest wealth quintile is those with no formal educational qualifications (23%).		
Gender and marital status (Chamberlain, 2015b:26)	There is a very little difference caused by sex in the overall distribution of wealth, in contrast with marital status. Married men and woman are more likely to live in households with higher wealth. This is evidenced		

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	by the fact that 40% of married individuals live in households with total wealth of £500 000 or more. There are two reasons for this. Firstly, married individuals are generally older than single individuals which enable them access to higher earnings and the accumulation of more wealth. The other reason is the higher joint income of married households when both individuals are working.		

2.5.5 United States of America

The household composition of the USA balance sheet per wealth quintile's ranking and contribution percentage will be explored in order to get a better understanding of potential differences in household composition. This is provided in Table 2.13. Table 2.14 offers a comparison between the characteristics of the lowest, middle and highest wealth quintiles. The balance sheet for the USA is provided in Appendix B.

Table 2.13: United States of America household balance sheet composition per wealth quintile: 2013

	Lowest		Middle		Highest	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	66.6%	1	63.9%	1	27.9%	2
Other non-financial assets	20.8%	2	8.1%	3	2.0%	3
Financial Assets	12.6%	3	28.0%	2	70.1%	1
TOTAL ASSETS	**100%**		**100%**		**100%**	
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	46.7%	1	63.2%	1	40.4%	2
Assets with Monetary institutions	33.4%	2	23.4%	2	8.9%	3
Other financial assets	19.9%	3	13.4%	3	50.7%	1
TOTAL FINANCIAL ASSETS	**100%**		**100%**		**100%**	
LIABILITIES						
Mortgage advances	54.5%	1	85.9%	1	91.6%	1
Other debt	45.5%	2	14.1%	2	8.4%	2
TOTAL LIABILITIES	**100%**		**100%**		**100%**	

Source: Author's own compilation compiled from SCF

Table 2.14: USA household composition and characteristics per wealth quintile

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: total assets	The lowest quintile's biggest asset class is residential property (66.6%) (Table 2.14), followed by other non-financial assets (20.8%) and then financial assets (12.6%). Vehicle ownership for the lowest quintile is 66.3% (FRS, 2013).	The middle quintile's biggest asset class is residential property (63.9%) (Table 2.14), followed by financial assets (28%) and non-financial assets the rest (8.1%). Vehicle ownership for the middle quintile is 92.9% (FRS, 2013).	The highest quintile's biggest asset class is financial assets (70.1%) (Table 2.14) as the biggest asset class, followed by residential property (27.9%) and non-financial assets (2%) the rest. Vehicle ownership for the middle quintile is 94.3% (FRS, 2013).
Ranking results: Financial assets	The lowest quintile holds 46.7% (Table 2.14) in interest in pension funds and long term insurers, 33.4% in assets with monetary institutions and 19.9% in other financial assets. Retirement account ownership for the lowest quintile is 17.3% (FRS, 2013). Life insurance ownership for the lowest quintile is 7.5% (FRS, 2013). Transaction account	The middle quintile holds 63.2% (Table 2.14) in interest in pension funds and long term insurers, 23.4% in assets with monetary institutions and 13.4% in other financial assets. Retirement account ownership for the middle quintile is 57.8% (FRS, 2013). Life insurance ownership for the middle quintile is 21.6% (FRS, 2013). Transaction account	The highest quintile holds 50.7% (Table 2.14) in other financial assets, 40.4% in interest in pension funds and long term insurers and 8.9% in assets with monetary institutions. Retirement account ownership for the highest quintile is 89.3% (FRS, 2013). Life insurance ownership for the highest quintile is 34.4% (FRS, 2013). Transaction account

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	ownership for the lowest quintile is 80% (FRS, 2013) Share ownership for the lowest quintile is 1.6% (FRS, 2013). Business equity for the lowest quintile is 3.4% (FRS, 2013).	ownership for the middle quintile is 98.2% (FRS, 2013) Share ownership for the middle quintile is 11.4% (FRS, 2013). Business equity for the middle quintile is 10.8% (FRS, 2013).	ownership for the highest quintile is 99.6% (FRS, 2013) Share ownership for the highest quintile is 50% (FRS, 2013). Business equity for the highest quintile is 41.7% (FRS, 2013).
Ranking results: Liabilities	The lowest quintile's biggest liability class is mortgage advances (54.5%) (Table 2.14), followed by other debt (45.5%). Mortgage debt ownership for the lowest quintile is 16.9% (FRS, 2013). Instalment loans ownership for the lowest quintile is 56.5% (FRS, 2013). Credit card balances ownership for the lowest quintile is 33.4% (FRS, 2013).	The middle quintile's biggest liability class is mortgage advances (85.9%) (Table 2.14), followed by other debt (14.1%) Mortgage debt ownership for the middle quintile is 57.5% (FRS, 2013). Instalment loans ownership for the middle quintile is 45.4% (FRS, 2013). Credit card balances ownership for the middle quintile is 45.4% (FRS, 2013).	The highest quintile's biggest liability class is mortgage advances (91.6%) (Table 2.14), followed by other debt (8.4%). Mortgage debt ownership for the highest quintile is 57.8% (FRS, 2013). Instalment loans ownership for the highest quintile is 28.5% (FRS, 2013). Credit card balances ownership for the highest quintile is 20.9% (FRS, 2013).
Age (Bricker, *et al.* 2014:12)	Wealth shows a hump shape trend with age. Median net worth starts low for the under 35 years old at $10 400, then increases through age brackets 35-44 ($46 700), 45-54 ($105 300), 55-64 ($165 900) and peaks for the age bracket of 65-74 ($232 100) but declines for the age bracket 75 years and older ($194 800).		
Income level (Bricker, *et al.* 2014:9)	Households in the lowest quintile hold a median income of	Households in the middle quintile hold a median income of	Households in the highest quintile hold a median income of

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	$23 700.	$55 800.	$183 400. The highest quintile has almost eight times more income than the lowest quintile. This gives the highest quintile households the ability to save more and also generate additional income from their accumulated assets (Bricker, *et al.* 2014:8).
Home ownership (FRS, 2013)	Only 18.5% of households in the lowest quintile own houses.	Of households in the middle quintile, 89.8% own houses.	Of households in the highest quintile, 96.6% own houses.
	Households who own of a primary residence holds median wealth of $187 000, in comparison to renters' $5 400 (Bricker, *et al.* 2014:12).		
Education (Bricker, *et al.* 2014:12)	Education has an effect on wealth. Households with no high school diploma have the lowest median net worth ($17 200), followed by households with some college education ($46 900), and then households with a high school diploma ($52 500). Households with a college degree have the highest median of net worth of $219 400.		
Race (Bricker, *et al.* 2014:12)	Race also has an effect on wealth. This is evidenced by white non-Hispanics' net median wealth of $142 000, in contrast with non-white or Hispanics' median wealth of $18 100.		

2.5.6 Spain

To get a better understanding of the potential differences in household composition, the EFF balance sheet per wealth quintile's ranking and contribution percentage will be explored. This is provided in Table 2.15. Table 2.16 gives a comparison between the characteristics of the lowest, middle and highest wealth quintiles. The balance sheet for Spain is provided in Appendix B.

Table 2.15: Spain household balance sheet composition per wealth quintile: 2011

	Lowest		Middle		Highest	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	76.7%	1	85.4%	1	76.5%	1
Other non-financial assets	17.0%	2	8.0%	2	4.8%	3
Financial Assets	6.3%	3	6.6%	3	18.7%	2
TOTAL ASSETS	**100%**		**100%**		**100%**	
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	12.9.%	3	14.1%	3	9.9%	3
Assets with Monetary institutions	52.8%	1	52.4%	1	21.9%	2
Other financial assets	34.3%	2	33.5%	2	68.2%	1
TOTAL FINANCIAL ASSETS	**100%**		**100%**		**100%**	
LIABILITIES						
Mortgage advances	89.2%	1	87.5%	1	91.1%	1
Other debt	10.8%	2	12.5%	2	8.9%	2
TOTAL LIABILITIES	**100%**		**100%**		**100%**	

Source: Researchers own compilation compiled from Banco de España (2014:21, 23, 24, 25, 28, 29, 33, 35, 40)

Table 2.16: Spanish household composition and characteristics per wealth quintile

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: total assets	The lowest quintile's biggest asset class is residential property (76.7%) (Table 2.15), followed by other non-financial assets (17%) and the rest financial assets (6.3%). The bottom quintile's ownership percentage	The middle quintile's biggest asset class is residential property (85.4%) (Table 2.15), followed by other non-financial assets (8%) and the rest financial assets (6.6%). The middle quintile's	The highest quintile's biggest asset class is residential property (76.5%) (Table 2.15), followed by financial assets (18.7%) and the rest non-financial assets (4.8%). The highest quintile's

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	of vehicles is 70.3% (España, 2014:38).	ownership percentage of vehicles is 80.6% (España, 2014:38).	ownership percentage of vehicles 89.6% (España, 2014:38).
Ranking results: Financial assets	The lowest quintile's biggest financial asset class is assets with monetary institutions (52.8%) (Table 2.15), followed by other financial assets (34.3%), and the rest interest in pension funds and long term insurers (12.9%). The ownership percentage for own businesses for this quintile is 4.4% (España, 2014:23). Listed shares are owned by 1.6% in households in the bottom quintile (España, 2014:28).	The middle quintile's biggest financial asset class is assets with monetary institutions (52.4%) (Table 2.15), followed by other financial assets (33.5%), and the rest interest in pension funds and long term insurers (14.1%). The ownership percentage for own businesses for this quintile is 10.3% (España, 2014:23). Listed shares are owned by 8.7% in households for the middle quintile (España, 2014:28).	The highest quintile's biggest financial asset class is other financial assets (68.2%) (Table 2.15), followed by assets with monetary institutions (21.9%), and the rest interest in pension funds and long term insurers (9.9%). The ownership percentage for own businesses for this quintile is 32.8% (España, 2014:23). Listed shares are owned by 38.8% in households for the highest quintile (España, 2014:28).
Ranking results: Liabilities	The lowest quintile's biggest liability class is mortgage advances (89.2%) (Table 2.15) and the rest other debt (10.8%).	The middle quintile's biggest liability class is mortgage advances (87.5%) (Table 2.15) and the rest other debt (12.5%).	The highest quintile's biggest liability class is mortgage advances (91.1%) (Table 2.15) and the rest other debt (8.9%).
Age (España, 2014:16,18)	The age group distribution conforms to the expected life-cycle profile which peaks for households where the head of the household is aged between 55 and 64.		

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Income level (España, 2014:18)	Net wealth also increases with income, which reflects the ability of the highest income households to obtain more income from their asset portfolio and provides greater saving possibilities.		
Home ownership (España, 2014:20)	The bottom quintile main residence ownership is reported at 47.7%.	The middle quintile main residence ownership is reported at 96.4%.	The highest quintile main residence ownership is reported at 97%.
Education (España, 2014:18)	Average and median wealth increases with education and are higher for self-employed households.		

2.5.7 Turkey

To get a better understanding of potential differences in household composition, the Turkey balance sheet per wealth quintile's ranking and contribution percentage will be explored. This is provided in Table 2.17. The characteristics of the lowest, middle and highest quintile are compared in Table 2.18. The balance sheet for Turkey is provided in Appendix B. Yilmazer (2010:8) disregards pension funds (part of financial assets) and is not included in the household balance sheet of Turkey. Liabilities was also structured in such a way that the distinction between mortgage advances and other debt could not be made.

Table 2.17: Turkey household balance sheet composition per wealth quintile: 2011

	Lowest		Middle		Highest	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	70.8%	1	93.0%	1	75.8%	1
Other non-financial assets	18.8%	2	4.0%	2	4.2%	3
Financial Assets	10.4%	3	3.0%	3	20.0%	2
TOTAL ASSETS	**100%**		**100%**		**100%**	

Source: Researchers own compilation compiled from Yilmazer (2010)

Table 2.18: Turkish household composition and characteristics per wealth quintile

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: total assets	The lowest quintile's biggest asset class is residential property (70.8%) (Table 2.18), followed by other non-financial assets (18.8%) and lastly financial assets (10.4%). Vehicle ownership for this quintile is 2.5% (Yilmazer, 2010:37).	The middle quintile's biggest asset class is residential property (93%) (Table 2.18), followed by other non-financial assets (4%) and lastly financial assets (3%). Vehicle ownership for this quintile is 27.1% (Yilmazer, 2010:37).	The highest quintile's biggest asset class is residential property (75.8%) (Table 2.18), followed by financial assets (20.0%) and lastly other non-financial assets (4.2%). Vehicle ownership for this quintile is 57.6% (Yilmazer, 2010:37).
Ranking results: Financial assets (Yilmazer, 2010:37)	The value of own businesses held by this quintile is 1.2%.	The value of own businesses held by this quintile is 6.1%.	The value of own businesses held by this quintile is 31,6%.
Age (Yilmazer, 2010:34)	Wealth shows a hump shape trend with age. Median net worth starts low for the under 30 years old at TL5 000, then increases through age brackets 30-39 (TL10 170), 40-49 (TL39 400), and peaks for the age bracket of 50-59 (TL57 875) but declines for the age bracket 60 years and older (TL55 000).		
Income level (Yilmazer, 2010:34)	Income affects household wealth. Households in the lowest income band (below 20%) had the lowest median (TL9 750), which increased as the income band increases except in the case of the 40-59.9 income band. This is evidenced by 20-39.9 (TL30 000), 40-59.9 (TL25 196), 60-79.9 (TL45 098), 80-89.9 (TL60 000) and peaking for households in the highest (90-100) income band (TL116 000).		
Home ownership (Yilmazer, 2010:37)	Of households in the bottom wealth quintile 1.6% owns their main residences.	Of households in the middle wealth quintile 89.2% owns their main residences.	Of households in the highest wealth quintile 93.1% owns their main residences.

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Education (Yilmazer, 2010:34)	Education has an effect on wealth. Households with no school (illiterate) has the lowest median net worth (TL41 342), followed by households with elementary education (TL62 091), then elementary/junior high (TL40 000), and then households with a high school education (TL39 500). Households with a college degree has the highest median of net worth of TL50 000.		

2.5.8 South Africa

Two studies were done in South Africa following a micro perspective. The first was the NIDS study and the second was the Momentum/Unisa South African Household Financial Wellness Index. The development of the wealth measurement instrument as reported by Scheepers (2013) in her study was included in the Momentum/Unisa South African Household Financial Wellness Index 2011 (Wave 1). In this section the findings of these two studies are discussed.

2.5.8.1 NIDS

The NIDS study did not publish detailed balance sheets, but graphs covering the portfolio composition of net worth distribution over ten net worth deciles, where decile one is the lowest net worth decile and decile ten the highest. These graphs are provided in Figure 2.2 for assets and Figure 2.3 for liabilities. The first wealth decile is a negative wealth decile which means that liabilities exceed assets (Daniels, *et al.* 2014:21). The wealth for the other deciles are positive wealth deciles because assets exceed liabilities (Daniels, *et al.* 2014:21).

The reason for the difference in the composition in the first and second decile are real estate assets and mortgages which constitute more than 50% of both assets and liabilities in the first wealth decile (Daniels, *et al.* 2014:21).

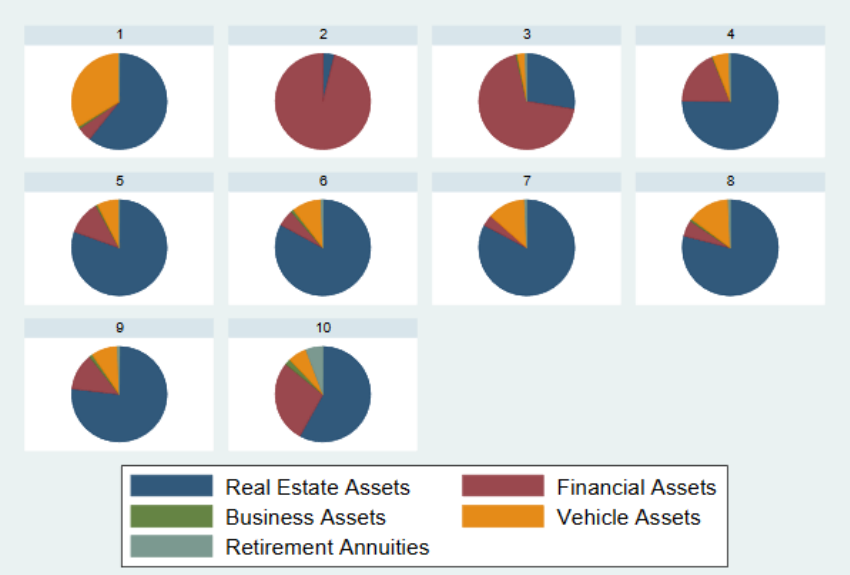


Figure 2.2: Portfolio of assets by net worth decile (weighted)

Source: Daniels, *et al.* 2014:20

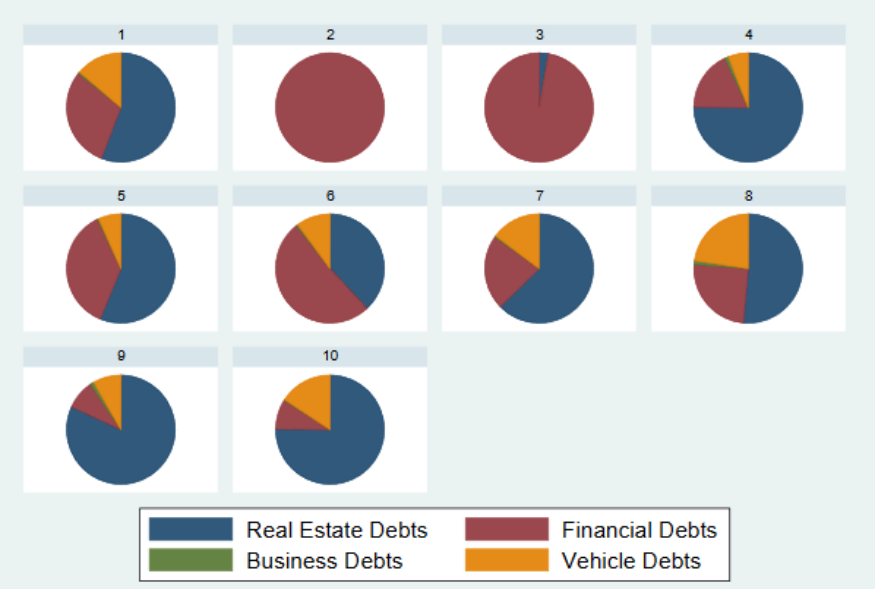


Figure 2.3: Portfolio of liabilities by net worth decile (weighted)

Source: Daniels, *et al.* 2014:21

Decile one, therefore, consists of individuals who are likely to be employed and economically active because these individuals qualify for housing mortgages (Daniels, *et al.* 2014:21). This is in contrast with households in the next decile where there is a combination of individuals who are employed and unemployed, and economically active and inactive (Daniels, *et al.* 2014:21).

Daniels, *et al.* (2014:22) state that individuals who have a net worth close to or slightly above zero, may not always be richer than those with negative net worth. The reason is that the unemployed are limited in accessing financial services that will allow them to invest in appreciating assets, such as a main residence, or depreciating assets, such as vehicles (Daniels, *et al.* 2014:21). The unemployed do not usually qualify for loans, except when rotating credit associations exist or informal credit is available (Daniels, *et al.* 2014:21). However, this type of credit is unlikely to be large enough to enable an individual to purchase a house, which is the main appreciating asset that can provide long-term wealth creation (Daniels, *et al.* 2014:21).

The South African balance sheet per wealth quintile's ranking and contribution percentage is provided in Table 2.19. Appendix B provides more detail on how the deciles were converted into quintiles. The characteristics of the households that participated in the NIDS study are discussed in Table 2.20.

Table 2.19: South Africa household balance sheet composition per wealth quintile: 2010 – 2011

	Lowest		**Middle**		**Highest**	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	na	2	Na	1	na	1
Other non-financial assets	na	3	Na	2	na	3
Financial Assets	na	1	Na	3	na	2
TOTAL ASSETS	**na**		**Na**		**na**	
LIABILITIES						
Mortgage advances	na	2	Na	2	Na	1
Other debt	na	1	Na	1	Na	2
TOTAL LIABILITIES	**na**		**Na**		**na**	

Source: Researchers own compilation compiled from Daniels, *et al.* (2014:20-21)

Table 2.20: South African household composition and characteristics per wealth quintile as per the NIDS study

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: total assets	The lowest quintile's biggest asset is financial assets (Table 2.19), followed by residential property assets and other non-financial assets the rest.	The middle quintile's biggest asset is residential property (Table 2.19), followed by other non-financial assets and financial assets the rest.	The highest quintile's biggest asset is residential property (Table 2.19), followed by financial assets and other non-financial assets the rest. The highest net worth quintile had the most diverse asset portfolio.
Ranking results: Liabilities	The lowest quintile's biggest liability is other debt (Table 2.19), followed by mortgage advances.	The middle quintile's biggest liability is other debt (Table 2.19), followed by mortgage advances.	The highest quintile's biggest liability is mortgage advances (Table 2.19), followed by other debt.
Age (Daniels, *et al.* 2014:46-48)	Wealth accumulation is closely tied to the age of individuals. The households with the lowest average net worth are those in the 15 to 24 (median wealth of R4 000) and 25 to 34 (R5 000) age brackets. This rises to R25 000 for the pre-retirement (55 to 64 years old) age bracket, before dropping for the next age bracket (65 to 74 years), and rising again for the oldest group (75 and above). Wealth over the age distribution showed a non-linear trend, where the lack of dissaving after retirement was due to the bequest motive in the financial plans of the aged. Daniels states that retirement annuities do not feature highly in the 55+ age group but they do feature in the 45 to 54 age group. This is due to the accessibility of private-sector retirement annuities after an individual turns 55 years old. The NIDS data suggests that most people in the 55 to 64 age bracket take their retirement funds and invest it in housing.		

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Home ownership (Daniels, *et al.* 2014:48)	Household portfolios are largely defined by the presence of housing as an asset class. Housing is the largest component of assets for most households. For liabilities, it was found that financial debts dominate the majority of household debt portfolios (lowest quintile and the middle quintile), after which housing becomes the major liability in the highest quintile. This indicates possible barriers to entry in the housing market that are limited by access to credit.		

2.5.8.2 Scheepers' micro level framework balance sheet

Scheepers' balance sheet is for all households and is not displayed per quintile as in the previous international studies discussed (Scheepers, 2014). The author found age, income, and education has an effect on wealth. Her findings are discussed next.

The age group thirty-five to forty-nine holds the most residential property and other non-financial assets (Scheepers, 2014:276). This indicates that for this age group asset accumulation is a main priority (Scheepers, 2014:276). Residential property and non-current assets are held by the higher income groups because these groups acquire assets due to easy access to credit lines (Scheepers, 2014:284). Non-current assets are also held by the higher educated groups as higher education facilitates employment opportunities which lead to higher income and access to financing (Scheepers, 2014:290).

Financial assets are mostly held by the group fifty to fifty-nine (Scheepers, 2014:276). The reason for the high investment is that this group is pre-retirement, and their investments in property are close to being paid off or already paid off (Scheepers, 2014:277). The result of this is they have extra cash to invest in other types of financial assets, such as insurance, share investments and loan accounts (Scheepers, 2014:277). The age group seventeen to thirty-four has very little financial assets since they have just started to become economically active and qualify for limited access to saving products (Scheepers, 2014:276, 278). Financial asset acquisition by higher income groups are prevalent as marketing campaigns of insurance and investment companies focus on these groups (Scheepers, 2014:284).

Education play a role in financial asset holding as the less educated are not aware of the availability of different investment vehicles (Scheepers, 2014:291).

The most mortgage advances are held by the twenty-five to fifty-nine age groups which support the life-cycle hypothesis (Scheepers, 2014:279). The thirty-five to forty-nine age group held more than half of the mortgage loans in the country (Scheepers, 2014:291). This is in line with the stage in life when property is financed with mortgage bonds, which have to be repaid over the term of the bond, before retirement (Scheepers, 2014:291). Mortgage loans are low for low income groups as mortgage loans are not easily obtainable by the stringent borrowing requirements stipulated by the National Credit Act (Scheepers, 2014:286-87). This causes low income groups to make use of other debt as it is more easily obtainable. Formal lending facilities are only available to groups with a higher education who are expectedly also earning higher incomes (Scheepers, 2014:294).

2.5.8.3 Momentum/Unisa South African Household Financial Wellness Index

To get a better understanding of potential differences in household composition, the South African balance sheet per wealth quintile's ranking and contribution percentage will be explored. This is provided in Table 2.21. The household wealth quintiles are compared in Table 2.22.

Table 2.21: Household balance sheet asset section contributions and ranking per wealth quintile as at 2013 (Wave 3)

	Lowest		Middle		Highest	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	73.3%	1	26.6%	2	18.0%	2
Other non-financial assets	20.0%	2	8.7%	3	7.9%	3
Financial Assets	6.7%	3	64.7%	1	74.1%	1
TOTAL ASSETS	**100%**		**100%**		**100%**	
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	0%		61.7%	1	50.7%	1

Assets with Monetary institutions	100%	1	5.4%	3	13.6%	3
Other financial assets	0%		32.9%	2	35.7%	2
TOTAL FINANCIAL ASSETS	**100%**		**100%**		**100%**	
LIABILITIES						
Mortgage advances	81.2%	1	54.0%	1	54.8%	1
Other debt	18.8%	2	46.0%	2	45.2%	2
TOTAL LIABILITIES	**100%**		**100%**		**100%**	

Source: Researcher's own compilation compiled from (Unisa & Momentum, 2013:19)

Table 2.22: South African household composition and characteristics per wealth quintile as per the Momentum study (Wave 3)

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Ranking results: total assets	The lowest quintile's biggest asset class is residential property (73.3%) (Table 2.21), followed by other non-financial assets (20%) and then financial assets (6.7%).	The middle quintile's biggest asset class is financial assets (53.6%) (Table 2.21), followed by residential property (26.6%) and the rest other non-financial assets (8.7%).	The highest quintile's biggest asset class is financial assets (74.1%) (Table 2.21), followed by residential property (18%) and the rest other non-financial assets (7.9%).
Ranking results: Financial assets	Financial assets consist only of assets with monetary institutions (Table 2.21).	Financial assets consist of 61.7% (Table 2.21) in interest in pension and long term insurers; 32.9% in other financial assets and the remaining 5.4% in assets with monetary institutions.	Financial assets consist of 50.7% (Table 2.21) in interest in pension and long term insurers; 35.7% in other financial assets and the remaining 13.6% in assets with monetary institutions.
Ranking results: Liabilities	The lowest quintile's biggest liability class is mortgage advances (81.2%) (Table 2.21) and then other debt (18.8%).	The middle quintile's biggest liability class is mortgage advances (54%) (Table 2.21) and then other debt (46%).	The highest quintile's biggest liability class is mortgage advances (54.8%) (Table 2.21) and then other debt (45.2%).

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Age (Unisa & Momentum, 2013: 32,34,35)	The lowest quintile consists of the following age brackets: 18-24 (8%); 25-34 (20.1%); 35-44 (17%); 45-54 (18%); 55-64 (18.9%) and 65 and above (17.9%).	The majority of the middle quintile's age distribution is between 25 and 54 (65.2%), where 23.6% is in the age bracket 25-34; 24.7% in the age bracket 35-44 and 16.9% in the age bracket 45-54.	The majority of the highest quintile's age distribution is between 25 and 54 (68.6%), where 22.7% is in the age bracket 25-34; 22.7% in the age bracket 35-44 and 22.3% in the age bracket 45-54.
Income level (Unisa & Momentum, 2013: 32,34,35)	The lowest quintile consists mainly of the low income group (96.4%) which earns between R1 and R58 093 per annum.	The middle quintile consists primarily of the low income group (45.5%) which earns between R1 and R58 093 per annum; the low emerging income group (29.4%) which earns between R58 094 and R160 892 per annum; and the emerging middle class (19.5%) which earns between R160 893 and R382 127 per annum.	The highest quintile consists primarily of the low income group (10.4%) which earns between R1 and R58 093 per annum; the low emerging income group (22.0%) which earns between R58 094 and R160 892 per annum; the emerging middle class (35.5%) which earns between R160 893 and R382 127 per annum and the realised middle class (18.2%) which earns between R382 128 and R662 676 per annum.
Employment status (Unisa & Momentum, 2013: 32,34,35)	For the lowest quintile 23.4% of households are employed.	For the middle quintile 59.4% of households are employed.	For the highest quintile 73.1% of households are employed.
Education (Unisa & Momentum, 2013: 32,34,35)	This quintile consists of 59.3% of households that have	This quintile consists of 6.7% of households that have	This quintile consists 3.3% of households that have some

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	some primary education, 32% of households that have some secondary education; 5,5% of households that have completed secondary education and 3.2% of households that have tertiary education.	some primary education, 25.1% of households that have some secondary education; 41.6% of households that have completed secondary education and 26.5% of households that have tertiary education.	secondary education; 32,9% of households that have completed secondary education and 63.9% of households that have tertiary education.
Marital status (Unisa & Momentum, 2013: 32,34,35)	For households in the lowest quintile, 43.8% are single (never married); 30.5% are single after marriage and 25.8% are married.	For households in the middle quintile, 47.7% are married; 35.1% are single (never married) and 17.2% are single after marriage.	For households in the highest quintile, 54.9% are married; 32.4% are single (never married) and 12.7% are single after marriage.

2.6 SUMMARY

2.6.1 Introduction

In all the counties discussed, the literature was clear that wealth is skew, and that the vast majority of wealth is held by the top quintiles. Thus, it is necessary to investigate wealth distribution on different levels of wealth holdings. The countries used for debate in Section 2.3 and Section 2.5 are discussed next for the lowest quintile, middle quintile and highest quintile. This is done in Section 2.6.2.

The ECB (2013:49) states that a “typical household” in terms of composition of the asset portfolio does not exist. However, a number of characteristics are strongly correlated with the composition of the household portfolio. These characteristics are compared in Section 2.6.2 for the lowest, middle and wealthiest quintile.

2.6.2 Ranking summary for counties around the world

Great Britain's balance sheet per wealth quintile consisted of net assets, while the other countries' balance sheets consist of gross assets and gross liabilities. Therefore, Great Britain is excluded from the comparisons. Turkey is also excluded as Turkey's financial assets exclude pension funds which are a major financial asset in some countries' financial assets. The lowest quintile's ranking is displayed in Table 2.23.

Table 2.23: Household balance sheet for the lowest wealth quintiles

	Ranking - Bottom quintile					
ASSETS	**Australia**	**Europe**	**USA**	**Spain**	**South Africa (NIDS)**	**South Africa (Momentum)**
Residential property	3	1	1	1	2	1
Other non-financial assets	1	2	2	2	3	2
Financial Assets	2	3	3	3	1	3
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	1	1	1	3		
Assets with Monetary institutions	2	2	2	1		1
Other financial assets	3	3	3	2		
LIABILITIES						
Mortgage advances	1	1	1	1	1	1
Other debt	2	2	2	2	2	2
TOTAL LIABILITIES						

Source: Researcher's own compilation

In Europe, the USA, Spain, and South Africa (Momentum), residential property is ranked first, other non-financial assets second, and financial assets third. Australia's ranking differs from the other countries', and other non-financial assets are ranked first, financial assets second, and residential property third. South Africa's (NIDS)

ranking also differs where financial assets are ranked first, residential property second, and other non-financial assets third.

For financial assets, interest in pension funds and long term insurers is ranked first, assets with monetary institutions second, and other financial assets third for Australia, Europe and USA. This is in contrast with Spain where assets for monetary institutions is ranked first, other financial assets second, and interest in pension funds and long term insurers third. In South Africa (Momentum) there are only assets with monetary institutions and no other financial asset class is present.

The liability ranking for all countries, except in the case of South Africa (NIDS), is the same. Mortgage advances are ranked first and other debt second while for South Africa (NIDS) other debt is ranked first and mortgage advances second. The middle quintile is discussed next and the ranking is displayed in Table 2.24.

Table 2.24: Household balance sheet for the middle wealth quintiles

	Ranking - Middle quintile					
ASSETS	**Australia**	**Europe**	**USA**	**Spain**	**South Africa (NIDS)**	**South Africa (Momentum)**
Residential property	1	1	1	1	1	2
Other non-financial assets	3	3	3	2	3	3
Financial Assets	2	2	2	3	2	1
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	1	2	1	3		1
Assets with Monetary institutions	2	1	2	1		3
Other financial assets	3	3	3	2		2
LIABILITIES						
Mortgage advances	1	1	1	1	1	1
Other debt	2	2	2	2	2	2
TOTAL LIABILITIES						

Source: Researcher's own compilation

In Australia, Europe, and the USA, residential property is ranked first, financial assets second, and other non-financial assets third. For Spain and South Africa (NIDS), residential property is ranked first (as in the case with Australia, Europe, USA, and South Africa (NIDS)), other non-financial assets second, and financial assets third. South Africa's (Momentum) biggest asset class is financial assets, followed by residential property and other non-financial assets (as in the case with Australia, Europe, USA, and South Africa (NIDS)).

For financial assets, interest in pension funds and long term insurers is ranked first, assets with monetary institutions second, and other financial assets third for Australia and USA. This is in contrast with Europe where assets for monetary institutions is ranked first, interest in pension funds and long term insurers second, and other financial assets third (as in the case of Australia and USA). Spain has another ranking, where assets with monetary institutions are ranked first (also in Europe), other financial assets second, and interest in pension funds and long term insurers third. A fourth variation is found in South Africa (Momentum) where interest in pension funds and long term insurers is ranked first (also in Australia and USA), other financial assets second (also in Spain), and assets with monetary institutions third.

The liability ranking for all countries, except in the case of South Africa (NIDS), is the same. Mortgage advances are ranked first and other debt second while for South Africa (NIDS) other debt is ranked first and mortgage advances second. The highest quintile is discussed next and the ranking is displayed in Table 2.25.

In Australia, Europe, Spain and South Africa (NIDS), residential property is ranked first, financial assets second, and other non-financial assets third. For the USA and South Africa (Momentum) financial assets are ranked first, residential property second, and other non-financial assets third (as in the case with Australia, Europe, USA, Spain and South Africa (NIDS)).

For financial assets, other financial assets is ranked first, interest in pension funds and long term insurers second, and assets with monetary institutions third for Australia and USA. This is in contrast with Europe and Spain where other financial

assets is ranked first (as in the case with Australia and USA), assets for monetary institutions second, and interest in pension funds and long term insurers third.

Table 2.25: Household balance sheet for the highest wealth quintiles

	Ranking - Highest quintile					
ASSETS	**Australia**	**Europe**	**USA**	**Spain**	**South Africa (NIDS)**	**South Africa (Momentum)**
Residential property	1	1	2	1	1	2
Other non-financial assets	3	3	3	3	3	3
Financial Assets	2	2	1	2	2	1
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	2	3	2	3		1
Assets with Monetary institutions	3	2	3	2		3
Other financial assets	1	1	1	1		2
LIABILITIES						
Mortgage advances	1	1	1	1	1	1
Other debt	2	2	2	2	2	2
TOTAL LIABILITIES						

Source: Researcher's own compilation

A third variation is found in South Africa (Momentum) where interest in pension funds and long term insurers is ranked first, other financial assets second, and assets with monetary institutions third (also in Australia and USA). The liability ranking for all countries is the same. Mortgage advances is ranked first and other debt second.

For assets and financial assets for the countries discussed above there is no consistency on the ranking of these assets. Liabilities show consistency as all liabilities were ranked the same. Next the household characteristics which affect household wealth are compared between the lowest, middle and wealthiest quintile. This comparison is displayed in Table 2.26.

Table 2.26: Household characteristic summary for counties around the world

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
Age (reference person)	This quintile has the lowest age of the three quintiles as evidenced in Australia, Europe, Great Britain, USA, Spain, Turkey and South Africa (NIDS). This is not the case with South Africa (Momentum) where age did not follow the life cycle hypothesis.	This quintile has a higher age than the lowest quintile but a lower age than the highest quintile. This trend is following the life cycle hypothesis which indicates that wealth accumulates with age. This trend is evidenced in Australia, Europe, Great Britain, USA, Spain, Turkey and South Africa (NIDS). This is not the case with South Africa (Momentum) where age did not follow the life cycle hypothesis.	This quintile has the highest age of the three quintiles as evidenced in Australia, Europe, Great Britain, USA, Spain, Turkey and South Africa (NIDS). This is not the case with South Africa (Momentum) where age did not follow the life cycle hypothesis.
Income level	All the countries explored in Section 2.6 indicate that wealth and income are highly correlated. Therefore wealth increases with income. The lowest quintile has the lowest income of the three quintiles.	This quintile has a higher income than the lowest quintile but a lower income than the highest quintile.	This quintile has the highest income of the three quintiles.
# of household members	In Australia, wealth increases with the number of household members. The lowest quintile had the lowest number of household members (2.3 members). This is in	In Australia, wealth increases with the number of household members. The middle quintile (2.5 members) had more members than the bottom quintile but	In Australia, wealth increases with the number of household members. The highest quintile (2.8 members) had the most household members. This is in

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	contrast with Europe where the number of household members did not systematically rise with household size. The other balance sheet studies did not investigate the effect of the number of household members on wealth.	less members than the highest quintile. This is in contrast with Europe where the number of household members did not systematically rise with household size. The other balance sheet studies did not investigate the effect of the number of household members on wealth.	contrast with Europe where the number of household members did not systematically rise with household size. The other balance sheet studies did not investigate the effect of the number of household members on wealth.
Employment status	As evidenced in the studies for Australia, Europe, Great Britain and South Africa (Momentum), wealth increases with employment. The bottom quintile consists of the unemployed or economically inactive. The only exception to this was in the study for South Africa conducted by the NIDS. These households consist of both employed and economically active households, as evidenced by the existence of residential property and mortgage	The middle quintile has more employed households than the lowest quintile but less than the highest quintile.	The highest quintile holds the most employed households.

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	advances.		
Family type	Only Australia and Great Britain investigated the effect of family type on household wealth. In Australia the lowest quintile consists primarily (35%) of lone persons while in Great Britain the lowest quintile consisted primarily of lone parents with dependent children.	In Australia the middle quintile consists of couples with dependent children (29%) and lone persons (28%). In Great Britain the most common type of households is couple households with dependent children.	In Australia the highest quintile consists of couples only (36%) and couples with dependent children (20%). In Britain household wealth was the most for couple households without children and couple households without dependent children.
Home ownership	For Australia, USA, Spain, Turkey the lowest quintile consists primarily of renters. Europe and South Africa (NIDS) indicated that wealth increases with home ownership.	For Australia, USA, Spain, Turkey this quintile consists primarily of home owners. The home ownership rate is lower than the highest quintile.	For Australia, USA, Spain, Turkey this quintile consists primarily of home owners. The home ownership rate is the highest for this quintile.
Education	Low education levels are present in these households as evidenced in Europe, Great Britain, USA, Spain, Turkey and South Africa (Momentum).	Secondary education levels are present in this quintile.	Tertiary education levels are present in this quintile.
Sex and marital status	Only Great Britain investigated the effect of gender on wealth, and found gender to have minimal effect on wealth.	This quintile consists of single and married households.	The majority of this quintile is married.

CHARACTERISTICS	LOWEST QUINTILE	MIDDLE QUINTILE	HIGHEST QUINTILE
	However, marital status has an effect on wealth (as founded by Great Britain and South Africa (Momentum)). The majority of this quintile is single.		
Race	Only the USA investigated the effect of race on household wealth. This quintile consists primarily of non-white or Hispanic households.		This quintile consists primarily of white households in the USA.

Source: Researcher's own compilation

2.7 CLOSING REMARKS

In this chapter the composition of the household balance sheet as a wealth measurement instrument was described in Section 2.2 to enable the researcher to conduct the ranking to determine the priority composition. This was the first step which was required to answer sub-question 1. Thereafter, an investigation of the composition of household balance sheets from an aggregate perspective (Section 2.3) in various developed and developing countries were discussed. Next, reasons for differences in distributional and compositional results were (Section 2.4) explored. The chapter continued with an investigation of the composition of household balance sheets from a micro perspective (Section 2.5) and potential reasons for differences depicted in these balance sheets. This was done to enable the researcher to address the first research sub-question. The chapter concluded with a country per country comparison per lowest, middle and highest quintile (Section 2.6) to identify if there were any similarities or differences depicted in the quintile's balance sheets.

The first sub-question stated: *What is the balance sheet composition and characteristics across disaggregated households' internationally and in South Africa?*

Section 2.3 investigated this question on the aggregate perspective in order to understand the contribution composition of the balance sheet on a national level. The ranking and contribution differ from country to country. For example, the South African ranking of assets is the same as for the households in the USA and Great Britain but differs from the households in Australia, Europe, Turkey and Spain. In South Africa, Great Britain and the USA, financial assets are ranked first (second in Australia, Europe, Turkey and Spain), residential property second (first in Australia, Europe, Turkey and Spain), and other non-financial assets third (the same as Australia, Europe, USA, Spain and Turkey). The liability rankings for South Africa differs from Australia, Europe, the USA, Spain and Turkey, where other debt is ranked first in South Africa (second for Australia, Europe, USA, Spain and Turkey) and second for mortgage advances (first for Australia, Europe, USA, Spain and Turkey).

In Section 2.5 the same method is used to determine the contribution and ranking as calculated in Section 2.3, but on the micro level aggregate balance sheets per wealth quintile. This was done due to the skewness of wealth between the wealth quintiles. The trend of composition of household balance sheet for those at the bottom of the distribution was compared to those at the middle and high end of the distribution.

For the lowest quintile, residential property is ranked first in Europe, the USA, Spain, and South Africa (Momentum), other non-financial assets second, and financial assets third. Australia's ranking differs completely from the other countries', and other non-financial assets are ranked first, financial assets second, and residential property third. South Africa's (NIDS) ranking also differs from the other countries' where residential property is ranked first, other non-financial assets second, and financial assets third. The liability ranking is the same for Australia, Europe, the USA, Spain, and South Africa (Momentum), where mortgage advances are ranked first and other debt second. South Africa's (NIDS) ranking differs completely from the other countries' as other debt is ranked first and mortgage advances second.

The middle quintile in Australia, Europe and the USA has residential property ranked first, financial assets second, and other non-financial assets third. In Spain and

South Africa (NIDS) residential property is ranked first (as in the case with Australia, Europe, USA, and South Africa (NIDS)), other non-financial assets second, and financial assets third. South Africa's (Momentum) ranking also differs where the biggest asset class is financial assets, followed by residential property and other non-financial assets (as in the case with Australia, Europe and the USA). The liability ranking is the same for Australia, Europe, the USA, Spain, and South Africa (Momentum), where mortgage advances are ranked first and other debt second. South Africa's (NIDS) ranking differs completely as other debt is ranked first and mortgage advances second.

In the case of the highest quintile, Australia, Europe, Spain and South Africa (NIDS), residential property is ranked first, financial assets second, and other non-financial assets third. For the USA and South Africa (Momentum), financial assets are ranked first, residential property second, and other non-financial assets third (as in the case with Australia, Europe, USA, Spain and South Africa (NIDS)). The liability ranking for all countries is the same. Mortgage advances is ranked first and other debt second.

Therefore, there is no consistency in the ranking for assets in the countries discussed above. Liabilities show consistency as all liabilities were ranked the same.

The drivers for asset holdings and debt usage were classified through investigating international balance sheet studies done in Australia, Europe, the United Kingdom, the USA, Spain, Turkey and South Africa. The drivers was classified as age, income, number of household members, employment status, family type, home ownership, education, marital status, and race. These drivers were compared between the lowest, middle and highest wealth quintiles and are displayed in Table 2.26.

The research methodology applied to identify the differences *between South African households on the bottom end of the wealth spectrum compared to those on the top end* are discussed next in Chapter 3.

CHAPTER 3
RESEARCH METHODOLOGY

"Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning"

– Albert Einstein (Brainyquote.com, 2016.)

3.1 INTRODUCTION

The aim of this chapter is to provide a detailed description of the research design and methods used to accomplish the purpose and objectives as stated in Chapter 1 (Section 1.4). Chapter 2 described a detailed comparison on the composition and characteristics across disaggregated households internationally and in South Africa.

This chapter begins with the research purpose and objectives followed by a discussion on the research design and methods. The two phases relevant to the operationalisation of the research methods, namely the literature review and secondary data analysis, are discussed comprehensively. The discussion on the secondary data analysis includes the detail of the unit of analysis; secondary data set; sampling strategy; reliability and validity; and data analysis. The chapter concludes with the discussion of ethical considerations.

3.2 RESEARCH PURPOSE AND OBJECTIVES

As stated in Chapter 1 (Section 1.4) the overall purpose of this study was to investigate the main differences between households on the bottom end of the wealth spectrum compared to those on the top end in order to propose policy recommendations for the South African government to improve stability and increase the number of financially well households.

Four sub-objectives (Section 1.4) were formulated in order to meet the main objective.

- The first sub-objective was to examine the balance sheet composition and characteristics across disaggregated households on a local and international level.

- The second sub-objective was to determine if the household balance sheet composition across disaggregated households in South Africa is optimal.

- The third sub-objective was to examine possible reasons for the sub optimality if the household balance sheets across disaggregated households in South Africa were not optimal.

- The fourth sub-objective was to propose policy recommendations for the South African government to improve stability and increase the number of financially well households.

3.3 RESEARCH DESIGN

A quantitative research design that was comparative in nature was used in this study and addressed the problem as identified in Section 1.2.

Leedy and Ormrod (2015:98) explain that quantitative and qualitative approaches involve similar processes but they make use of different types of data. Quantitative studies make use of numerical data where qualitative studies use non-numerical data (Leedy & Ormrod, 2015:98). In this study, the researcher makes use of numerical data in the form of household balance sheets which contribute to the use of the quantitative approach.

Leedy and Ormrod (2015:98) also state that quantitative and qualitative research designs are appropriate for answering different questions. Quantitative researchers seek explanations and predictions that generalise to persons and places while qualitative research seeks better understanding of complex situations which can be exploratory in nature (Leedy & Ormrod, 2015:98). This study is thus quantitative as the research question investigates the main differences in South African households on the bottom end of the wealth spectrum compared to those on the top end of the

wealth spectrum to improve the financial wellness of households, based on numerical data.

A comparative design was deemed appropriate because the purpose of the study was to compare South African households on the bottom end of the wealth spectrum with those on the top end of the wealth spectrum to improve the financial wellness of households. A comparative design focuses on the similarities and differences between groups of units (Mouton, 2005:104), which is the focus of this study. Mouton (2005:104) claims that the strength of a comparative design is the comparison of different theoretical viewpoints across different settings. A limitation of this research is the degree of comparability of the cases, such as the constraints associated with the differences in culture (Mouton, 2005:104).

3.4 RESEARCH METHODS

The research design was operationalised through the use of a secondary data analysis strategy. Secondary data analysis is the reworking of already analysed data over which the researcher had no direct control or direct involvement (De Vos, *et al.* 2011:383).

The advantages of carrying out secondary data analysis are explained as follows by Saunders, *et al.* (2009:268-269):

- Good quality data can be available at a substantially lower cost than if the researcher collects the data.

- Data is likely to be of a higher quality than if the researcher collects the data.

- The datasets can provide an opportunity for researchers to conduct longitudinal research.

- More time can be spent on data analysis as less time is spent in collecting the new data.

- Large datasets can offer an opportunity for providing subgroups and samples that are nationally representative.

- Re-analysing data can lead to unforeseen and new discoveries.

- Research findings are open to public scrutiny as the data source is available in a form that may be checked by others.

It is also important to investigate the limitations of secondary analysis, as mentioned by Saunders, *et al.* (2009:269-272):

- The data could have been collected for a specific purpose that differs from the researcher's research question.

- The data may lack a key variable or variables.

- Where data has been collected for commercial reasons, gaining access to the data could be difficult and costly.

- The researcher who makes use of secondary data does not have control over the quality of the data.

The above-mentioned advantages and disadvantages were considered when electing to make use of the data from the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) survey. After deliberation, it was found that the choice of secondary analysis of the data was well suited to this study. The Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) dataset is representative of the South African population and includes all the required information needed to achieve the purpose of this study. Data to populate disaggregated household balance sheets and characteristics on a disaggregated level is not commonly available and is quite expensive to collect (Heath, 2013:28).

The next section provides an overview of the two phases that were implemented to achieve the purpose of the research. Each phase was conducted to address a specific research question and sub-objective as set out below. Phase one consisted of a literature review, while phase two consisted of a secondary data analysis. A description of how the literature review was performed is discussed next.

3.4.1 Phase 1: Literature review

The aim of the literature review in this study was to examine the balance sheet composition and characteristics across disaggregated households, internationally and in South Africa (sub-question 1), in order to gain insight about trends and characteristics of different categories of households internationally and in South Africa. The literature review was therefore a significant contributor to achieve sub-objective one of this study.

In this study, a traditional literature review was conducted. A traditional literature review is a written appraisal of existing knowledge on a topic. The aim of a traditional literature review is to be comprehensive and also to add new insights about a particular subject (Jesson, *et al.* 2011:75).

The literature review was done in two steps. Step one was to collect literature on a suitable measurement instrument of wealth. International frameworks were consulted on International Accounting Standards and also the ICW Framework of the OECD. These frameworks confirmed the importance of the balance sheet as measurement tool. The next step was the identification of the components of the household balance sheet. Once again the above two frameworks, as well as the South African Reserve Bank (2006) and Scheepers (2014), provided the necessary components.

The second step involved searching and selecting international balance sheet studies as well as balance sheet studies in South Africa. An important criterion that was used, was that the balance sheet studies should be after 2011. The reason for this criterion was to evaluate balance sheets after the financial crisis of 2011. As household data is difficult to obtain, especially household balance sheet data (Heath, 2013:4), the second criterion was that institutions in selected countries should have

been able to gather household balance sheet data. Wealth studies performed in Australia, Europe, Great Britain, South Africa, Spain, Turkey and the United States of America were selected.

Another reason for the inclusion of Australia, Europe, the United Kingdom and the United States of America, were that they have a long history of gathering household balance sheet data and compiling household balance sheets. These countries are classified by the World Bank as high income OECD members while South Africa is classified as an upper-middle income economy (World Bank, 2016). To enhance comparability, Turkey was selected as Turkey is in the same World Bank lending group classification as South Africa (the upper-middle income economies).

Spain is classified by the World Bank in one group higher, the high income OECD members, and it will be worthwhile to compare South Africa with Spain, as South Africa is a member of the G20 countries with a well-developed banking system which compares favourably with those of industrialised countries (The Banking Association South Africa, 2016).

Phase two, the secondary data analysis, is discussed next.

3.4.2 Phase 2: Secondary data analysis

In this section an outline of phase 2 of the study is provided with reference to the unit of analysis; the secondary data set; sampling; reliability and validity; and secondary analysis.

3.4.2.1 Unit of analysis

Babbie and Mouton (2001:648) state that the unit of analysis is the “what” or “who” being studied. In this study, the unit of analysis is households. As households are the focus of this study, it is necessary to arrive at a definition of a household.

The United Nations (2016) define a household as either:

- *A one-person household, defined as an arrangement in which one person makes provision for his or her own food.*

- *A multi-person household, defined as a group of two or more persons living together who make common provision for food or other essentials for living.*

The ABS (2013:77) have a similar definition where a household is defined as a person living alone or in a group of related or unrelated people who usually live in the same private dwelling.

The Personal Finance Research Unit (2012:4) definition is also similar where a household is an economic unit consisting of a person living alone; or a group of people living together in the same private dwelling where expenditures (including the joint provision of the essentials of living) are shared. This definition has been adopted to define “households” as the unit of analysis in this study.

Next, the secondary data set is discussed.

3.4.2.2 Secondary data set

A secondary data set refers to existing data that was collected and processed by another researcher for another primary purpose (Johnson, 2014:1; Leedy & Ormrod, 2016:281). In this section, a description was provided of the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) to contextualise the original study from which the secondary data set was drawn. The data used in this study was collected as part of an omnibus study conducted by Unisa’s Bureau for Market Research and Momentum. This study is known as the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2). It is an expansion of the initial 2011 study (Wave 1), which was developed to measure South African households’ financial wellness situation (Unisa & Momentum, 2011:1). The data used in this study is an extension of the omnibus study investigating the profile of household finances in South Africa. The researcher had the benefit that his supervisor was part of the Unisa’s Bureau for Market Research team and acted as

his gatekeeper in order to obtain the dataset. Saunders, *et al.* (2009:592) define a gatekeeper as a person who controls research access to the dataset.

In order to assess whether the dataset was applicable to the current study, the researcher obtained the questionnaire of the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2). This wellness questionnaire consisted of seven sections. Because an omnibus survey was used, this study included only questions from selected sections of the omnibus survey, as illustrated in Table 3.1:

Table 3.1: Section selection

Relevant sections	Sections not used
• A: Demographics • B: Environment • E: Household assets • F: House liabilities • G: Sources of funding	• C: Financial behaviour • D: Monthly household expenditure

Source: Researcher's own compilation

The researcher mapped the questionnaire to the household balance sheet components and characteristics which affect household wealth as identified in Chapter 2. A detailed discussion of this mapping is provided in Section 3.4.2.3 of this chapter.

To summarise, the results presented in this study are based on the questions related to the household's assets and liabilities, and the characteristics which affected household wealth that was included in the omnibus study.

The sample design, size and distribution of the data set are discussed next, followed by the demographic variables of the dataset.

a) Sample design, size and distribution of the secondary data set

The Momentum/Unisa South African Household Financial Wellness Index survey of 2012 (Wave 2) used a stratified, multi-stage sample design. This was done to ensure a fair representation and reflection of the South African household profile. In 2011 the Stats SA census results showed the South African population figure to be 51.8 million (SSA, 2012:14). The stratification variables were provinces, population (urban/rural) and area type (informal settlements, traditional areas and formal urban areas) (PFRU, 2012:2).

Due to the ethnic and cultural diversity of South Africa, a multi-stage sampling technique was applied to construct the geo-demographic categories of the population. This was developed from the data sourced from the South African Demarcation Board. The geo-demographic categories are reflected in the diversity of the South African population based on their rural / urban setting, income, education, racial and geographic characteristics.

Mouton (2005:104) states that data can be gathered by a variety of collection methods, but that the methods need to correspond with the data sources. He classifies four types of data collection methods, namely observation; interviewing; testing; and selecting and analysing texts (Mouton, 2005:105). This study (Wave 2) focussed on obtaining the respondents' knowledge and information. To this end the researcher's approach consisted of computer-aided telephone reviews (CATI) and personal face-to-face interviews. The sample design statistician used the geo-demographic categories to develop the sample with the ideal number of CATI and face-to-face interviews per province in order to be representative of South Africa. The sample is displayed in Table 3.2.

Table 3.2: Sample of the Momentum/Unisa South African Household Financial Wellness Index survey (Wave 2)

Province	Face-to-face	CATI	Total
Eastern Cape	323	61	384
Free State	347	73	420
Gauteng	317	121	438
KwaZulu-Natal	362	69	431
Limpopo	322	66	388
Mpumalanga	301	85	386
North West	254	57	311
Northern Cape	367	61	428
Western Cape	355	103	458
Total	**2 948**	**696**	**3 644**

Source: PFRU (2012:3)

In this study (Wave 2), 3 644 respondents were interviewed and the data met the data validation and reliability criteria. Only one of the characteristics that affect household wealth as identified in Section 2.6.2 was not available to analyse and interpret, as this study used secondary data obtained from an omnibus study (Wave 2). As family type is only an extension of household size, the researcher decided not to analyse family type on its own.

The obtained household asset and liability data were parameter identified with available South African Reserve Bank (SARB) household asset, liability and wealth data. Weights were applied to the obtained asset, liability and wealth data of Wave 2. This was done to ensure that the data were congruent with SARB household asset, liability and wealth estimates.

b) Descriptive data analysis: Demographic variables

This section provides a descriptive analysis for each of the variables included in the survey. In order to facilitate the interpretation and analysis of the data, the variables were grouped as discussed below.

b.i) Age

The questionnaire contained a question asking the respondent's age. The respondents were classified into six age groups, namely:

- 17–24 years of age;
- 25–34 years of age;
- 35–49 years of age;
- 50–59 years of age;
- 60–64 years of age; and
- 65 years and over.

The breakdown of respondents per age group is displayed in Figure 3.1.

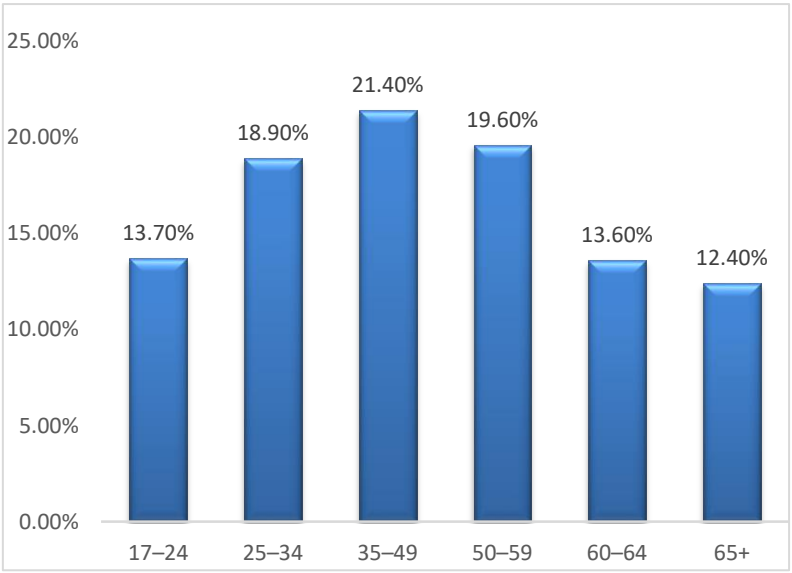


Figure 3.1: Demographic profile: Age

Source: Researcher's own compilation

b.ii) Income level

The questionnaire contained a question where the respondents needed to indicate their monthly income levels using a scale measure. The total household income of all household members was used as the income level of the total household. The

respondents were classified into eight groups representing different monthly income level categories, namely:

- Low income (LI) (R1–R58 093 per annum);
- Low emerging middle class (LEMC) (R58 094–R160 892 per annum);
- Emerging middle class (EMC) (R160 893–R382 127 per annum);
- Realised middle class (RMC) (R382 128–R662 676 per annum);
- Upper middle class (UMC) (R662 677–R907 101 per annum);
- Emerging affluent (EAF) (R907 102–R1 396 336 per annum); and
- Affluent (AFF) (R1 396 337+ per annum).

The breakdown of respondents per income level group is displayed in Figure 3.2.

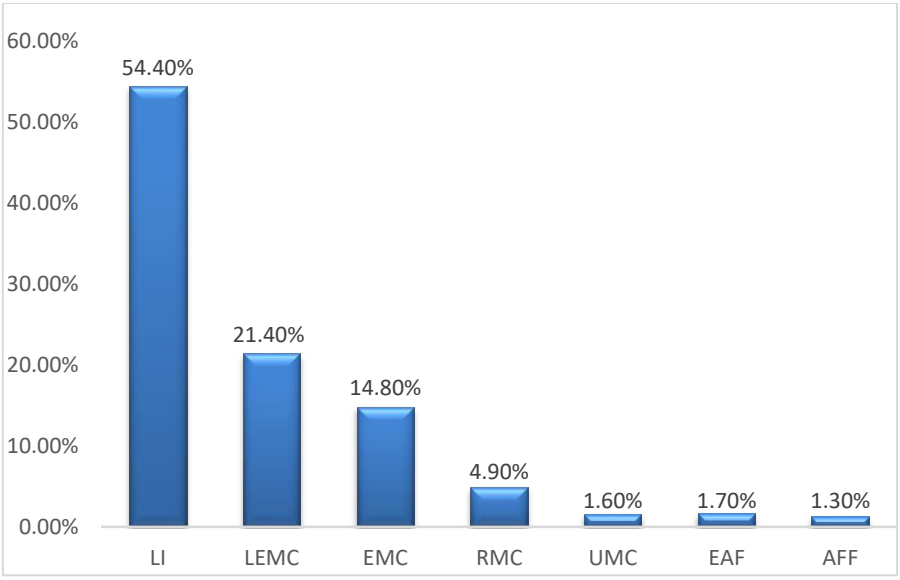


Figure 3.2: Demographic profile: Income level

Source: Researcher's own compilation

b. iii) Number of household members

The questionnaire contained a question asking the respondents to indicate their kinship in relation to the persons in the household. The number of household members was then tallied to determine the number of household members. The respondents were classified into six groups representing the number of household members. These six groups are:

- One member;
- Two members;
- Three members;
- Four members;
- Five members; and
- More than five members.

The breakdown for the number of household members is displayed in Figure 3.3.

Figure 3.3: Demographic profile: Household members

Source: Researcher's own compilation

b.iv) Employment status

The questionnaire contained a question investigating the respondents' employment status. The respondents were classified into three groups representing the various employment statuses. These three groups are:

- Employed;
- Unemployed; and
- Not economically active.

The breakdown for the employment statuses is displayed in Figure 3.4.

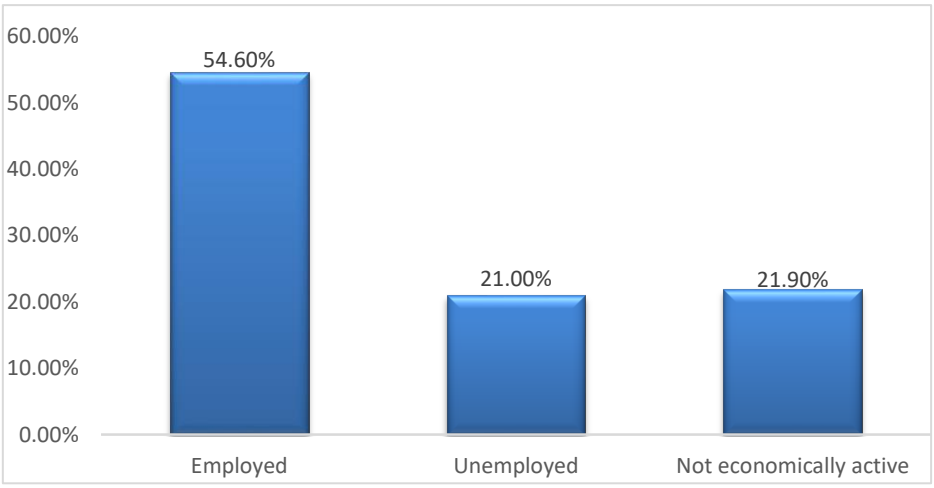


Figure 3.4: Demographic profile: Employment status

Source: Researcher's own compilation

b.v) Home ownership

Respondents were asked to indicate their tenure status on the questionnaire. The following two groups were used in this study:

- Home owner; and
- Renter.

The breakdown for home ownership is displayed in Figure 3.5.

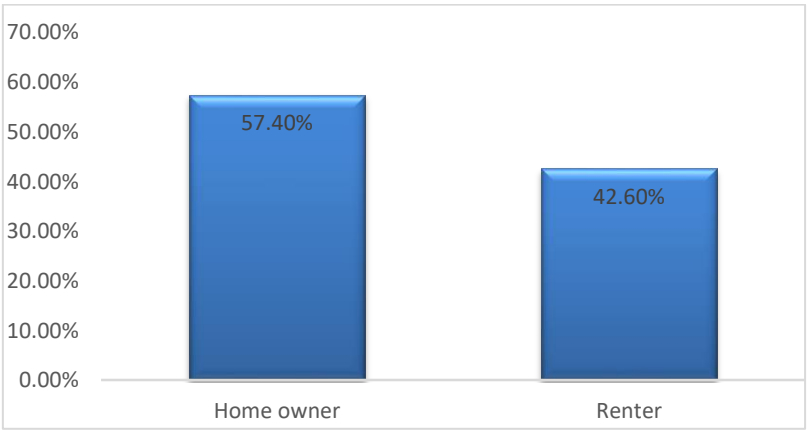


Figure 3.5: Demographic profile: Home ownership

Source: Researcher's own compilation

b.vi) Education

Respondents were asked to indicate their education level on the questionnaire. The following four groups were used in this study:

- Some primary education;
- Some secondary education;
- Completed secondary education; and
- Tertiary education.

The breakdown for education is displayed in Figure 3.6.

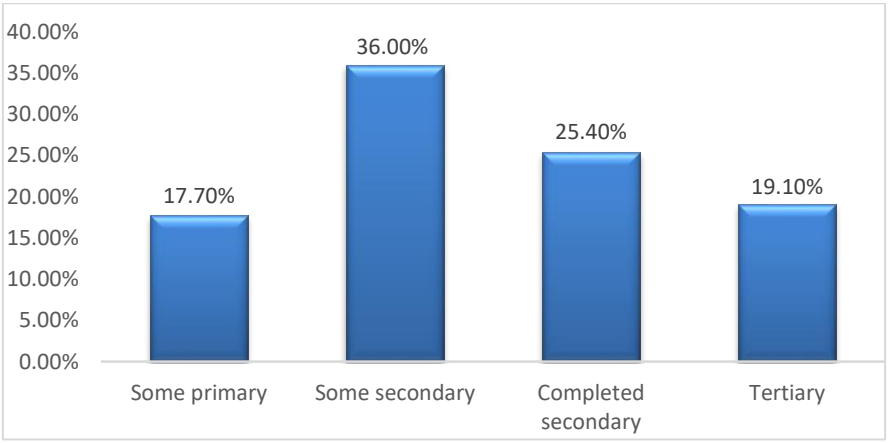


Figure 3.6: Demographic profile: Education

Source: Researcher's own compilation

b.vii) Gender

The questionnaire contained a question asking the respondents to indicate their gender from a list of two possibilities. These two groups were:

- Male; or
- Female.

The breakdown for gender is displayed in Figure 3.7.

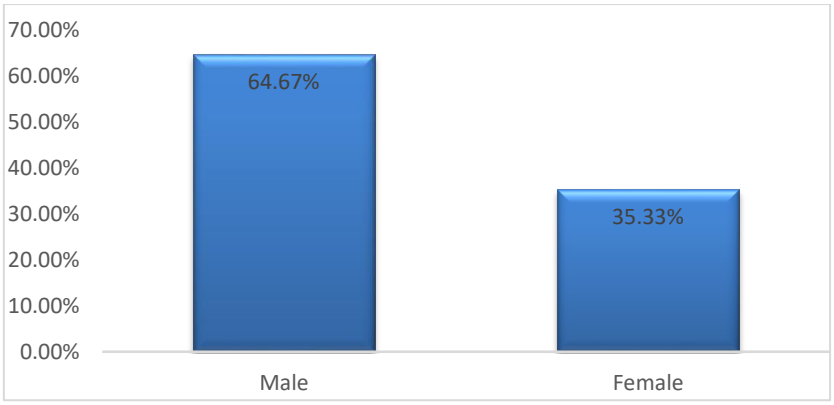


Figure 3.7: Demographic profile: Gender

Source: Researcher's own compilation

b.viii) Marital status

Respondents were asked to indicate their relationship status on the questionnaire. The following three groups were used in this study:

- Never married;
- Married/living with partner; and
- Single after marriage.

The breakdown for the marital status is displayed in Figure 3.8.

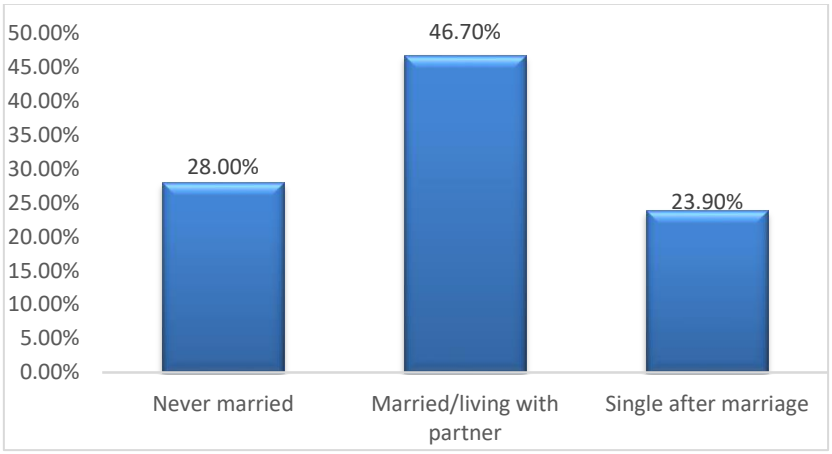


Figure 3.8: Demographic profile: Marital status

Source: Researcher's own compilation

b.ix) Race

The questionnaire contained a question asking the respondents to indicate the population group to which they belong. The respondents were classified into four groups representing the various ethnic groups. These groups are:

- Black;
- Indian/Asian/Other;
- Coloured; and
- White.

The breakdown for the ethnic groups is displayed in Figure 3.9.

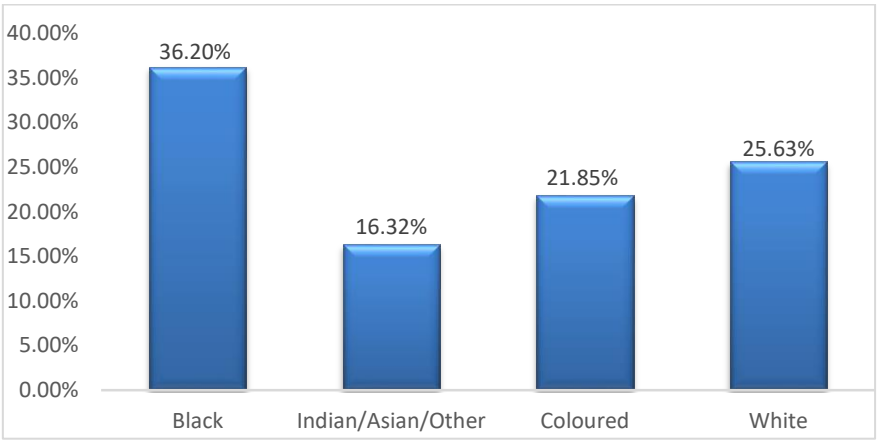


Figure 3.9: Demographic profile: Race

Source: Researcher's own compilation

Sampling as applied by the researcher is discussed next.

3.4.2.3 Sampling strategy

Based on the balance sheet framework required to populate the composition across various groups of households, it was necessary to determine whether the survey of the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) addressed the various components of the balance sheet as well as several characteristics which were identified to influence the balance sheet composition. The

mapping of questions used in this study is reflected in Table 3.3 for balance sheet items and Table 3.4 for wealth characteristics identified in Chapter 2.

Table 3.3: Balance sheet mapping to questionnaire

HOUSEHOLD BALANCE SHEET	QUESTION NUMBER	ACTUAL WORDING OF THE QUESTION
ASSETS		
Residential property	E09	What is a reasonable market value for which the property can be sold?
Other non-financial assets	E10	What is the market value of the household content e.g. clothing, furniture, cellphone, television?
	E12	Current market value (vehicles)?
	E30	What is the market/current value of all (name's) boats & planes?
	E32	What is the market value of all (name) other assets e.g. cattle, artworks, antiques, stamps, jewellery or coins?
Financial Assets		
Interest in pension funds and long-term insurers	E24	What is the current value of all retirement fund benefits (e.g. pension fund, retirement annuity)?
	E25	What is the current value of all long-term policies (e.g. education, endowment)?
Assets with Monetary institutions	E19	What is the current balance that (name) has in his/her cheque/savings accounts?
	E20	What is the amount that (name) has in his/her short-term deposit accounts (e.g. money market accounts)?
	E21	What is the amount that (name) has in fixed-term deposit accounts (e.g. three/six month accounts)?
	E22	What is the amount that (name) has in his/her Postbank accounts?
Other financial assets	E23	What is the market value of all (name's) unit trust investments?
	E26	What is the market/current value of all (name's) share investments (e.g. listed on the JSE & unlisted shares)?

HOUSEHOLD BALANCE SHEET	QUESTION NUMBER	ACTUAL WORDING OF THE QUESTION
	E27	What is the market/current value of all (name's) retail bonds (e.g. Government RSA Retail bonds)?
	E28	What is the market/current value of all (name's) other financial assets (e.g. stokvels, burial society and social clubs)?
	E34	What is the net amount of all (name's) assets minus liabilities that are held in trust?
	E35	What is the net amount of all (name's) assets minus liabilities that are held in a business name?
LIABILITIES		
Mortgage advances	F7	What is the amount of the bond (mortgage) still owing on this property?
Other debt	F1	What is the total amount (name) owes on his/her bank overdraft?
	F2	What is the total amount (name) owes on his/her credit cards/petrol cards?
	F3	What is the total amount (name) owes on his/her store cards?
	F4	What is the total amount (name) owes on his/her personal loans received from banks etc.?
	F5	What is the total amount (name) owes on his/her personal loans received from friends or family etc.?
	F6	What is the total amount (name) owes on his/her student loans?
	F8	What is the total amount (name) owes on his/her other financial arrangements (excluding mortgages and vehicle finance)?
	F9	What is the total amount (name) is in arrears on his/her municipal account?
	F10	What is the total amount (name) is in arrears on his/her rental agreements (include only residential property rental)?

HOUSEHOLD BALANCE SHEET	QUESTION NUMBER	ACTUAL WORDING OF THE QUESTION
	F11	What is the amount outstanding on the financing of the household content?
	F12	What is the total amount (name) is in arrears on his/her child alimony or spouse maintenance?
	F13	What is the total amount (name) is in arrears on school/university fees?
	F14	What is the total amount (name) is in arrears on other bills?
	F18	What is the outstanding amount on the vehicle finance?
	F31	What is the amount outstanding on the financing of boats & planes?

Source: Researcher's own compilation

Table 3.4: Characteristics mapping to questionnaire

CHARACTERISTICS	QUESTION NUMBER	ACTUAL WORDING OF THE QUESTION
Age	A10	What is (name's) age?
Income level (all questions was summed to get to a total income figure)	G03	How much did (name) earn as salary/wages before tax last month?
	G04	How much did (name) receive from social transfers from the government (e.g. old age, disability, child support) last month?
	G05	How much did (name) earn from his/her own business before tax last month?
	G06	How much did (name) receive from rental income after all expenses/taxes regarding the rental income were paid last month?
	G07	How much interest did (name) earn from his/her investments or savings accounts last month?
	G08	How much did (name) receive in dividends from all his/her shares last month?

CHARACTERISTICS	QUESTION NUMBER	ACTUAL WORDING OF THE QUESTION
	G09	How much social transfers in kind (e.g. cash value of food or accommodation) did (name) receive last month?
	G10	How much did (name) receive in retirement benefits (e.g. pensions, annuities) last month?
	G11	How much did (name) receive from other households or in support from relatives?
	G12	How much did (name) receive from other income sources last month?
Number of household members	A07	General comments on the person, his/her different household memberships and why he/she should/should not be considered a member of this household.
Employment status	A15	How can one describe (name's) main activity or work status best?
Home ownership	B06	What is the tenure status of the main residence?
Education	A14	What is the highest level of education that (name) has completed?
Gender	A08	Is (name) male or female?
Marital status	A11	What is (name's) current relationship status?
Race	A12	How would (name) describe himself/herself in terms of population group?

Source: Researcher's own compilation

The evaluation of the reliability and validity of the secondary data for the purposes of the current study will be discussed next.

3.4.2.4 Reliability and validity

Secondary data sources may appear relevant but on closer examination it can be deemed inappropriate to address the research questions or objectives (Saunders, *et*

al. 2009:273). Therefore, it is important to evaluate the suitability of the secondary data sources. This evaluation is summarised in Figure 3.10.

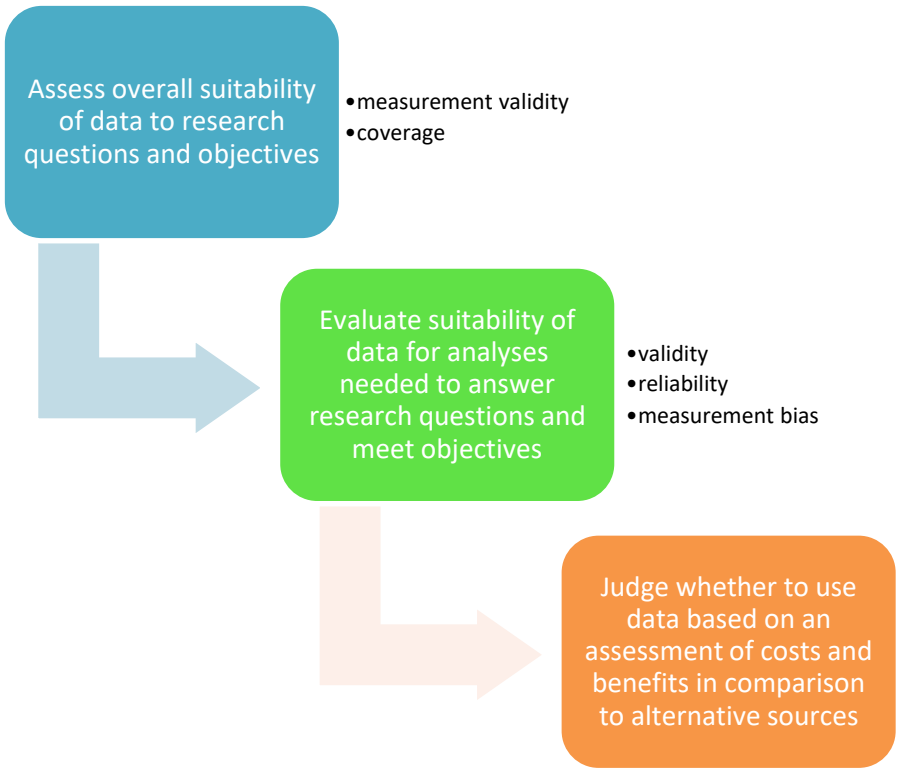


Figure 3.10: Evaluating secondary data sources

Source: Saunders, *et al.* (2009:273)

The first step in secondary data evaluation is to assess the overall suitability of data to the research questions and objectives. This step is discussed in Section 3.4.2.4 (a). Once satisfied, the next step is to evaluate the precise suitability of data needed for analysis to answer the research questions and objectives. This step is discussed in Section 3.4.2.4 (b). The last step of evaluating secondary data sources is to judge whether to use the data based on an assessment of costs and benefits in comparison to alternative sources. This is discussed in Section 3.4.2.4(c).

a) Assess overall suitability of data to research questions and objectives

Saunders, *et al.* (2009:273) state that in order to assess whether secondary data is suitable to the research questions and objectives, particular attention should be given to measurement validity and coverage.

Measurement validity is the extent to which the measuring instrument measures what it was intended to measure (Saunders, *et al.* 2009:595). If measurement validity is not achieved, the data set will yield invalid answers. Of equal importance is coverage, which is the extent to which the data set covers the target population, time frame, and variables to answer the research questions and objectives (Saunders, *et al.* 2009:589).

Based on the balance sheet framework required to populate the composition across various groups of households, it was necessary to determine whether the survey addressed the various components of the balance sheet as required. The questions used in this study to populate the household balance sheet are reflected in Table 3.3.

Furthermore, in Chapter 2 several characteristics were identified which influence the balance sheet composition (Section 2.7.2). As a result it was necessary to ensure that the relevant questions were included in the survey (Table 3.4) to address these characteristics.

To summarise, measurement validity was achieved as shown in Table 3.3 and Table 3.4. Therefore, data needed to draw up balance sheets as well as characteristics that influence wealth, can be obtained by using the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2). Coverage is also achieved as the target population is South African households, the time frame is 2012, and the variables needed are available. Another important finding was that this study uses the same definition of a household as the one used in the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) (Section 1.6.5). Consequently, the secondary data set is overall suitable to meet the research questions and objectives.

b) Evaluate suitability of data for analysis needed to answer research questions and meet objectives

In order to assess whether secondary data is suitable to answer the research questions and objectives, particular attention should be given to reliability, validity and measurement bias.

The reliability and validity ascribed to secondary data are functions of the method by which the data was collected and the source of the data (Saunders, *et al.* 2009:274). The source refers to assessing the authority and reputation of the source. Saunders, *et al.* (2009:274) explains that survey data from large, well known organisations are likely to be reliable and trustworthy, because the existence of these organisations is dependent on the credibility of their data. This study was conducted jointly by Momentum and Unisa. Momentum is a well-known insurance company and Unisa is a world-class university. Therefore, the source of the data is considered reliable, which is the first requirement to evaluate the suitability of the secondary data.

The second step in assessing if the data is reliable and valid is to inspect the method by which the data was collected. The survey instrument used in the initial Household Wellness Survey (Wave 1) was the basis for adjusting the questionnaire used for the Wave 2 survey. The final questionnaire was put through rigorous improvement and review processes to ensure relevant data collection and comparability, to reduce bias and increase respondent participation (Personal Finance Research Unit [PFRU], 2012:7). The PFRU (2012:7) improvement and review processes were performed in the following four phases:

- The first phase involved feedback from interviewers on challenges experienced during the interview process of Wave 1, by means of group discussions.

- The second phase entailed follow-up visits with respondents from Wave 1 to improve the questionnaire's structure, content and concept descriptions and through collaboration with researchers from the United Kingdom (UK), who are experts and experienced in conducting household surveys.

- The third phase consisted of numerous brainstorming sessions among the experts from the UK and BMR/PFRU researchers to improve the quality of the questionnaire, the administration processes regarding the questionnaire, and field work based on feedback from the follow-up visits in phase 2.

- In the last phase the revised questionnaire was developed based on the information obtained in the previous phases. This revised questionnaire was piloted at a North West municipality to assess the effectiveness of the changes made in the questionnaire. Subsequently, after incorporating feedback received from the interviewers, the questionnaire was finalised.

The data was collected using computer-aided telephone interviews (CATI) and personal face-to-face interviews. Trained interviewers from the Bureau for Market Research (BMR) conducted the CATI under supervision. These interviewers were selected from the BMR's list of experienced interviewers and were also trained on the content of the survey. Respondents for the CATI survey were randomly selected from the telephone directory. The quality of the CATI was continuously assessed and monitored. This ensured immediate corrective action or call-backs of respondents, if required (PFRU, 2012:5-8).

Face-to-face interviews were conducted across all nine provinces by selecting two municipalities per province. It was necessary to recruit interviewers from the respective communities where these interviews were scheduled to be conducted, as some of these communities were situated in rural areas. The selection criteria for an interviewer were determined to be: a grade 12 certificate (as a minimum), good communication skills, and a suitable personality. A paper-and-pencil interviewing method was used for the face-to-face interviews due to the complex nature of the omnibus questionnaire.

Research managers trained the interviewers at the respective locations by using a training manual. This training manual included the purpose of the research, definitions, and recommended interview techniques. Part of the training also included the completion of the questionnaire by each interviewer. Identified issues were then discussed by making use of group discussions. In addition, each interviewer received a multilingual (eight languages) dictionary containing the most pertinent financial terms. The most competent interviewer at each location was selected as a regional supervisor. These supervisors were required to perform various additional duties, including some administrative tasks, assisting interviewers and performing call-backs.

On completion of their training, the interviewers were assigned to specific locations within each municipality. Respondents were selected on a random street where any property in that street ending with a zero was chosen as the starting point. Then, the three closest neighbours were selected to form part of the sample. After the completion of the first set of interviews, the next respondent had to be a minimum of five streets further.

All interviews were performed by two interviewers. The supervisors provided progress updates during the interview process. After the interviews were completed, the supervisors performed field editing on the questionnaires to ensure correctness and completeness.

If a questionnaire was found to be incomplete or incorrect, the interviewers revisited the applicable respondent. The supervisor then forwarded these questionnaires to the researchers, who checked it for correctness and completeness.

The initial response rate was high (96.95%). This is also indicative that the data is reliable as Saunders, *et al.* (2009:276) states survey data collected with a high response rate is likely to be more reliable than from a low response rate.

The data represents a nationally representative sample of 3 644 households in South Africa. The demographic profile of the realised sample used in this study was already provided in Section 3.4.2.2.(b).

The data was collected over the period September 2012 to March 2013, which was then captured and coded in-field and by designated in-house data capturers. Verification was done through telephone back checks (10% of all questionnaires) and editing. All typographical errors were corrected before the commencement of data analysis.

Therefore, the collection method for the survey used to collect secondary data was sound. The second requirement has been met to evaluate the precise suitability of the secondary data.

The last area to determine if the data is suitable to use in this study, is the existence of measurement bias. Measurement bias occurs when there is a deliberate distortion (where data is purposely recorded inaccurately) of data (Saunders, *et al.* 2009:277). Once again the source of the data is evaluated and it was stated before that Momentum and Unisa are credible sources.

Additionally, the structural integrity of the database was evaluated. Structural integrity refers to ensuring that a database is consistent, logical and stable. Neural network methods were used to determine the extent to which income and expenditure can be explained by age, education and employment status. The results indicated a value of 69% (linked to the % contribution), demonstrating a high level of structural integrity.

To summarise, the dataset was found to be reliable, valid, with no measurement bias, and the structural integrity of the database was consistent, logical and stable. The dataset is thus precisely suitable to answer the research questions and objectives.

c) Judge whether to use data based on an assessment of costs and benefits in comparison to alternative sources

The advantages and disadvantages in Section 3.4 were considered in order to make use of the dataset from the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) survey. The data was made available to the researcher at no cost. Therefore, the advantages outweigh the costs and the third requirement was achieved in evaluating the secondary dataset.

To conclude, all three requirements as discussed in Figure 3.10, were met. The dataset obtained from the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) was found to be suitable for this study.

The next section describes the phases followed to analyse the data in order to answer research sub-questions two, three and four.

3.4.2.5 Secondary data analysis

Three phases were followed in order to address the research sub-questions as illustrated in Figure 3.11.

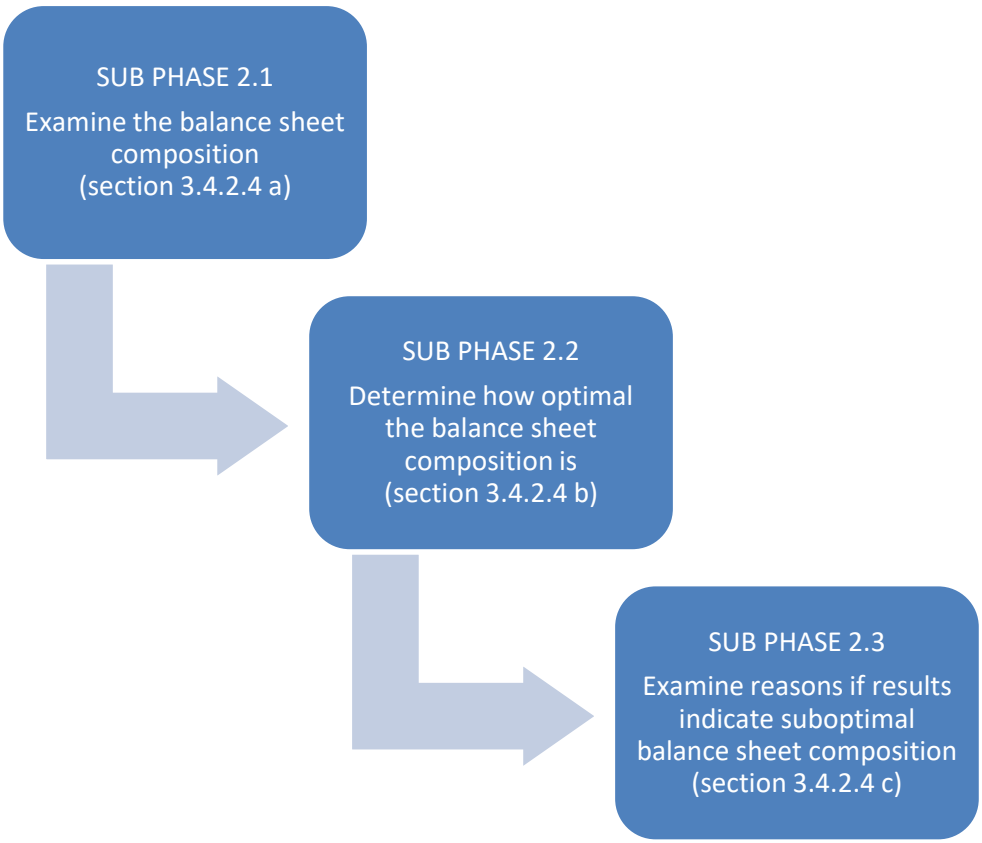


Figure 3.11: Secondary data analysis phase

Source: Researcher's own compilation

These sub phases are discussed next.

a) Sub phase 2.1: Examine the balance sheet composition

The research question to be addressed in phase 2.1 was to determine the balance sheet composition and characteristics across disaggregated households, internationally and in South Africa. The purpose of phase 2.1 is to gain insight about the trends and characteristics of different categories of households internationally and in South Africa. In investigating these trends, the balance sheet components asset and liability class contribution to total assets and liabilities, was calculated for

the disaggregated households. These assets and liabilities were then ranked to determine if there is a trend in asset and liability preferences in the household balance sheet. Phase 2.1 was done in Chapter 2 for international and local studies. The ranking and contribution for the data acquired from the dataset was done in Chapter 4 (Section 4.3).

b) Phase 2.2: Determine how optimal the balance sheet composition is

Phase 2.2 aimed to determine if the household balance sheet composition across disaggregated households, was optimal in relation to the next higher financial wellness category, which is the second research sub-question (Section 1.3). Game theory was used to provide an answer to this question.

Game theory is a mathematical approach to real-life situations that involves two or more decision makers, where each decision maker has a number of different actions available and the ultimate outcome depends on both decision makers' actions (Rosenthal, 2011:3). Game theory is prescriptive with an ever growing set of mathematical models and solution procedures that intends to inform players of the optimal actions, based on a reasonable set of principles, in a particular setting (Rosenthal, 2011:3). Table 3.5 highlights the applicability of game theory to this study.

Table 3.5: Game theory application to this study

GAME BASICS (ROSENTHAL 2011:4):	APPLICATION IN CURRENT STUDY
A game is a situation which there is multiple decision makers. Each decision maker is called a player.	In this study there are three games with two players each. The games are: • the Anchored Unwell versus the Drifting Unwell; • the Drifting Unwell versus the Drifting Well; and • the Drifting Well versus the Anchored Well.
Each player has a certain set of actions (called strategies) available.	The strategies of the financial wellness players are how to utilise their resources to obtain a strong balance sheet in order to become financially well.

GAME BASICS (ROSENTHAL 2011:4):	APPLICATION IN CURRENT STUDY
Each player settles on a particular strategy and the result is called the outcome. The outcome is measured numerically and is referred to as the payoff.	The outcome is the payoff of the balance sheet composition for each financial wellness group.
• The first distinction to be made in games is between zero sum and non-zero sum games. In zero sum games the outcomes are shown by a pair of numbers where 1 represent a victory and -1 a defeat. Therefore what the one player wins, the other will lose. When we add the numerical outcomes it will be zero (Rosenthal, 2011:6). • In non-zero games the numerical outcomes do not always add up to zero. In a non-zero game the outcome pairs add up to different amounts, which mean that one player's gain is not necessarily the other's loss (Rosenthal, 2011:8).	This study is a non-zero game as one financial wellness category's gain is not the others' loss. Therefore the values will not add up to zero and the game will not be classified as a zero sum game.
Another important distinction to be made in game theory is between cooperative and non-cooperative games. • Rosenthal (2011:318) defines a cooperative game as any game used to model situations in which players are better off when they join up with others. Cooperative games typically have more than two players, and the players benefit by forming coalitions.	In this study we do not have a cooperative game as each player will try to benefit his own financial wellness.

Source: Researcher's own compilation

The balance sheet composition, per wellness category (Section 1.1), forms the basis to calculate options considered in the games between the wellness groups. The contribution percentages of assets and liabilities to total assets and liabilities are the strategy options of each wellness category. The result is displayed in Table 3.6.

These results are further elaborated on in Chapter 4, Table 4.3.

Table 3.6: Household balance sheet contributions per wellness category as at 31 December 2012

HOUSEHOLD BALANCE SHEET AT 31 DECEMBER 2012				
	Anchored Unwell	**Drifting Unwell**	**Drifting Well**	**Anchored Well**
ASSETS	**%**	**%**	**%**	**%**
Residential property	39.9%	17.6%	24.1%	21.9%
Other non-financial assets	28.9%	18.7%	12.0%	8.4%
Interest in pension funds and long term insurers	0.3%	5.1%	23.2%	43.8%
Assets with Monetary institutions	4.3%	10.0%	14.3%	6.4%
Other financial assets	26.6%	48.6%	26.4%	19.5%
TOTAL ASSETS	**100%**	**100%**	**100%**	**100%**
LIABILITIES				
Mortgage advances	59.2%	30.8%	54.7%	59.1%
Other debt	40.8%	69.2%	45.3%	40.9%
TOTAL LIABILITIES	**100%**	**100%**	**100%**	**100%**

Source: Researcher's own compilation

In the case of a two-player game, the actions of the first player form the rows, and the actions of the second player form the columns of the matrix. The entries in the matrix are two numbers representing the utility or payoff to the first and second player respectively. In this case, the games were as follow:

- Anchored Unwell (player 1) vs Drifting Unwell (player 2)
- Drifting Unwell (player 1) vs Drifting Well (player 2)
- Drifting Well (player 1) vs Anchored Well (player 2)

The ranking exercise (Section 3.4.2.5 (a)) showed that there are differences among the balance sheet composition of the four wellness categories. Before suggestions can be formulated to assist, for example, the Anchored Unwell to increase their financial wellness score based on the balance sheet composition of the Drifting Unwell's balance sheet composition, it is important to determine whether the Drifting Unwell is optimising their balance sheet composition. This can be determined by applying the game theory principles to the actions of the two players. The balance sheet composition scores of the Drifting Unwell are expected to be significantly

higher than the scores of the Anchored Unwell's game. The same holds true for the scores of the Drifting Unwell compared to the Drifting Well and that of the Drifting Well compared to the Anchored Well. The game is depicted in Table 3.7, illustrating two of the financial wellness groups with the outcome indicated by O_{ij} which is the interaction term between X_i and $Y_{j,}$ where i= 1,2,3,4,5 and j = 1,2,3,4,5.

Table 3.7: Illustration of a game between the Anchored Unwell (AU) group versus the Drifting Unwell (DU) group

		Anchored Unwell (Y)				
		Y_1	Y_2	Y_3	Y_4	Y_5
Drifting Unwell (X)	X_1	O_{11}	O_{12}	O_{13}	O_{14}	O_{15}
	X_2	O_{21}	O_{22}	O_{23}	O_{24}	O_{25}
	X_3	O_{31}	O_{32}	O_{33}	O_{34}	O_{35}
	X_4	O_{41}	O_{42}	O_{43}	O_{44}	O_{45}
	X_5	O_{51}	O_{52}	O_{53}	O_{54}	O_{55}

Source: Researcher's own compilation

According to Anderson, *et al.* (2013:173), the optimal value of the game is solved by using linear programming where:

V = optimal value of a game;
$X_{1 =}$ fraction of time X plays strategy X;
$Y_{1 =}$ fraction of time Y plays strategy Y.

For the purpose of this study, the various strategies for the assets are displayed in Table 3.8 and for liabilities in Table 3.9.

Table 3.8: Strategies for the game between the Anchored Unwell group versus the Drifting Unwell group relating to assets

		Anchored Unwell (Y)				
		Y_1 (Residential property)	Y_2 (other non-financial assets)	Y_3 (Interest in pension funds and long term insurers)	Y_4 (Other financial assets)	Y_5 (Assets with Monetary institutions)
Drifting Unwell (X)	X_1 (Residential property)	O_{11}	O_{12}	O_{13}	O_{14}	O_{15}
	X_2 (other non-financial assets)	O_{21}	O_{22}	O_{23}	O_{24}	O_{25}
	X_3 (Interest in pension funds and long term insurers)	O_{31}	O_{32}	O_{33}	O_{34}	O_{35}
	X_4 (Other financial assets)	O_{41}	O_{42}	O_{43}	O_{44}	O_{45}
	X_5 (Assets with Monetary institutions)	O_{51}	O_{52}	O_{53}	O_{54}	O_{55}

Source: Researcher's own compilation

Table 3.9: Strategies for the game between the Anchored Unwell group versus the Drifting Unwell group relating to liabilities

		Anchored Unwell (Y)	
		Y_1 (Mortgage advances)	Y_2 (other debt)
Drifting Unwell (X)	X_1 (Mortgage advances)	O_{11}	O_{12}
	X_2 (other debt)	O_{21}	O_{22}

Source: Researcher's own compilation

Thus, O_{11} should be interpreted as the outcome which is the interaction term between X_1 and Y_1.

The optimal value of the game is determined by solving the objective function

$$\frac{\hat{Y}1}{V} + \frac{\hat{Y}2}{V} + \frac{\hat{Y}3}{V} + \frac{\hat{Y}4}{V} + \frac{\hat{Y}5}{V} = \frac{1}{V}$$

where $\hat{Y}_i$ is the estimated fraction of the time that Y play strategy Y_i (where i = 1,…,5). This optimal value is subject to the following constraints in the linear programming application:

$$\frac{O11\hat{Y}1}{V} + \frac{O12\hat{Y}2}{V} + \frac{O13\hat{Y}3}{V} + \frac{O14\hat{Y}4}{V} + \frac{O15\hat{Y}5}{V} \leq 1$$

$$\frac{O21\hat{Y}1}{V} + \frac{O22\hat{Y}2}{V} + \frac{O23\hat{Y}3}{V} + \frac{O24\hat{Y}4}{V} + \frac{O25\hat{Y}5}{V} \leq 1$$

$$\frac{O31\hat{Y}1}{V} + \frac{O32\hat{Y}2}{V} + \frac{O33\hat{Y}3}{V} + \frac{O34\hat{Y}4}{V} + \frac{O35\hat{Y}5}{V} \leq 1$$

$$\frac{O41\hat{Y}1}{V} + \frac{O42\hat{Y}2}{V} + \frac{O43\hat{Y}3}{V} + \frac{O44\hat{Y}4}{V} + \frac{O45\hat{Y}5}{V} \leq 1$$

$$\frac{O51\hat{Y}1}{V} + \frac{O52\hat{Y}2}{V} + \frac{O53\hat{Y}3}{V} + \frac{O54\hat{Y}4}{V} + \frac{O55\hat{Y}5}{V} \leq 1$$

The game theory calculations and results are displayed in Section 4.5.

c) Step 2.3: Examine reasons if results indicate a suboptimal balance sheet composition

The strength and direction of the relationships between the contribution ratio's in Table 3.6 provided insight into the interaction between the balance sheet components within each of the financial wellness categories. The trends of the correlation coefficient across the financial wellness categories could provide an understanding of the differing level of strength and direction between the ratios, which could indicate differing financial behaviour within these categories. This could enable the researcher to understand the reason if a sub-optimality is found in the financial wellness categories (sub-question 3).

Pearson correlation coefficients were calculated to determine the strength and direction of these relationships. Correlation measures the relationships or associations between variables (Chen & Popovich, 2002). Relationships or associations between two variables are measured by correlation indexes that range from 0 to 1 in absolute value. The larger the size of a correlation, the stronger is the relationship between the variables (Chen & Popovich, 2002).

Correlation coefficients also describe the direction of the relationship. The direction of the relationship can be shown as null, positive or negative. A null relationship between variables indicates that the variables are not associated with each other. A positive relationship between variables means that when one variable increases, the other will move in the same direction; in other words, it will also increase. A negative relationship between variables means that when one variable increases, the other variable will move in the opposite direction; it will, therefore, decrease (Chen & Popovich, 2002).

For this study, Pearson correlation coefficients were calculated within each category between the ratios of each key balance sheet component with each of the other ratios. As there are only two debt components, the resulting ratio of one of the

components is just a complementary ratio of the other. Furthermore, as the data represents the total weighted population, all correlation coefficients will be statistically significant as confirmed by a statistician. The focus is on the size of the coefficient and the differing levels of strength of the correlation coefficients across the financial wellness categories. The results of the correlation coefficients are discussed in Section 4.6.

In the next section the ethical considerations will be discussed.

3.5 ETHICAL CONSIDERATIONS

Ethical considerations refer to a set of expected behaviours which are required if the researcher is to work within or along a group. A good code of ethics includes honesty, professionalism, and care not to harm others (Remenyi & Bannister, 2013:115).

Honesty is the reporting of findings in a complete and honest fashion without misrepresenting what the researcher has done or intentionally misleading others about the researcher's findings (Leedy & Ormrod, 2015:123). Honesty includes giving full acknowledgement to the use of other researcher's ideas (Leedy & Ormrod, 2015:123).

Ethical concerns about secondary data predominantly revolve around potential harm to individuals and issues of return for consent (Tripathy, 2013:1478). Tripathy identified four issues in secondary analysis which the researcher should consider.

The first is that secondary data varies in terms of the identification of recipients (Tripathy, 2013:1478). If the data contains identifying information on the participants, it should be reported in full to the ethics board (Tripathy, 2013:1478). In this study, participants were not identified and could not be linked to their identity. Therefore, this study complies with the first ethical consideration.

The second consideration is that permission should be obtained from the original research team to use the secondary data (Tripathy, 2013:1478). Permission was

obtained from the Bureau for Market Research at Unisa and Momentum to use the data available in the Momentum/Unisa South African Household Financial Wellness Index 2012. Thus, this study complies with the second ethical consideration.

The third consideration is that data in the dataset should be adequate, relevant, but not excessive (Tripathy, 2013:1478). Data should be evaluated for certain criteria such as the methodology of the data collection, accuracy, the period of the data collection, the purpose for which it was collected, and the content of the data (Tripathy, 2013:1478). In this chapter, all the mentioned criteria were considered. As a result, this study complies with the third ethical consideration.

The last consideration is that the data should be kept safe from unauthorised access, accidental loss or destruction (Tripathy, 2013:1478). The researcher kept the data at the Bureau of Market Research at Unisa, where the data was protected sufficiently. Therefore, this study complies with the fourth ethical consideration.

The researcher adhered to the ethical stipulations set out by the University of South Africa's Policy on Research Ethics (2014) and received an ethical clearance certificate for adhering to the policy on Research Ethics. The ethical clearance certificate is attached in Appendix A.

3.6 SUMMARY

In this chapter the research design and methods were discussed. The research methods consisted of a literature review and secondary data analysis. The secondary analysis was done in three sub-phases. In the first sub-phase the balance sheet composition was examined through the use of ranking and contribution percentages. The second sub-phase was the determination of the optimality of the balance sheet by making use of game theory. The last sub-phase examined reasons if the second sub-phase indicated a sub-optimal balance sheet composition. In Chapter 4 these three sub-phases will be applied to the secondary data set. Thereafter, the results will be interpreted and discussed.

CHAPTER 4
DATA ANALYSIS PHASE

"It is the mark of a truly intelligent person to be moved by statistics"

– George Bernard Shaw (Brainyquote.com, 2014.)

4.1 INTRODUCTION

In Chapter 3, the research design and methods were discussed in order to address the purpose and objectives of this study listed in Section 1.4. Phase 1 consisted of a literature review, which was conducted in Chapter 2 to gain insight into the trends and characteristics of different categories of households internationally, and also in South Africa. This enabled the researcher to answer sub-question one which was to examine the balance sheet composition and characteristics across disaggregated households internationally, and in South Africa. In this chapter, phase 2 of this study is described, which is the secondary data analysis as prescribed by Chapter 3.

The chapter commences with a brief background on how the secondary data was constructed. Sub-phase 2.1 examines the balance sheet composition of this study which used secondary data in the form of household balance sheets per financial wellness category. From the household balance sheets, each asset and liability class contribution to total assets and liabilities was determined. Each asset and liability class component was then ranked according to its contribution percentage within each financial wellness category. The outcome of the ranking highlights differences in the asset and liability classes' contribution to total assets and liabilities within each financial wellness category. In sub-phase 2.2 game theory was used to determine the extent to which the contribution composition within each financial wellness category can be considered as optimal. Statistical correlation was subsequently used in sub-phase 2.3 to determine possible relationship trends in the balance sheet contribution composition across wellness categories to examine reasons which can explain the sub-optimality, if found, in sub-phase 2.2.

4.2 BACKGROUND TO THE CONSTRUCTION OF THE SECONDARY DATA

The secondary data comprised of the Momentum/Unisa Household Financial Wellness Index of 2012 as indicated in Chapter 1 (Section 1.7.2) and Chapter 3 (Section 3.4). In Section 4.2.1, the construction of the Momentum/Unisa Household Financial Wellness Index of 2012 is discussed. This is followed by the segmentation of the weighted household population (Section 4.2.2) and the presentation of the household balance sheet (Section 4.2.3).

4.2.1 Construction of the Momentum/Unisa Household Financial Wellness Index

The Momentum/Unisa Household Financial Wellness Index of 2012 followed a holistic approach in constructing the wellness index, hereafter referred to as the dataset. The reason for this approach is that households are complex structures and are influenced by various events and perceptions (Unisa & Momentum, 2011:5).

Factors that influence financial wellness can be grouped into two broad groups. The first is the objective measurement of assets owned or used by households, and the second is psychological factors influencing the household's perceptions of their financial wellness (Unisa & Momentum, 2011:5).

These factors are grouped into five different types of capital, namely:

- **Physical capital**
  Physical capital refers to the household's ability to earn an income from employment or other sources and the expenditure items on which this income is spent (Unisa & Momentum, 2011:9).

- **Human capital**
  Human capital refers to the personal development of members of the household. Education is an important contributor when measuring human capital (Unisa & Momentum, 2011:9).

- **Social capital**

  Social capital refers to the level of a person's social empowerment. One would normally refer to locus of control (Unisa & Momentum, 2011:10).

- **Environmental capital**

  Environmental capital refers to the environment in which a person lives (Unisa & Momentum, 2011:10).

- **Asset capital**

  Asset capital is calculated based on the net wealth of a household. Net wealth of a household is calculated by the current value of the assets less the current value of the liabilities of the household (Unisa & Momentum, 2011:10).

Households are classified into four groups based on the Momentum/Unisa Household Financial Wellness Index score obtained. These categories of household financial wellness were discussed in Chapter 1, Section 1.1.

4.2.2 Segmentation of the weighted household population

The main objective in sub-phase 1 of this study was to highlight differences in the asset and liability classes' contribution to total assets and liabilities within each financial wellness category. For this reason, the dataset was split into financial wellness categories. The segmentation of the weighted household population is displayed in Figure 4.1.

Anchored Unwell households made out 5.6%, Drifting Unwell households 34.2%, Drifting Well households 33.8%, and Anchored Well households 26.4% of the weighted population per financial wellness category.

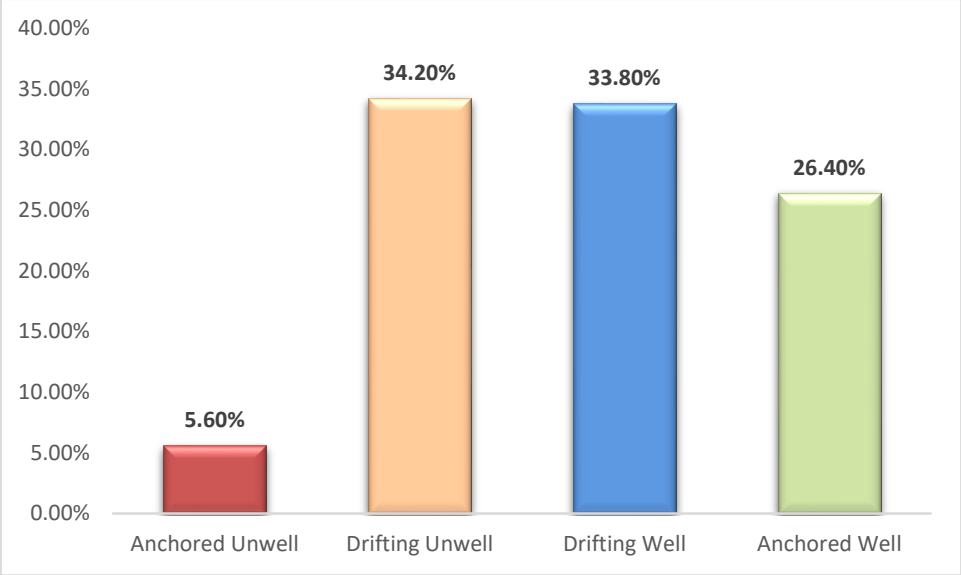


Figure 4.1: Segmentation of the weighted household population

Source: Researcher's own compilation compiled from secondary data

The categories shown in Figure 4.1 seem to fairly reflect available statistics on socioeconomic classes in South Africa. This is evident as Statistics South Africa (2013:26) reported that only 4% of people lived on less than $1 per day in 2011. This tallies with the 5.6% "Drifting Unwell".

The South African Audience Research Foundation (SAARF) Living Standards Measure (LSM) is a sensitive barometer of societal change and development (SAARF, 2013). LSM 2 to 5 is households with an income of between R2 216 and R4 310 per month (R26 592 to R51 720 per year). This is in line with the Drifting Unwell's majority of the lower income margin of R58 093. The estimate of 34.2% in the Drifting Unwell category to a large extent agrees with the AMPS estimate of 37.3% of households situated in LSM 2 to 5 (SAARF, 2013).

The average income for Anchored Well is +/- R430 000 (Unisa & Momentum, 2012:7). In the Anchored Well category, 13.3% of households receive an annual salary of more than R662 677 per year. Therefore, the estimate of 26.4% in the Anchored Well category agrees with the BMR's estimate that about 17% of households earn an income of R600 000 or higher per year (Unisa & Momentum, 2011:8). In the next section the household balance sheet is discussed.

4.2.3 The household balance sheet

The balance sheet as a wealth measurement tool and also the structure of the balance sheet, was discussed in Chapter 2, Section 2.2. The household balance sheet per wellness category, used in the Momentum/Unisa Wellness Index study (Wave 2), is presented in Table 4.1.

Table 4.1: Household balance sheet per wellness category as at 31 December 2012

HOUSEHOLD BALANCE SHEET AT 31 DECEMBER 2012					
	Anchored Unwell	**Drifting Unwell**	**Drifting Well**	**Anchored Well**	**Total**
	R (million)	**R (million)**	**R (million)**	**R (million)**	**R million)**
ASSETS					
Residential property	**4 388**	**101 156**	**459 966**	**1 247 490**	**1 813 000**
Other non-financial assets	**3 173**	**107 234**	**229 802**	**482 791**	**823 000**
Financial Assets	**3 425**	**365 496**	**1 218 902**	**3 980 176**	**5 567 999**
Interest in pension funds and long term insurers	32	29 174	442 690	2 500 104	2 972 000
Assets with Monetary institutions	477	57 194	272 129	368 199	697 999
Other financial assets	2 916	279 128	504 083	1 111 873	1 898 000
TOTAL ASSETS	**10 986**	**573 886**	**1 908 670**	**5 710 457**	**8 203 999**
LIABILITIES					
Mortgage advances	8 401	58 395	268 683	476 521	812 000
Other debt	5 781	131 422	222 832	329 964	689 999
TOTAL LIABILITIES	**14 182**	**189 817**	**491 515**	**806 485**	**1 501 999**
TOTAL NET WEALTH	**(3 196)**	**384 069**	**1 417 155**	**4 903 972**	**6 702 000**

Source: Researcher's own compilation from secondary data

In the following section, the above balance sheets will be analysed to identify certain characteristics and trends between the four wellness categories.

4.3 SUB-PHASE 2.1: EXAMINE THE BALANCE SHEET COMPOSITION

Figure 1.1 and Figure 3.11 was introduced to address the primary question, which is to identify the main differences between South African households on the bottom end of the wealth spectrum compared to those on the top end. Figure 4.2 highlights the sub-phase that will be followed and discussed.

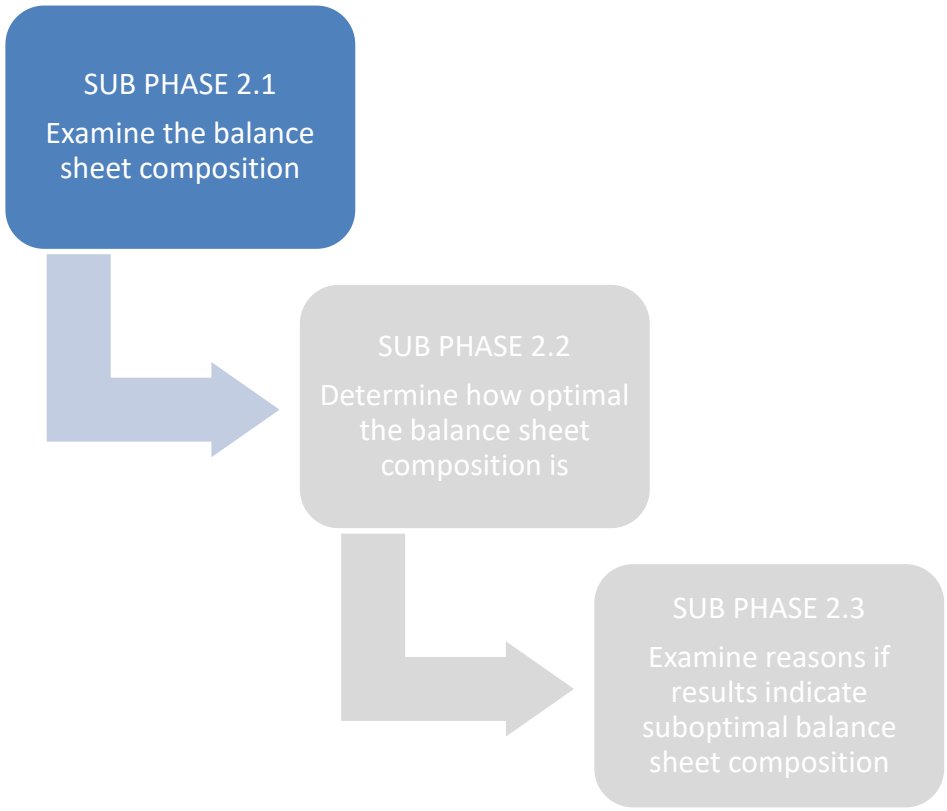


Figure 4.2: Secondary data analysis phase: Sub-phase 2.1

Source: Researcher's own compilation

Sub-phase 2.1 constitutes ranking the asset and liability classes towards total assets and total liabilities in the weighted wellness class of the South African household population. This is done to understand the contribution composition of the balance sheet for each financial wellness category.

The analysis commenced with the total weighted household population and the contribution of the main asset and liability classes towards total weighted South African household assets and liabilities. The percentage contribution and ranking is depicted in Table 4.2, and the characteristics between the wellness categories are discussed in Table 4.3.

Table 4.2: Household balance sheet contributions and ranking per wellness category as at 31 December 2012

	Anchored Unwell		Drifting Unwell		Drifting Well		Anchored Well	
ASSETS	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**	**%**	**Ranking**
Residential property	39.9%	1	17.6%	3	24.1%	2	21.9%	2
Other non-financial assets	28.9%	3	18.7%	2	12.0%	3	8.5%	3
Financial Assets	31.2%	2	63.7%	1	63.9%	1	69.7%	1
TOTAL ASSETS	**100%**		**100%**		**100%**		**100%**	
FINANCIAL ASSETS								
Interest in pension funds and long term insurers	0.9%	3	8.0%	3	36.3%	2	62.8%	1
Assets with Monetary institutions	13.9%	2	15.7%	2	22.3%	3	9.3%	3
Other financial assets	85.1%	1	76.4%	1	41.4%	1	27.9%	2
TOTAL FINANCIAL ASSETS	**100%**		**100%**		**100%**		**100%**	
LIABILITIES								
Mortgage advances	59.2%	1	30.8%	2	54.7%	1	59.1%	1
Other debt	40.8%	2	69.2%	1	45.3%	2	40.9%	2
TOTAL LIABILITIES	**100%**		**100%**		**100%**		**100%**	

Source: Researcher's own compilation

Table 4.3: Household balance sheet contributions, ranking and characteristics per wellness category

	ANCHORED UNWELL	DRIFTING UNWELL	DRIFTING WELL	ANCHORED WELL
Ranking results: Total assets	The Anchored Unwell biggest asset class is residential property (39.9%) (Table 4.2), followed by financial assets (31.2%) and the rest other financial assets (28.9%).	The Drifting Unwell biggest asset class is financial assets (63.7%) (Table 4.2), followed by other financial assets (18.7%) and the rest residential property (17.6%).	The Drifting Well biggest asset class is financial assets (63.9%) (Table 4.2), followed by residential property (24.1%) and the rest other non-financial assets (12%).	The Anchored Well biggest asset class is financial assets (69.7%) (Table 4.2), followed by residential property (21.9%) and the rest other financial assets (8.5%).
Ranking results: Financial assets	Financial assets consist of 85.1% (Table 4.2) other financial assets; 13.9% in assets with monetary institutions and the remaining 0.9% in interest in pension funds and long term insurers.	Financial assets consist of 76.4% (Table 4.2) other financial assets; 15.7% in assets with monetary institutions and the remaining 8.0% in interest in pension funds and long-term insurers.	Financial assets consist of 41.4% (Table 4.2) other financial assets; 36.3% in interest in pension funds and long-term insurers and the remaining 22.3% in assets with monetary institutions.	Financial assets consist of 62.8% (Table 4.2) interest in pension funds and long-term insurers; 27.9% in other financial assets and the remaining 9.3% in assets with monetary institutions.
Ranking results: Liabilities	The Anchored Unwell's biggest liability class is mortgage advances (59.2%) (Table 4.2) and then other debt (40.8%).	The Drifting Unwell's biggest liability class is other debt (69.2%) (Table 4.2) and then mortgage advances (30.8%).	The Drifting Well's biggest liability class is mortgage advances (54.7%) (Table 4.2) and then other debt (45.3%).	The Anchored Well's biggest liability class is mortgage advances (59.1%) (Table 4.2) and then other debt (45.3%).
Age	The Anchored Unwell consists of the following age brackets: 17-24	The Drifting Unwell consists of the following age brackets: 17-24	The Drifting Well consists of the following age brackets: 17-24	The Anchored Well consists of the following age brackets: 17-24

	(1.3%); 25-34 (10.7%); 35-49 (31.4%); 50-59 (23.5%); 60-64 (11.2%) and 65 and above (21.8%).	(3.2%); 25-34 (17.4%); 35-49 (33.4%); 50-59 (17.5%); 60-64 (9.1%) and 65 and above (19.4%).	(8.1%); 25-34 (18.3%); 35-49 (30.5%); 50-59 (17%); 60-64 (8.4%) and 65 and above (17.8%).	(2.5%); 25-34 (11.1%); 35-49 (37.1%); 50-59 (26.3%); 60-64 (7.4%) and 65 and above (15.6%).
Income level	The Anchored Unwell consists mainly of the low income group (98.7%) which earns between R1 and R58 093 per annum.	The Drifting Unwell consists primarily of the low income group (81.5%) which earns between R1 and R58 093 per annum; and the low emerging income group (13.9%) which earns between R58 094 and R160 892 per annum.	The Drifting Well consists primarily of the low income group (47.5%) which earns between R1 and R58 093 per annum; the low emerging income group (28.4%) which earns between R58 094 and R160 892 per annum; and the emerging middle class (14.6%) which earns between R160 893 and R382 127 per annum.	The Anchored Well consists of the low income group (12.2%) which earns between R1 and R58 093 per annum; the low emerging income group (29.5%) which earns between R58 094 and R160 892 per annum; the emerging middle class (31.4%) which earns between R160 893 and R382 127 per annum and the realised middle class (13.6%) which earns between R382 128 and R662 676 per annum.
Number of household members	Number of household members in this quintile consists of 12.9% one member	Number of household members in this quintile consists of 9.4% one member	Number of household members in this quintile consists of 8.2% one member	Number of household members in this quintile consists of 9.3% one

	households, 8.3% two member households, 12.7% three-member households, 21.3% four-member households, 23.4% five-member households and 21.5% more than five members in a household.	households, 9.8% two member households, 20.2% three-member households, 16.9% four-member households, 14.2% five-member households and 29.6% more than five members in a household.	households, 16.8% two member households, 20.3% three-member households, 15.4% four-member households, 13.3% five-member households and 26.1% more than five members in a household.	member households, 19.1% two member households, 20.1% three-member households, 21.7% four-member households, 16.5% five-member households and 13.3% more than five members in a household.
Employment status	For the Anchored Unwell 29% of households are employed.	For the Drifting Unwell 48.2% of households are employed.	For the Drifting Well 57.1% of households are employed.	For the Anchored Well 69.7% of households are employed.
Home ownership	For the Anchored Unwell 27% of households are homeowners.	For the Drifting Unwell 45.4% of households are homeowners.	For the Drifting Well 54.2% of households are homeowners.	For the Anchored Well 83.6% of households are homeowners.
Education	This quintile consists of 69.8% of households that have some primary education, 26.3% of households that have some secondary education; 3.9% of households that have completed secondary education and 0% of households that have tertiary	This quintile consists of 33.1% of households that have some primary education, 48.5% of households that have some secondary education; 13.1% of households that have completed secondary education and 5.3% of households that have tertiary	This quintile consists of 9.2% of households that have some primary education, 40.7% of households that have some secondary education; 32% of households that have completed secondary education and 18.1% of households that	This quintile consists of 0% of households that have some primary education, 18.8% of households that have some secondary education; 38.6% of households that have completed secondary education and

	education.	education.	have tertiary education.	42.6% of households that have tertiary education.
Sex	This quintile consists of 31.2% males and 65.8% females.	This quintile consists of 43.8% males and 55.6% females.	This quintile consists of 51.2% males and 48.7% females.	This quintile consists of 62.9% males and 36.9% females.
Marital status	For the Anchored Unwell, 46.6% are single never married; 27.8% are divorced/widowed/ separated and 25.6% are married/living together.	For the Drifting Unwell, 31.3% are single never married; 26.1% are divorced/widowed/ separated and 42.7% are married/living together.	For the Drifting Well, 31.1% are single never married; 24.8% are divorced/widowed/ separated and 44.1% are married/living together.	For the Anchored Well, 17.5% are single never married; 20.5% are divorced/widowed /separated and 62.1% are married/living together.
Race	The Anchored Unwell consists mainly of Black (91.4%) and Coloured (3.8%) households.	The Drifting Unwell consists mainly of Black (87.6%) and Coloured (6%) households.	The Drifting Well consists mainly of Black (77.7%), White (10.3%) and Coloured (8.2%) households.	The Anchored Well consists mainly of Black (62.6%), White (25.3%) and Coloured (8%) households.

Source: Researcher's own compilation from dataset

The key difference in the ranking is that most of the Anchored Unwell's assets are part of residential property while the other three categories' assets are held in financial assets. It is evident that the Anchored Unwell's financial assets constitute 31.2% of the total asset value, while the other categories are between 63.7% and 69.7%. This could indicate that the first step to financial wellness is to invest in financial assets.

In Table 4.2 it is clear that both Unwell classes' financial asset rankings are the same. To move to Drifting Well, "other financial assets" remain ranked at number one, but the change is between interest in pension funds and long term insurers (ranked as 2) and assets with monetary institutions (ranked as 3). For the movement

between Drifting Well to Anchored Well, the ranking changes again to interest in pension funds and long-term insurance (ranked as 1), other financial assets (ranked as 2), and assets with monetary institutions (ranked as 3).

Before recommendations can be made to improve from one wellness category to the next, it is important to establish if the next financial wellness category's contributions are optimal to the previous category's. This optimality is addressed in Section 4.4 by making use of game theory.

4.4 GAME THEORY

Sub-phase 2.2 is discussed next as illustrated in Figure 4.3. This sub-phase is used to answer research sub-question 2 which is to determine the optimality of household balance sheet composition across disaggregated households in South Africa.

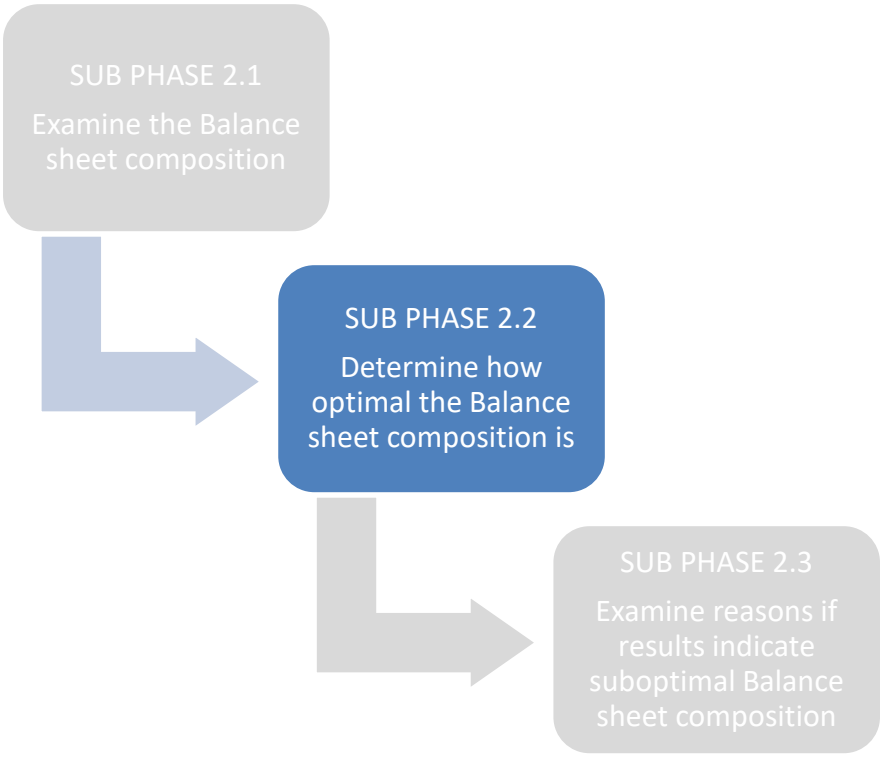


Figure 4.3: Secondary data analysis phase: Sub-phase 2.2

Source: Researcher's own compilation

The starting point is to determine the optimality of each category's contribution composition relative to the previous category where the composition of the lowest category is taken as the departure point.

Table 4.4 provides the structure of the games, in other words, the result. An example of this is if the Drifting Unwell and the Anchored Unwell take the option as reflected by their respective contributions for residential property.

Table 4.4: Structure of the games (Matrix A)

			Drifting unwell				
			Residential property	**Other non-financial assets**	**Interest in pension funds and long term insurance**	**Other financial assets**	**Assets with monetary institutions**
Anchored Unwell		Contribution ratio (see Table 4.2)	0.39943	0.28879	0.0029	0.26544	0.04342
	Residential property	0.17626	0.07041	0.05090	0.00052	0.04679	0.00765
	Other non-financial assets	0.18686	0.07464	0.05396	0.00055	0.049600	0.00811
	Interest in pension funds and long term insurance	0.05084	0.02031	0.01468	0.00015	0.01349	0.00221
	Other financial assets	0.48638	0.19427	0.14046	0.00142	0.12910	0.02112
	Assets with monetary institutions	0.09966	0.03981	0.02878	0.00029	0.02645	0.00433

Source: Researcher's own compilation

This is one cell in the five by five matrix calculated by multiplying the respective contribution ratios (as per Table 4.2), for example 0.39943 x 0.17626 = 0.07041. This approach is followed for all the strategy options for the various wellness groups.

In game theory it is important to consider the option the player has not taken (Anderson *et al.*, 2013:173). Therefore, the second step reflects the option the financial wellness group has not taken. This is reflected through the matrix (1-A) where one cell in the five by five matrix is calculated by taking one less the option in Table 4.4 and dividing this result by twenty-four.

The reason for dividing the value by twenty-four is that the options in the five by five matrix should always add to one when summed. An example of this for residential property (as per Table 4.4) is (1 - 0.07041) / 24 = 0.03873. This approach is followed for all the options for the various wellness groups. The (1-A) matrix is displayed in Table 4.5.

Table 4.5: Options not taken matrix (Matrix 1-A)

		Drifting unwell				
		Residential property	**Other non-financial assets**	**Interest in pension funds and long term insurance**	**Other financial assets**	**Assets with monetary institutions**
Anchored Unwell	**Residential property**	0.03873	0.03955	0.04165	0.03972	0.04135
	Other non-financial assets	0.03856	0.03942	0.04164	0.03960	0.04133
	Interest in pension funds and long term insurance	0.04082	0.04106	0.04166	0.04110	0.04158
	Other financial assets	0.03357	0.03581	0.04161	0.03623	0.04079
	Assets with monetary institutions	0.04001	0.04047	0.04166	0.04056	0.04149

Source: Researcher's own compilation

The final step is to calculate the value of the expected value per asset type and liability type. This is done by making use of matric algebra, where a single value is obtained by multiplying each row (1 by 5) of the initial matrices (A) with each column (5 by 1) of the (1-A) matrices. This single value is the value of the game and is depicted in Table 4.6 for assets and Table 4.7 for liabilities.

Table 4.6: Game Theory results for Assets Classes: Value of the game

	Anchored Unwell	**Drifting Unwell**	**Drifting Well**	**Anchored Well**
Residential property	0.0145	0.0066	0.0097	0.0086
Other non-financial assets	0.0109	0.0072	0.0048	0.0034
Interest in pension funds and long term insurers	0.0001	0.0021	0.0096	0.0173
Assets with Monetary institutions	0.0018	0.0041	0.0058	0.0026
Other financial assets	0.0101	0.0189	0.0098	0.0076
Value of the game	**0.0375**	**0.0388**	**0.0396**	**0.0395**
Interpretation of result	A very close game, with Drifting Unwell marginally better than Anchored Unwell			
		A very close game, with Drifting Well marginally better than Drifting Unwell		
			This game was very close, but surprisingly the value of the Drifting Well's game was higher than the Anchored Well's game.	

Source: Researcher's own compilation

Table 4.7: Game Theory results for Liability Classes: Value of a game

<table>
<tr><th></th><th>Anchored Unwell</th><th>Drifting Unwell</th><th>Drifting Well</th><th>Anchored Well</th></tr>
<tr><td>Mortgage advances</td><td>0.1370</td><td>0.0743</td><td>0.1552</td><td>0.1422</td></tr>
<tr><td>Other debt</td><td>0.1073</td><td>0.1870</td><td>0.1007</td><td>0.1049</td></tr>
<tr><td>Value of the game</td><td>0.2442</td><td>0.2614</td><td>0.2559</td><td>0.2471</td></tr>
<tr><td rowspan="3">Interpretation of result</td><td colspan="2">A very close game, with Drifting Unwell marginally better than Anchored Unwell</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">This game was very close, but surprisingly the value of the Drifting Unwell’s game was higher than the Drifting Well’s game.</td><td></td></tr>
<tr><td></td><td></td><td colspan="2">This game was very close, but surprisingly the value of the Drifting Well’s game was higher than the Anchored Well’s game.</td></tr>
</table>

Source: Researcher’s own compilation

It is, therefore, evident that the values of all games were very close and in the last games of assets the “weaker” financial wellness category won the game against the stronger financial wellness category. For liabilities, the games were also very close and in the last two games the “weaker” financial wellness category won the game against the stronger financial wellness category.

A possible reason for the victory of the Drifting Well over the Anchored Well in the asset game could be that the Drifting Well’s financial assets are more evenly spread than the Anchored Well’s. The financial asset contributions for the Drifting Well range between 22.3% and 41.4% in comparison with the Anchored Well’s at 9.3% to 62.8% (see Table 4.2). The other two asset classes’ (residential property and other non-financial assets) percentages are very close to each other (see Table 4.2) and would not have a large impact on the game.

For the liability game, the outcome is surprising due to the fact that the Drifting Unwell plays the strongest liability game and its primary liability holding is other debt (69.2%) (Table 4.2). This is in contrast with the other wellness groups where

mortgage advances are the main liability holding. This was also evidenced in the game between the Drifting Well and Anchored Well. Drifting Well was the victor, with a higher other debt contribution than those of the Anchored Well.

Therefore, the game theory results could be an indication that the contribution composition of assets and liabilities are not optimally distributed for each of the financial wellness categories. It is, therefore, necessary to explore these results further by making use of correlation.

4.5 CORRELATION

In Section 4.4 the game theory resulted in an indication that the contribution composition of assets and liabilities are not optimally distributed within a wellness category. Sub-phase 2.3, as illustrated in Figure 4.3, addresses sub-question 3 which examine the reasons for the sub-optimality found in sub-phase 2.2 by making use of correlation.

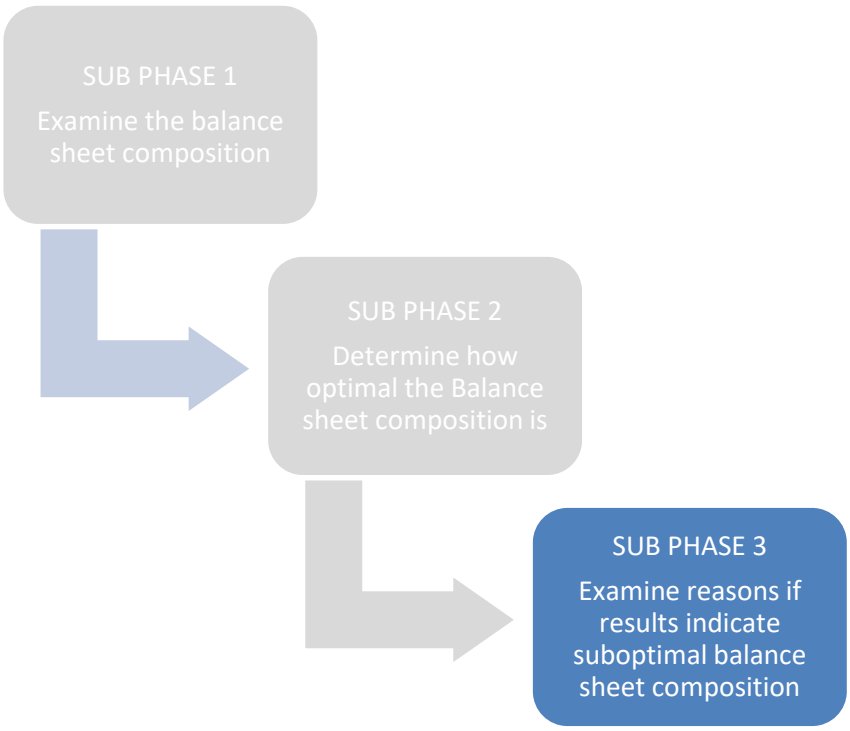


Figure 4.4: Secondary data analysis phase: Sub-phase 2.3

Source: Researcher's own compilation

The correlation coefficients between the ratio of residential property to the ratio of other non-financial assets, financial assets, mortgage advances, and other debt were calculated and are displayed in Table 4.8.

Table 4.8: Correlation coefficients between the ratio of residential assets to the other four balance sheet components per wellness category

	Other non-financial assets	Financial assets	Mortgage advances	Other debt
Anchored Unwell	-0.153**	-0.456**	0.512**	-0.512**
Drifting Unwell	-0.232**	-0.517**	0.295**	-0.295**
Drifting Well	-0.402**	-0.525**	0.267**	-0.267**
Anchored Well	-0.444**	-0.653**	0.276**	-0.276**
				** statistically significant

Source: Researcher's own compilation

The correlations indicate:

a) Between the ratio of residential assets and the ratio of other non-financial assets:

An increasing negative correlation that ranges between -0.153 for the Anchored Unwell category, to -0.232 for the Drifting Unwell category, to -0.402 for the Drifting Well category, to -0.444 for the Anchored Well category, indicate:

(i) A very weak negative linear relationship for the Anchored Unwell category that increases slightly for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a weak but slightly stronger negative linear relationship seems to exist.

(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation increased substantially, now indicating a moderate negative linear relationship.

(iii) The relationship once again increased only slightly from the Drifting Well to the Anchored Well, the category with the highest negative linear relationship.

The increasing negative correlation trend between the ratio of residential assets and other non-financial assets, thus indicates that a weak negative linear relationship

exists between the two lowest financial wellness categories but changed to a much stronger, although still moderate, negative linear relationship between the two top financial wellness categories. Therefore, as the ratio of residential assets increases, the ratio of other non-financial assets tends to decrease for the two highest financial wellness categories.

A reason for this phenomenon can be attributed to the low home ownership rate for the Anchored Unwell (27%) and the Drifting Unwell (45.4%) (Table 4.3). The home ownership rate is higher for the Drifting Well (54.2%) and Anchored Well (83.6%). A negative correlation shows that as home ownership increases, other non-financial assets decrease. This again shows that the top two wellness categories prefer to invest in assets that gain in value. This could be attributed to the tertiary education levels of these households; the Anchored Unwell's tertiary education is 0%, the Drifting Unwell's is 5.3%, the Drifting Well's is 18.1%, and the Anchored Well's tertiary education is 42.6% (see Table 4.3).

b) Between the ratio of residential assets and financial assets:

An increasing negative correlation that range between -0.456 for the Anchored Unwell category, to -0.517 for the Drifting Unwell category, to -0.525 for the Drifting Well category, to -0.653 for the Anchored Well category, indicates:

(i) A moderate negative linear relationship for the Anchored Unwell category that increases slightly for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a moderate but slightly stronger negative linear relationship seems to exist.
(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation increased slightly, still indicating a moderate negative linear relationship.
(iii) The relationship increased substantially from the Drifting Well to the Anchored Well, indicating a strong negative linear relationship in the category with the highest negative linear relationship.

The increasing negative correlation trend between the ratio of residential assets and financial assets, thus indicate that a moderate negative linear relationship existed between the three lowest financial wellness categories but changed to a strong, negative linear relationship to the top financial wellness category. Therefore, as the ratio of residential assets increases, the ratio of financial assets tends to decrease.

Residential property is only ranked higher for the Anchored Unwell group, showing that this group prefers residential property over financial assets (this is also evident in the ranking as residential property is ranked first (Table 4.2)). This could be an indication that the Anchored Unwell group does not have the knowledge to invest in financial assets, as 69.8% of these households have only primary school education. The high unemployment rate of the Anchored Unwell (49% unemployed and 21.9% not economically active) also play a role as these households are not building on pension fund assets (which is part of financial assets). Another reason could be that these households are living on the bare basics and do not have any surplus funds for any savings.

Financial assets are ranked higher than residential property for the Drifting Unwell, Drifting Well and Anchored Well (Table 4.2). Therefore, these households would rather invest in financial assets than in residential property. A reason for the Drifting Unwell is the low home ownership rate (45.4%). This group holds most of the RDP houses (53% in total) but as RDP houses give occupational right but not ownership, it is not regarded as home ownership. Therefore, this group is not primarily homeowners and could prefer to save money to purchase a house, a car, or to invest in their own businesses. The Drifting Well (57.1%) and Anchored Well (69.7%) have high employment rates which contribute to building up their pension funds.

c) Between the ratio of residential assets and mortgage advances:

An decreasing positive correlation that range between 0.512 for the Anchored Unwell category, to 0.295 for the Drifting Unwell category, to 0.267 for the Drifting Well category, to 0.276 for the Anchored Well category, indicate:

(i) A moderate positive linear relationship for the Anchored Unwell category that decreases substantially for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a much weaker positive linear relationship seems to exist.
(ii) Between the Drifting Unwell category to the Drifting Well category, the positive correlation decreased slightly, now indicating a weak positive linear relationship.
(iii) The relationship increased slightly from the Drifting Well to the Anchored Well, but still indicating a similar weak positive linear relationship.

The decreasing positive correlation trend between the ratio of residential assets and mortgage advances, thus indicated that a strong positive linear relationship exists for the lowest financial wellness category but changed to a much weaker positive linear relationship for the three top financial wellness categories. Therefore, as the ratio of residential assets increases, the ratio of mortgage advances tends to decrease for the three highest financial wellness categories.

One needs to consider that the market value of residential property would move up on a year-to-year basis where the value of mortgage advances should move down on a year-to-year basis as the mortgage advances are being paid. This could be an indication either that Anchored Unwell households cannot afford to obtain mortgage loans or are behind with mortgage payments, or they are first-time buyers of residential property. In the Anchored Unwell, the age group 17-34 represents 12% of this category which normally would refer to first-time buyers. However, ages 60 and above represents 33% of this category which one would expect to no longer have mortgage loans outstanding.

The reason for this moderate correlation for the Anchored Unwell is most probably that this category is behind in mortgage payments.

Secondly, the ratio of other non-financial assets to financial assets, mortgage advances, and other debt ratios, were calculated and are displayed in Table 4.9.

Table 4.9: Correlation coefficients between the ratio of other non-financial assets to the other three balance sheet components per wellness category

	Financial assets	Mortgage advances	Other debt
Anchored Unwell	-0.810**	-0.069**	0.069**
Drifting Unwell	-0.713**	-0.061**	0.061**
Drifting Well	-0.568**	-0.099**	0.099**
Anchored Well	-0.389**	-0.159**	0.159**
			** statistically significant

Source: Researcher's own compilation

The correlations indicate:

a) Between the ratio of other non-financial assets and the ratio of financial assets:

A decreasing negative correlation that range between -0.810 for the Anchored Unwell category, to -0.713 for the Drifting Unwell category, to -0.568 for the Drifting Well category, to -0.389 for the Anchored Well category, indicate:

(i) A very strong negative linear relationship exists for the Anchored Unwell category that decreases substantially for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a strong but substantially weaker negative linear relationship seems to exist. A strong negative linear relationship exists for the Drifting Unwell category.

(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation decreased substantially again, now indicating a moderate negative linear relationship.

(iii) The relationship once again decreased substantially from the Drifting Well to the Anchored Well, the category with the lowest and weakest negative linear relationship.

The decreasing negative correlation trend between the ratio of non-financial assets and financial assets, thus indicated that a very strong negative linear relationship exists for Anchored Unwell, strong for Drifting Unwell, moderate for Drifting Well, and

weak for Anchored Well. Therefore, as the ratio of non-financial assets decreases, the ratio of financial assets tends to increase for the three highest financial wellness categories but this type of relationship is weak for the highest financial wellness category.

An interesting observation in Table 4.2 is that all wellness categories' financial assets were ranked higher than the other non-financial assets. For the Anchored Unwell and Drifting Unwell, this can be an indication that other non-financial assets (cars, valuables and durable goods) are too expensive for them to acquire. The biggest portions of these wellness groups are unemployed and are earning very low salaries or wages (98.7% of the Anchored Unwell's and 81.5% of the Drifting Unwell's salaries are between R1 and R58 093 per annum). For the Drifting Well and Anchored Well, the reason could once again be attributed to the fact that most of these households are employed.

b) Between the ratio of other non-financial assets and the ratio of mortgage advances:

An increasing negative correlation that range between -0.069 for the Anchored Unwell category, to -0.061 for the Drifting Unwell category, to -0.099 for the Drifting Well category, to -0.159 for the Anchored Well category, indicate:

(i) An extremely weak negative linear relationship exists for the Anchored Unwell category that increases very slightly for the Drifting Unwell category. This indicates that in moving from Anchored Unwell to Drifting Unwell, a similar and very weak negative linear relationship seem to exist.
(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation increased slightly, still indicating an extremely weak negative linear relationship.
(iii) The relationship increased fairly substantially from the Drifting Well to the Anchored Well, the category with the lowest positive linear relationship but the value still indicated a weak linear relationship.

The increasing negative correlation trend between the ratio of non-financial assets and mortgage advances, thus indicated that a very weak negative linear relationship

exist for all wellness categories. Therefore, as the ratio of non-financial assets decreases, the ratio of mortgage advances tends to increase slightly for all the financial wellness categories. As these correlations are weak, this relationship will not be further explored.

Thirdly, the ratio of financial assets to mortgage advances and other debt was calculated and is displayed in Table 4.10.

Table 4.10: Correlation coefficients between the ratio of financial assets to the other two balance sheet components' ratios per wellness category

	Mortgage advances	Other debt
Anchored Unwell	-0.109**	0.109**
Drifting Unwell	-0.155**	0.155**
Drifting Well	-0.147**	0.147**
Anchored Well	-0.158**	0.158**
		** statistically significant

Source: Researcher's own compilation

The correlations indicate:

a) Between the ratio of financial assets, the ratio of mortgage advances and the ratio of other debt:

A negative correlation that range between -0.109 for the Anchored Unwell category, to -0.155 for the Drifting Unwell category, to -0.147 for the Drifting Well category, to -0.158 for the Anchored Well category, indicate:

(i) An extremely weak negative linear relationship for the Anchored Unwell category that increases slightly for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a weak negative linear relationship seems to exist.

(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation is similar, and remain to be an extremely weak negative linear relationship.

(iii) The relationship increased very slightly from the Drifting Well to the Anchored Well, the category with the highest negative linear relationship. However, the relationship remains extremely weak.

The relationship increased very slightly from the Drifting Well to the Anchored Well, the category with the highest negative linear relationship. However, the relationship remains extremely weak.

The negative correlation trend between the ratio financial assets to mortgage advances and other debt, thus indicated that an extremely weak negative linear relationship exist for all financial wellness categories.

In conclusion, Table 4.11 shows the relationship that resulted in the highest (positive or negative) correlation coefficient for each financial wellness category. Of interest is the Anchored Well category which differs from the other three categories, which all have the highest correlation values between the ratio of other non-financial assets and the ratio of financial assets. The high negative correlation coefficient between the ratio of financial assets and the ratio of residential assets may indicate a tendency towards more financial asset building than residential asset building or vice versa, or that the value of assets increases much more and faster than residential assets.

Table 4.11: Highest correlation coefficients between ratios for each wellness category

	Relationship	Value
Anchored Unwell	Between other non-financial assets and financial assets	-0.810
Drifting Unwell	Between other non-financial assets and financial assets	-0.713
Drifting Well	Between other non-financial assets and financial assets	-0.568
Anchored Well	Between residential assets and financial assets	-0.653

Source: Researcher's own compilation

Table 4.11 thus emphasise the importance of financial assets.

Therefore, it is necessary to determine the correlations between the subcomponents (Interest in pension funds and long-term insurers, Assets with monetary institutions, and other financial assets) of financial assets. The results are shown in Table 4.12.

Table 4.12: Correlation coefficients between the ratio interest in pension funds and long term insurers to the other two financial assets components ratios per wellness category

	Assets with monetary institutions	Other financial assets
Anchored Unwell	-0.118**	-0.089**
Drifting Unwell	-0.208**	-0.222**
Drifting Well	-0.208**	-0.222**
Anchored Well	-0.544**	-0.257**

Source: Researcher's own compilation

The correlations indicate:

a) Between the ratio of interest in pension funds and long-term insurers; and the ratio of assets with monetary institutions:

A negative correlation that range between -0.118 for the Anchored Unwell category, to -0.208 for the Drifting Unwell category, to -0.208 for the Drifting Well category, to -0.544 for the Anchored Well category, indicate:

(i) An extremely weak negative linear relationship for the Anchored Unwell category that increases substantially for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a stronger, but still weak negative linear relationship seems to exist.

(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation coefficient remains the same (a weak negative linear relationship).

(iii) The relationship increased substantially from the Drifting Well to the Anchored Well, the category with the highest negative linear relationship. A moderate linear relationship exists for the Drifting Well category.

The negative correlation trend between the ratio of interest in pension funds and long-term insurers, and assets with monetary institutions, thus indicated that a very weak negative linear relationship exist for the bottom three financial wellness categories. Therefore, as the ratio of interest in pension funds and long-term insurers increases, the ratio of assets with monetary institutions tends to decrease for the top financial wellness category.

The Anchored Unwell has a combined unemployment rate and economically inactive rate of 71% and 98.7%, which falls in the lower income group. Therefore, the Anchored Unwell has very little invested in interest in pension funds and long-term insurers. They also do not have assets with monetary institutions as evidenced in Table 4.2. As a result, the correlation between this ratio is weak.

The Drifting Unwell has an unemployment rate and economically inactive rate of 51.8% and 81.5%, falling in the lower income group. Thus, the Drifting Unwell also do not have a lot of interest in pension funds and long-term insurers. They also do not have a lot of assets with monetary institutions as evidenced in Table 4.2. Therefore, the strength of the correlation between this ratio is weak.

The Drifting Well has a combined unemployment rate and economically inactive rate of 42.9% and 47.5%, which falls in the lower income group. The interest in pension funds is higher than in the case of the unwell financial wellness categories, but the correlation between this ratio is still weak.

The reason that Anchored Well resulted in a strong negative correlation could be that the majority of the Anchored Well category is employed (69.7%) and only 12.2% falls in the lower income group. Consequently, the majority of this category contributes to pension funds and therefore the value of the pension fund assets is a lot higher than savings and accounts held at monetary institutions.

b) Between the ratio of interest in pension funds and long-term insurers; and the ratio of other financial assets:

A negative correlation that range between -0.089 for the Anchored Unwell category, to -0.222 for the Drifting Unwell category, to -0.222 for the Drifting Well category, to -0.257 for the Anchored Well category, indicate:

(i) An extremely weak negative linear relationship for the Anchored Unwell category that increases substantially for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a weak negative linear relationship seems to exist.

(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation remains the same.

(iii) The relationship increased slightly from the Drifting Well to the Anchored Well, the category with the highest negative linear relationship. A weak linear relationship exists for the Drifting Well category.

The negative value of the correlation coefficient trend between the ratio of interest in pension funds and long-term insurers, and ratio of other financial assets, thus indicated that an extremely weak negative linear relationship exists for the bottom financial wellness category. Therefore, as the ratio of interest in pension funds and long-term insurers increases, the ratio of other financial assets with monetary institutions tends to decrease for the top three financial wellness categories.

Secondly, the ratio of assets with monetary institutions to other financial assets was calculated and is displayed in Table 4.13.

Table 4.13: Correlation coefficients between the assets with monetary institutions to the other financial assets classes per wellness category

	Other financial assets
Anchored Unwell	-0.979**
Drifting Unwell	-0.907**
Drifting Well	-0.821**
Anchored Well	-0.672**

Source: Researcher's own compilation

The correlations indicate:

a) Between the ratio assets with monetary institutions and the ratio of other financial assets:

A negative correlation that range between -0.979 for the Anchored Unwell category, to -0.907 for the Drifting Unwell category, to -0.821 for the Drifting Well category, to -0.672 for the Anchored Well category, indicate:

(i) An extremely strong negative linear relationship for the Anchored Unwell category that decreases slightly for the Drifting Unwell category indicates that in moving from Anchored Unwell to Drifting Unwell, a strong negative linear relationship still seems to exist.

(ii) Between the Drifting Unwell category to the Drifting Well category, the negative correlation decreased moderately, but still indicates an extremely strong negative linear relationship.

(iii) The relationship decreased substantially from the Drifting Well to the Anchored Well category, the category with the lowest negative linear relationship.

The negative correlation trend between the ratio of assets with monetary institutions and ratio of other financial assets, thus indicated that an extremely strong negative linear relationship exists for the bottom three financial wellness categories. Therefore, as the ratio of assets at monetary institutions increases, the ratio of other financial assets tends to decrease for the bottom three financial wellness categories.

The observation of the extremely strong correlation of the Anchored Unwell category, as according to Table 4.2, is the composition of financial assets which consists of 85.1% other financial assets. Therefore, this category does not have any pension funds or savings in bank accounts but has financial assets. This is also the case with the Drifting Unwell category, as the composition of financial assets consists of 76.4% other financial assets. Thus, this category has little pension funds or savings in bank accounts but has financial assets.

Also with the Drifting Well category, the composition of financial assets consists of 41.4% other financial assets. The financial assets for this category is more evenly split (interest in pension funds 36.3%, assets with monetary institutions 22.3%, and other financial assets 41.4%). It seems that this wellness category tends to hold its

financial assets in shares. The major risk in doing this is if there is a massive decline in stock prices.

Also, the same phenomenon is witnessed in the Anchored Well category, but this time the correlation is strong instead of extremely strong. It seems that this wellness category tends to hold its financial assets in shares. The major risk in doing this is if there is a substantial decline in stock prices.

4.6 CONCLUDING REMARKS

In this section, the background to the construction of the secondary data was discussed in Section 4.2. The three-phased approach of secondary data analysis as discussed in Chapter 3 was followed in Section 4.3 (Ranking), Section 4.4 (Game Theory), and Section 4.5 (correlation).

In sub-phase 2.1 (Section 4.3) the household balance sheets' asset and liability class contribution to total assets and liabilities was determined by financial wellness category. It was found that the ranking of assets differ per financial wellness category. In Anchored Unwell residential property is ranked first, financial assets second and other non-financial assets third. Drifting Unwell's main asset class is financial assets followed by other non-financial assets and then residential property. Drifting Well and Anchored Well are ranked the same, with financial assets first (the same as Drifting Unwell), residential property second and other non-financial assets third. The ranking for financial assets also differ per wellness category. For the Anchored Unwell and Drifting Unwell other financial assets were ranked first, assets with monetary institutions second and interest in pension funds and longterm insurers third. The Drifting Well's main financial asset class is other financial assets (the same as Anchored Unwell and Drifting Unwell), second is interest in pension funds and long-term insurers, and the last ranked financial asset is assets with monetary institutions. For the Anchored Well, interest in pension funds and long-term insurance was ranked first, other financial assets second, and assets with monetary institutions third (as in the case with Drifting Well). For liabilities, the Anchored Unwell, Drifting Well and Anchored Well their main liability was mortgage advances,

followed by other debt. In contrast, the Drifting Unwell's liabilities consisted mainly of other debt, with mortgage advances making up the rest.

Sub-phase 2.2 (Section 4.4) used game theory to determine the extent to which the contribution composition (as calculated in sub-phase 2.1) within each financial wellness category can be considered as optimal. The value of the game for the four financial wellness categories was very close to each other for the asset and liability composition. In the asset game, the stronger wellness categories beat the weaker wellness categories, except in the case of the Anchored Well and Drifting Well game, where the Drifting Well won the game. In the liability game, the Drifting Unwell beat the Anchored Unwell which was expected, but the Drifting Unwell beat the Drifting Well and the Drifting Well beat the Anchored Well. The fact the weaker players beat stronger players in both the asset and liability games indicates a sub-optimal composition of the balance sheet.

Correlation coefficients were subsequently calculated in sub-phase 2.3 (Section 4.5) to determine trends across the wellness groups within each pair of asset and liability class contribution percentages. Residential property to other non-financial assets indicated a very weak to moderate negative linear relationship which increased from Anchored Unwell to Anchored Well. Residential property to financial assets have a moderate negative linear relationship for the bottom three wellness categories and a strong negative linear relationship for the Anchored Well. A moderate (bottom two wellness categories) to weak positive linear relationship is evidenced for residential property to mortgage advances. The linear relationship for non-financial assets to financial assets was very strong negative for the bottom two categories, moderate for the Drifting Well and weak for the Anchored Well. Non-financial asset to mortgage advances; and mortgage advances to other debt displayed an extremely weak negative linear relationship for all wellness categories.

The correlation between financial assets were also calculated and it was found for pension funds and long-term insurers and assets with monetary institutions that a very weak negative linear relationship exist for the bottom three wellness categories, in contrast with a moderate negative relationship for the Anchored Well. For pension funds and long-term insurers to other financial assets, an extremely weak negative

linear relationship exist for the Anchored Unwell, while a weak negative relationship for the top three wellness categories are present.

The last correlation that was calculated was between assets with monetary institutions and other financial assets. It was found that an extremely strong negative linear relationship exist for the bottom three wellness categories and a strong negative relationship for the Anchored Well.

The next chapter provides conclusions, recommendations, limitations and areas for future research.

CHAPTER 5
CONCLUSION

"We know what we are, but know not what we may be" – William Shakespeare (Brainyquote.com, 2014.)

5.1 INTRODUCTION

In Section 1.1 the researcher referred to the dissatisfaction of South African households with their financial wellness. This is evident by the high number of labour strikes, public demonstrations against sub-standard infrastructure and municipal service delivery, and the resistance to the Gauteng e-tolling system. In an attempt to assist financially unwell households, government implemented redistributive policies where funds are transferred from the financially well to the increasing number of financially unwell households. As a result, the financially well households are declining in proportion to the total households. Therefore, the situation is critical and decisive intervention is needed from government, the private sector, and labour unions.

The overall purpose of this study was to investigate the main differences between households on the bottom end of the wealth spectrum compared to those on the top end in order to propose policy recommendations for the South African government to improve stability and increase the number of financially well households. In order to achieve this objective, the following research question was formulated:

What are the main differences between South African households on the bottom end of the wealth spectrum compared to those on the top end?

To address the research question, a number of sub-questions were formulated in Section 1.3.

The starting point to address these sub-questions was a literature review, which was conducted in Chapter 2. Chapter 2 investigated the composition of the household balance sheet as a wealth measurement instrument in order to conduct the ranking

to determine the priority composition. This chapter also investigated the composition of household balance sheets from a macro and micro perspective and the reasons for the differences in distributional and compositional results. This was the starting point to address sub-question 1.

The research was carried out in two phases, which included a literature review and secondary data analysis as reported in Chapter 3. Chapter 3 discussed the research methodology applicable to this study. Chapter 4 reported the results of the secondary data analysis. Chapter 3 and 4 were employed to achieve sub-questions 1 – 3.

The purpose of this chapter is to establish whether the research objective has been achieved in this study and to provide policy recommendations which can be implemented by the South African government to improve stability and increase the number of financially well households. The chapter discusses the research questions that were formulated and present significant findings in Section 5.2. Section 5.3 provides policy recommendations which can be implemented by the South African government to improve stability and increase the number of financially well households (sub-question 4). In Section 5.4 an outline of any limitations of the research is discussed followed by suggestions for future research (Section 5.4).

5.2 RESEARCH QUESTIONS AND A SUMMARY OF RESEARCH CONCLUSIONS

This section will discuss how the research sub-questions were addressed and will present a summary of findings related to each of the research sub-questions that was formulated in Section 1.3. A discussion of each of the research sub-questions will follow in Sections 5.2.1 – 5.2.4.

5.2.1 Sub-question 1

What is the balance sheet composition and characteristics across disaggregated households internationally and in South Africa?

This sub-question was achieved by:

- Describing the composition of the household balance sheet as a wealth measurement instrument in Section 2.2.

- Investigating the composition of household balance sheets from a macro perspective in various developed and developing countries in Section 2.3.

- Describing reasons for the differences in distributional and compositional results in Section 2.4.

- Investigating the composition of household balance sheets from a macro perspective in various developed and developing countries in Section 2.5.

- Ranking the asset and liability class component to its contribution percentage within each financial wellness category in Section 4.3.

Three wealth quintiles were identified in Chapter 2; the lowest, middle and highest quintile. The lowest quintile ranking and characteristics are compared to the Anchored Unwell in Table 5.1 and Table 5.2; the middle quintile to the Drifting Unwell and Drifting Well in Table 5.3 and Table 5.4; and the highest quintile to the Drifting Well in Table 5.5 and Table 5.6.

As illustrated in Table 5.1, the ranking between countries differs for the poor households. The Anchored Unwell assets are ranked first for residential property (similar to Europe, USA, Spain, NIDS and Momentum), second for financial assets (only similar to Australia), and third for other non-financial assets (no other similarity). For financial assets, other financial assets are ranked first (no other similarity), assets with monetary institutions second, (also for Australia, Europe, USA) and interest in pension fund and long-term insurers third (the same as Spain). For liabilities, the Anchored Unwell's ranking was the same as all the other countries, where mortgage advances were ranked first and other debt second.

Table 5.1: Household balance sheet comparison for the lowest wealth quintiles and the Anchored Unwell

ASSETS	Australia	Europe	USA	Spain	South Africa (NIDS)	South Africa (Momentum)	Anchored Unwell (This study)
Residential property	3	1	1	1	1	1	**1**
Other non-financial assets	1	2	2	2	2	2	**3**
Financial Assets	2	3	3	3	3	3	**2**
FINANCIAL ASSETS							
Interest in pension funds and long-term insurers	1	1	1	3			**3**
Assets with Monetary institutions	2	2	2	1		1	**2**
Other financial assets	3	3	3	2			**1**
LIABILITIES							
Mortgage advances	1	1	1	1	1	1	**1**
Other debt	2	2	2	2	2	2	**2**

Source: Researcher's own compilation

The characteristics of the lowest wealth quintile and the Anchored Unwell are compared in Table 5.2. Characteristics which agree are marked in blue.

Table 5.2: Household characteristic comparison for countries around the world and the Anchored Unwell

CHARACTERISTICS	LOWEST QUINTILE	ANCHORED UNWELL	SIMILARITY
Age (reference person)	This quintile has the lowest age of the three quintiles as evidenced in Australia, Europe, Great Britain, USA, Spain, Turkey and South Africa (NIDS). This is not the case with South Africa (Momentum) where age did not follow the life cycle hypothesis.	The Anchored Unwell consists of the following age brackets: 17-24 (1.3%); 25-34 (10.7%); 35-49 (31.4%); 50-59 (23.5%); 60-64 (11.2%) and 65 and above (21.8%).	The Anchored Unwell do not consist of the lowest age bracket. Therefore age did not follow the life cycle hypothesis.
Income level	All the countries explored in section 2.6 indicate that wealth and income are highly correlated. Therefore wealth increases with income. The lowest quintile has the lowest income of the three quintiles.	The Anchored Unwell consists mainly of the low-income group (98.7%) which earns between R1 and R58 093 per annum.	Anchored Unwell agrees with the lowest quintile.
# of household members	In Australia, wealth increases with the number of household members. The lowest quintile had	Number of household members in this quintile consists of 12.9% one member households, 8.3% two member households, 12.7% three-member	No pattern could be identified which indicates that number of household members affect

CHARACTERISTICS	LOWEST QUINTILE	ANCHORED UNWELL	SIMILARITY
	the lowest number of household members (2.3 members). This is in contrast with Europe where the number of household members did not systematically rise with household size.	households, 21.3% four-member households, 23.4% five-member households and 21.5% more than five members in a household.	wealth in this study, evidenced by the distribution of the Anchored Unwell.
Employment status	As evidenced in the studies for Australia, Europe, Great Britain and South Africa (Momentum), wealth increases with employment. The bottom quintile consists of the unemployed or economically inactive. The only exception to this was in the study for South Africa conducted by the NIDS. These households consist of both employed and economically active households, as evidenced by the existence of residential property	For the Anchored Unwell 29% of households are employed.	Anchored Unwell agrees with the majority of the lowest quintile studies.

CHARACTERISTICS	LOWEST QUINTILE	ANCHORED UNWELL	SIMILARITY
	and mortgage advances.		
Home ownership	For Australia, USA, Spain, Turkey the lowest quintile consists primarily of renters. Europe and South Africa (NIDS) indicated that wealth increases with home ownership.	For the Anchored Unwell 27% of households are homeowners.	Anchored Unwell agrees with the lowest quintile studies.
Education	Low education levels are present in this households as evidenced in Europe, Great Britain, USA, Spain, Turkey and South Africa (Momentum).	This quintile consists of 69.8% of households that have some primary education, 26.3% of households that have some secondary education; 3.9% of households that have completed secondary education and 0% of households that have tertiary education.	Anchored Unwell agrees with the lowest quintile studies.
Gender	Only Great Britain investigated the effect of gender on wealth, and found gender to have minimal effect on wealth.	This quintile consists of 31.2% males and 65.8% females.	The majority of Anchored Unwell are females.
Marital status	Marital status has an effect on wealth (as founded by Great Britain and South Africa (Momentum)). The majority of this quintile is single.	For the Anchored Unwell, 46.6% are single never married; 27.8% are divorced/widowed/separated and 25.6% are married/living together.	Anchored Unwell agrees with the lowest quintile studies.
Race	Only the USA	The Anchored Unwell consists	Anchored Unwell

CHARACTERISTICS	LOWEST QUINTILE	ANCHORED UNWELL	SIMILARITY
	investigated the effect of race on household wealth. This quintile consists primarily of non-white or Hispanic households.	mainly of Black (91.4%) and Coloured (3.8%) households.	agrees with the lowest quintile studies.

Source: Researcher's own compilation

In Table 5.3 the ranking between countries differs for the middle households. As the Drifting Unwell's ranking varies from the Drifting Well, the Drifting Unwell is firstly compared to the middle wealth quintiles and the Drifting Well after that.

The Drifting Unwell's financial assets are ranked first for financial assets (similar to Momentum), second for other non-financial assets (only similar to Spain), and third for residential property (no other similarity).

For financial assets, other financial assets are ranked first (no other similarity), assets with monetary institutions second (similar to Australia and USA), and interest in pension funds and long-term insurers third (similar to Spain).

In the case of liabilities, the Drifting Unwell's liabilities are in contrast with the middle wealth quintile. The Drifting Unwell's other debt is ranked first and mortgage advances second.

The Drifting Well's financial assets are ranked first for financial assets (similar to Momentum), second for residential property (only similar to Momentum), and third for other non-financial assets (similar to Australia, Europe, USA, NIDS, Momentum).

For financial assets, other financial assets are ranked first (no other similarity), interest in pension funds and long-term insurers second (similar to Europe), and assets with monetary institutions third (no other similarity).

Table 5.3: Household balance sheet comparison for the middle wealth quintiles and the Drifting Unwell and the Drifting Well

ASSETS	Australia	Europe	USA	Spain	South Africa (NIDS)	South Africa (Momentum)	Drifting Unwell (This study)	Drifting Well (This study)
Residential property	1	1	1	1	1	2	**3**	**2**
Other non-financial assets	3	3	3	2	3	3	**2**	**3**
Financial Assets	2	2	2	3	2	1	**1**	**1**
FINANCIAL ASSETS								
Interest in pension funds and long-term insurers	1	2	1	3		1	**3**	**2**
Assets with Monetary institutions	2	1	2	1		3	**2**	**3**
Other financial assets	3	3	3	2		2	**1**	**1**
LIABILITIES								
Mortgage advances	1	1	1	1	1	1	**2**	**1**
Other debt	2	2	2	2	2	2	**1**	**2**

Source: Researcher's own compilation

In the case of liabilities, the Drifting Well's liabilities agree with the middle wealth quintile, with mortgage advances ranked first and other debt second. The characteristics of the middle wealth quintile, the Drifting Unwell, and the Drifting Well are compared in Table 5.4. Characteristics which agree are marked in blue.

Table 5.4: Household characteristic comparison for countries around the world, the Drifting Unwell and the Drifting Well

CHARACTERISTICS	MIDDLE QUINTILE	DRIFTING UNWELL	DRIFTING WELL	SIMILARITY
Age (reference person)	This quintile has a higher age than the lowest quintile but a lower age than the highest quintile. This trend is following the life cycle hypothesis which indicates that wealth accumulates with age. This trend is evidenced in Australia, Europe, Great Britain, USA, Spain, Turkey and South Africa (NIDS). This is not the case with South Africa (Momentum) where age did not follow the life cycle hypothesis.	The Drifting Unwell consists of the following age brackets: 17-24 (3.2%); 25-34 (17.4%); 35-49 (33.4%); 50-59 (17.5%); 60-64 (9.1%) and 65 and above (19.4%).	The Drifting Well consists of the following age brackets: 17-24 (8.1%); 25-34 (18.3%); 35-49 (30.5%); 50-59 (17%); 60-64 (8.4%) and 65 and above (17.8%).	The Drifting Unwell and Drifting Well don't follow the life cycle hypothesis.
Income level	This quintile has a higher income than the lowest quintile but a	The Drifting Unwell consists primarily of the low income	The Drifting Well consists primarily of the low income group (47.5%)	The Drifting Unwell and Drifting Well agrees with the

CHARACTERISTICS	MIDDLE QUINTILE	DRIFTING UNWELL	DRIFTING WELL	SIMILARITY
	lower income than the highest quintile.	group (81.5%) which earns between R1 and R58 093 per annum; and the low emerging income group (13.9%) which earns between R58 094 and R160 892 per annum.	which earns between R1 and R58 093 per annum; the low emerging income group (28.4%) which earns between R58 094 and R160 892 per annum; and the emerging middle class (14.6%) which earns between R160 893 and R382 127 per annum.	middle quintile.
# of household members	In Australia, wealth increases with the number of household members. The middle quintile (2.5 members) had more members than the bottom quintile but less members than the highest quintile. This is in contrast with Europe where the number of household members did not systematically rise with household size. The other balance sheet	Number of household members in this quintile consists of 9.4% one member households, 9.8% two member households, 20.2% three-member households, 16.9% four-member households, 14.2% five-member households and 29.6% more than five members in a	Number of household members in this quintile consists of 8.2% one member households, 16.8% two member households, 20.3% three-member households, 15.4% four-member households, 13.3% five-member households and 26.1% more than five members in a household.	No pattern could be identified which indicates that a number of household members affect wealth in this study, evidenced by the distribution of the Drifting Unwell and the Drifting Well.

CHARACTERISTICS	MIDDLE QUINTILE	DRIFTING UNWELL	DRIFTING WELL	SIMILARITY
	studies did not investigate the effect of the number of household members on wealth.	household.		
Employment status	The middle quintile has more employed households than the lowest quintile but less than the highest quintile.	For the Drifting Unwell 48.2% of households are employed.	For the Drifting Well 57.1% of households are employed.	Drifting unwell and Drifting Well agrees with the middle quintile.
Home ownership	For Australia, USA, Spain, Turkey this quintile consists primarily of homeowners. The home ownership rate is lower than the highest quintile.	For the Drifting Unwell 45.4% of households are homeowners.	For the Drifting Well 54.2% of households are homeowners.	Drifting Unwell still have more renters than home owners but the ownership rate increased. Drifting Well has the majority homeowners. Therefore Drifting Unwell and Drifting Well agrees with the middle quintile studies.
Education	Secondary education levels are present in this quintile.	This quintile consists of 33.1% of households that have some primary education, 48.5% of	This quintile consists of 9.2% of households that have some primary education, 40.7% of households that have some	Drifting Unwell and Drifting Well agrees with the middle quintile studies.

CHARACTERISTICS	MIDDLE QUINTILE	DRIFTING UNWELL	DRIFTING WELL	SIMILARITY
		households that have some secondary education; 13.1% of households that have completed secondary education and 5.3% of households that have tertiary education.	secondary education; 32% of households that have completed secondary education and 18.1% of households that have tertiary education.	
Gender	Only Great Britain investigated the effect of gender on wealth, and found gender to have minimal effect on wealth.	This quintile consists of 43.8% males and 55.6% females.	This quintile consists of 51.2% males and 48.7% females.	The majority of Drifting Unwell are females while the majority of the Drifting Well are males.
Marital status	This quintile consists of single and married households.	For the Drifting Unwell, 31.3% are single never married; 26.1% are divorced/widowed/separated and 42.7% are married/living together.	For the Drifting Well, 31.1% are single never married; 24.8% are divorced/widowed/separated and 44.1% are married/living together.	Drifting Unwell and Drifting Well agrees with the middle quintile studies.
Race	Only the USA investigated the effect of race on household wealth.	The effect on the middle wealth quintile was not investigated in the literature.	The Drifting Well consists mainly of Black (77.7%), White (10.3%) and Coloured (8.2%) households.	The majority of the Drifting Unwell and Drifting Well are Black households.

Source: Researcher's own compilation

Table 5.5: Household balance sheet comparison for the highest wealth quintiles and the Anchored Well

ASSETS	Australia	Europe	USA	Spain	South Africa (NIDS)	South Africa (Momentum)	Anchored Well (This study)
Residential property	1	1	2	1	1	2	**2**
Other non-financial assets	3	3	3	3	3	3	**3**
Financial Assets	2	2	1	2	2	1	**1**
FINANCIAL ASSETS							
Interest in pension funds and long-term insurers	2	3	2	3		1	**1**
Assets with Monetary institutions	3	2	3	2		3	**3**
Other financial assets	1	1	1	1		2	**2**
LIABILITIES							
Mortgage advances	1	1	1	1	1	1	**1**
Other debt	2	2	2	2	2	2	**2**

Source: Researcher's own compilation

As illustrated in Table 5.5, the ranking between countries differs for the high households. The Anchored Well assets are ranked first for financial assets (similar USA and Momentum), second for residential property (similar USA and Momentum), and third for other non-financial assets (similar to all studies). For financial assets, interest in pension funds and long-term insurers are ranked first (similar to Momentum), other financial assets are ranked second (similar to Momentum), and assets with monetary institutions third (the same as Australia, USA and Momentum). The ranking for the Anchored Well was the same for liabilities as all the other countries, where mortgage advances were ranked first and other debt second. The characteristics of the highest wealth quintile and the Anchored Well are compared in Table 5.6. Characteristics which agree are marked in blue.

Table 5.6: Household characteristic comparison for countries around the world and the Anchored well

CHARACTERISTICS	HIGHEST QUINTILE	ANCHORED WELL	SIMILARITY
Age (reference person)	This quintile has the highest age of the three quintiles as evidenced in Australia, Europe, Great Britain, USA, Spain, Turkey and South Africa (NIDS). This is not the case with South Africa (Momentum) where age did not follow the life cycle hypothesis.	The Anchored Well consists of the following age brackets: 17-24 (2.5%); 25-34 (11.1%); 35-49 (37.1%); 50-59 (26.3%); 60-64 (7.4%) and 65 and above (15.6%).	The Anchored Well don't consist of the highest age bracket. Therefore age did not follow the life cycle hypothesis.
Income level	This quintile has the highest income of the three quintiles.	The Anchored Well consists of the low income group (12.2%) which earns between R1 and R58 093 per annum; the low emerging income group (29.5%) which earns between R58 094 and R160 892 per annum; the emerging middle class	Anchored Well agrees with the highest quintile.

CHARACTERISTICS	HIGHEST QUINTILE	ANCHORED WELL	SIMILARITY
		(31.4%) which earns between R160 893 and R382 127 per annum and the realised middle class (13.6%) which earns between R382 128 and R662 676 per annum.	
# of household members	In Australia, wealth increases with the number of household members. The highest quintile (2.8 members) had the most household members. This is in contrast with Europe where the number of household members did not systematically rise with household size. The other balance sheet studies did not investigate the effect of the number of household members on wealth.	Number of household members in this quintile consists of 9.3% one member households, 19.1% two member households, 20.1% three-member households, 21.7% four-member households, 16.5% five-member households and 13.3% more than five members in a household.	No pattern could be identified which indicates that number of household members affect wealth in this study, evidenced by the distribution of the Anchored Well.
Employment status	The highest quintile holds the most employed households.	For the Anchored Well 69.7% of households are employed.	Anchored Well agrees with the majority of the highest quintile studies.
Home ownership	For Australia, USA, Spain, Turkey this quintile consists primarily of homeowners. The home ownership rate is the highest for this	For the Anchored Well 83.6% of households are homeowners.	Anchored Well agrees with the highest quintile studies.

CHARACTERISTICS	HIGHEST QUINTILE	ANCHORED WELL	SIMILARITY
	quintile.		
Education	Tertiary education levels are present in this quintile.	This quintile consists of 0% of households that have some primary education, 18.8% of households that have some secondary education; 38.6% of households that have completed secondary education and 42.6% of households that have tertiary education.	Anchored Well agrees with the highest quintile studies.
Gender	Only Great Britain investigated the effect of gender on wealth, and found gender to have minimal effect on wealth.	This quintile consists of 62.9% males and 36.9% females.	The majority of anchored well are males.
Marital status	The majority of this quintile is married.	For the Anchored Well, 17.5% are single never married; 20.5% are divorced/widowed/separated and 62.1% are married/living together.	Anchored Well agrees with the highest quintile studies.
Race	This quintile consists primarily of white households in the USA.	The Anchored Well consists mainly of Black (62.6%), White (25.3%) and Coloured (8%) households.	The majority of the Anchored Well is Black. Therefore Anchored Well do not agree with the highest quintile studies.

Source: Researcher's own compilation

To summarise, differences are evident when comparing the balance sheet composition across disaggregated households internationally, in previous South African studies, and the current study. There are, however, characteristics that agree

when the above studies are compared. These include income level, employment status, home ownership, education, and marital status.

5.2.2 Sub-question 2

Is the household balance sheet composition across disaggregated households optimal in South Africa?

This sub-question was achieved by:

- Calculating the optimality of contribution ratio's as calculated in the secondary data analysis (phase 2.2) of the study by making use of game theory in Section 4.4.

Game theory was used to determine the extent to which the contribution composition (as provided in Section 3.4.2.5 (b)) within each financial wellness category can be considered as optimal. The value of the game for the four financial wellness categories was very close to each other for the asset and liability composition. In the asset game, the stronger wellness categories beat the weaker wellness categories, except in the case of the Anchored Well and Drifting Well game, where the Drifting Well won the game (Table 4.6). In the liability game, the Drifting Unwell beat the Anchored Unwell, which was expected, but the Drifting Unwell beat the Drifting Well, and the Drifting Well beat the Anchored Well (Table 4.7). The fact that the weaker players beat stronger players in both the asset and liability games, indicate a sub-optimal composition of the balance sheet.

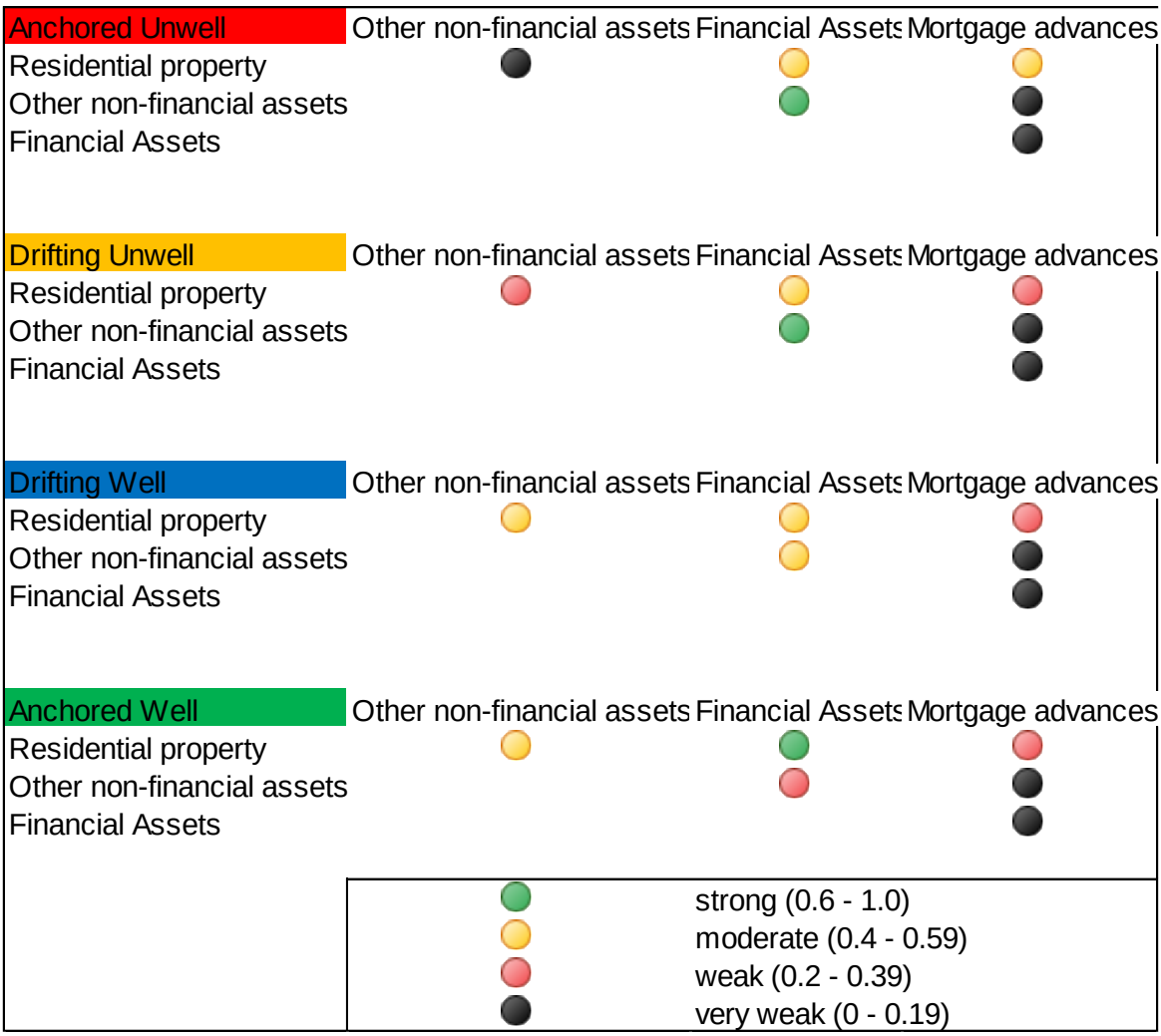
5.2.3 Sub-question 3

If the household balance sheets across disaggregated households in South Africa are not optimal, what are the reasons for the sub-optimality?

This sub-question was achieved by:

- Calculating the trends across the wellness groups within each pair of asset and liability class contribution percentages by making use of correlation in Section 4.5.

The results are summarised per wellness category in Figure 5.1.



Other debt is not included in the summary as other debt is the inverse of mortgage advances.

Figure 5.1: Correlation summary per wellness category

Source: Researcher's own compilation

For the Anchored Unwell, the only strong correlation (Figure 5.1) was in relation to other non-financial assets and financial assets (Table 4.9). As financial assets were ranked first (Table 4.2) and the correlation has a negative linear relationship, this indicates that the Anchored Unwell acquire financial assets rather than other non-financial assets. This was a surprising result as the literature for lowest wealth households indicated that poor household's third-ranked asset is financial assets

(Section 2.6.2). A possible explanation for the Anchored Unwell could be that other non-financial assets, like cars and valuables, are too expensive for them to acquire due to this category's high unemployment rate.

The Drifting Unwell's only strong correlation was also (Figure 5.1) in relation to other non-financial assets and financial assets (Table 4.9). Financial assets were ranked second (Table 4.2) with a negative linear relationship, which indicates that the Drifting Unwell would rather acquire financial assets than other non-financial assets. This result was expected as the literature is in agreement with this trend for middle wealth households (Section 2.6.2). A possible explanation for this is that the Drifting Unwell are aware of financial asset products, but it could also be that other non-financial assets, like cars and valuables, are too expensive for them to acquire due to this category's high unemployment rate.

For the Drifting Well, no strong correlations were evidenced as displayed in Figure 5.1.

For the Anchored Well, the only strong correlation (Figure 5.1) was in relation to residential property and financial assets (Table 4.8). As financial assets were ranked first (Table 4.2) and the correlation has a negative linear relationship, this indicates that the Anchored Well rather spend on financial assets than on residential property. This was also a surprising result, since the literature for highest wealth households indicated that these household's first ranked asset is residential property (Section 2.6.2).

As financial assets showed as a strong correlation in relation to other assets, the correlation for financial assets is summarised in Figure 5.2.

Strong correlations are depicted in Figure 5.2 between assets with monetary institutions and other financial assets (Table 4.2). For all the financial wellness categories, other financial assets were ranked higher than assets with monetary institutions and the linear relationship was negative. This means that households in this study would rather acquire other financial assets than assets with monetary institutions. For the Anchored Unwell, this is in contrast with the international studies,

where poor households would rather invest in assets with monetary institutions (Section 2.6.2).

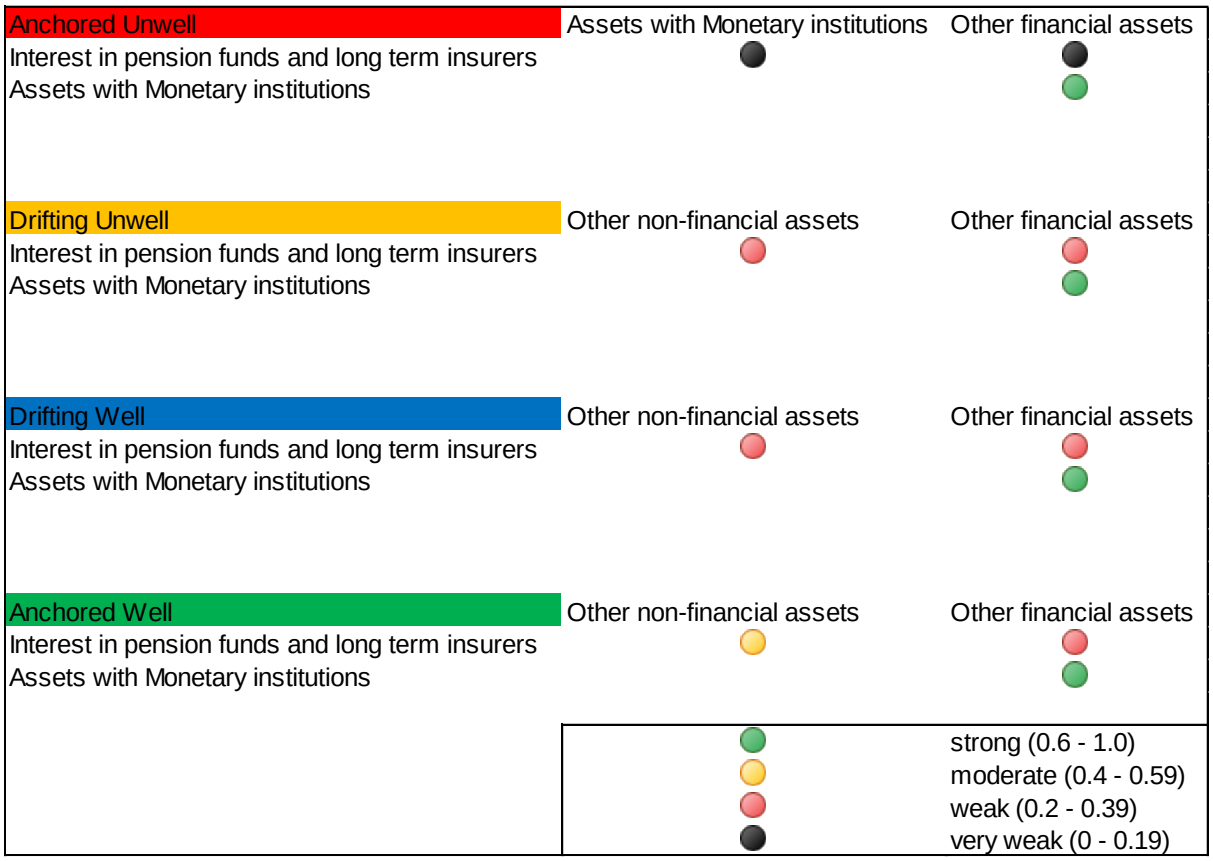


Figure 5.2: Correlation summary for financial assets per wellness category

Source: Researcher's own compilation

It is also the case with the Drifting Unwell and Drifting Well, where the international studies have shown that the middle class will rather invest in assets with monetary institutions (Section 2.6.2). The Anchored Well agrees with the literature where the higher wealth households tend to invest in other financial assets (Section 2.6.2). Possible reasons for the differences in the lower three financial wellness categories could be that these households do not trust monetary institutions or they feel that banking costs are too high. Another reason can be that as the unemployment rate is high, these households started their own businesses' which value encapsulated in other financial assets.

5.2.4 Sub-question 4

What policy recommendations can be implemented by the South African government to improve stability and increase the number of financially well households?

Section 5.2.1 indicated that there are differences in each financial wellness category asset and liability compositions in the household balance sheet. No demographic characteristics, like age and gender, were evidenced to affect household wealth in this study. Characteristics that agreed with international studies regarding affected household wealth were income level, employment status, home ownership, education, and marital status. The number of household members did not provide sufficient evidence to affect household wealth.

Policyholders should, therefore, focus on the area of job creation, which should in return increase income for households. This income could be used to increase home ownership, as well as to enhance the household's education level. Households should also be encouraged to complete primary and secondary education as wealth increased with education.

According to Unisa and Momentum (2012:8), current government policies are demand-driven with a strong customer empowerment focus. This is in contrast with other developing countries with high levels of inclusive economic growth with strategies and policies in many ways the opposite of the current South African government's strategies and policies (Unisa & Momentum, 2012:8). The following strategies and policies can, therefore, be considered:

- The current South African educational and training system currently measures quantity, in other words, how many grade twelve learners pass the matric exam. It is proposed that this system changes to measure quality where the performance of the learners is measured against international standards (Unisa & Momentum, 2012:8).

- The focus of the current educational system is on academic skills. This should be changed that the educational system concentrates on the labour market, entrepreneurial and life skills (Unisa & Momentum, 2012:8; Mbuli, 2008:179; Triegaardt, 2006:8).

- Instead of government's primary focus on the demographic transformation of society, the focus should be on socio-economic transformation. This transformation should not aim at the distribution of income, or wealth, or wellness, but rather to create the ability among poor households to improve their socio-economic conditions (Unisa & Momentum, 2012:8; Mbuli, 2008:178; Chibba & Luiz, 2011:312). Government should encourage businesses to become involved in socio-economic transformation to ensure higher levels of Corporate Social Responsibility (Unisa & Momentum, 2012:8).

- Government's development agenda is currently from a demand-side where social grants are provided to millions of people each month and trade unions are protected at the expense of new jobs. This agenda should be changed to focus on the supply side; in other words, to strengthen institutions (such as government, municipalities, schools, non-government organisations and enterprises) to create effective suppliers of food and services, which in turn would create work opportunities for the unemployed (Unisa & Momentum, 2012:9; Mbuli, 2008:178; Potts, 2012:91; Triegaardt, 2006:7).

- The tax system should be used to incentivise production, exports, employment, business creation, and community engagement to ensure fiscal discipline and limited government intervention. It is imperative that businesses should respond to these incentives and advise the government on their needs (Unisa & Momentum, 2012:9).

- There are currently a number of structural imbalances (such as the disjointed skills required versus skills demanded in the labour market and products demanded and supplied) in the economy which should be addressed urgently by the government (Unisa & Momentum, 2012:9).

- Government should ensure that the demand and supply-side policies are formulated, implemented, monitored, and evaluated (Unisa & Momentum, 2012:9; Mbuli, 2008:176).

- Government should create special economic opportunities for women, as black women suffer from the burden of poverty and are excluded from access to essential assets (Mbuli, 2008:180).

- Increased awareness campaigns around the issue of HIV/AIDS as this epidemic has a devastating effect on the economic status of households in South Africa (Mbuli, 2008:180).

- Corruption puts basic public services beyond the reach of those who cannot afford to pay bribes. Government should thus focus on eradicating corruption (Mbuli, 2008:180).

- The Broad Based Black Economic Empowerment (BBBEE) program has been discredited and has been viewed by the poor black masses as a scheme to enrich the small black elite. Therefore, the BBBEE program should be dropped and replaced with an evidence-based solution (Chibba & Luiz, 2011:312).

5.2.5 Summary

Four research sub-questions were formulated in Section 1.3 to address the central research question of the study. The central research question was:

What are the main differences between South African households on the bottom end of the wealth spectrum compared to those on the top end?

Section 5.2.1 indicated that there are differences in each financial wellness category asset and liability compositions in the household balance sheet. No demographic characteristics, like age and gender, were evidenced to affect household wealth in this study. Factors that agreed with international studies regarding affected

household wealth were income level, employment status, home ownership, education, and marital status. The number of household members did not provide sufficient evidence to affect household wealth.

Section 5.2.2, however, indicated that the asset composition of the Anchored Well is not the strongest balance sheet as evidenced by the defeat in the game against the Drifting Well.

Section 5.2.3 investigated possible reasons why the weaker financial wealth categories defeated the stronger categories. Possible reasons identified were the composition of financial assets.

Section 5.2.4 provided policy recommendations which can be implemented by the South African government to improve stability and increase the number of financially well households.

5.3 LIMITATIONS OF THE RESEARCH

Data was obtained from an omnibus study which is representative to South African households. This data was subjected to two limitations. The first limitation is self-reporting. This was also experienced by other international studies collecting data at a micro level where the accuracy of the amounts could not be verified independently. The second limitation was the inaccessibility of high income households. This was again inherent to the limitation experienced by international studies.

5.4 SUGGESTIONS FOR FUTURE RESEARCH

The study used data obtained from the Momentum/Unisa South African Household Financial Wellness Index of 2012 (Wave 2) survey. A follow-up study could be done on later releases of this omnibus survey.

As evidenced in this study, for households to be financially well, they should be employed and educated. Focus group deliberations could be held with key

stakeholders in the South African economy to discuss possible solutions for unemployment and education.

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APPENDIX A

ETHICAL CLEARANCE

UNISA university of south africa

COLLEGE OF ACCOUNTING SCIENCES

RESEARCH ETHICS REVIEW COMMITTEE

Date: 9 November 2016

Ref: 2016_CAS_073
(2014/CAS/SAS/0005_Amended)
Name of applicant:
Mr J van Staden
Student/Staff #: 33837112

Dear Mr J van Staden

Decision: Ethics Approval

Name: Mr J van Staden
vstadj@unisa.ac.za

Tile: A COMPARISON BETWEEN HOUSEHOLD WEALTH ACROSS THE WEALTH SPECTRUM IN SOUTH AFRICA

Qualification: Postgraduate student research

Thank you for the application for research ethics clearance by the College of Accounting Sciences Research Ethics Review Committee for the above mentioned research. Final approval is granted for the completion of the research.

For full approval: *The research ethics application was reviewed in compliance with the Unisa Policy on Research Ethics by the College of Accounting Sciences Research Ethics Review Committee on 9 November 2016.*

The proposed research may now commence with the proviso that:

1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the College of Accounting Sciences Research Ethics Review Committee . An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.*
3) *The researcher will ensure that the research project adheres to any applicable*

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national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Note:
The reference number [top right corner of this communiqué] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the College of Accounting Sciences RERC.

Kind regards,

Ms Lindie Grebe
(Chairperson of CAS RERC)
grebel@unisa.ac.za
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APPENDIX B
HOUSEHOLD BALANCE SHEETS

This appendix provides the asset and liability sections in the household balance sheets used to calculate the contribution percentages which was used in Chapter 2.

Australia

The ABS balance sheet is divided into quintiles. These quintiles represent the population grouped equally into five groups. The first quintile represents the bottom 20% of households in respective to wealth, where the highest quintile represents the top 20% of households (ABS, 2013:58).

The researcher selected the first quintile of the ABS balance sheet as the lowest quintile; the third quintile of the ABS balance sheet as the middle quintile and the fifth quintile of the ABS balance sheet as the highest quintile.

The contribution ratios for these balance sheets in regards to assets and liabilities were already calculated and was used as such in Table 2.7.

Europe

The HFCS balance sheet is divided into five quintiles. These quintiles represent the population grouped into five groups. The first quintile will represent the bottom 20% of households in respective to wealth, where the highest quintile the top 20% of households.

The researcher selected the first quintile of the HFCS balance sheet as the lowest quintile; the third quintile of the HFCS balance sheet as the middle quintile and the fifth quintile of the HFCS balance sheet as the highest quintile.

The contribution ratios for these balance sheets in regards to assets and liabilities were not calculated by the ECB. The number of households, the asset and liability holding percentage and the median asset/liability value were available (Table B.1). The researcher calculated the individual line items for the balance sheet by taking

the number of households multiplied by the asset / liability holding percentage and multiplying it again with the median per household. The results are displayed in Table B.2, which was used to calculate the contribution percentages used in Table 2.9.

Table B.1 Europe: Median values and holding percentages for assets and liabilities

Number of households	62 000					
	Lowest		**Middle**		**Highest**	
ASSETS	**€ (‘000)**	**%**	**€ (‘000)**	**%**	**€ (‘000)**	**%**
Main residence	131.3	4.8%	112.3	78.9%	300.3	94.6%
Other residential assets	54.8	1.9%	44.2	19.1%	200.0	59.1%
Residential property						
Vehicles	2.0	48.7%	6.0	79.4%	11.9	90.3%
Valuables	1.0	34.8%	2.7	39.6%	8.8	56.4%
Other non-financial assets						
FINANCIAL ASSETS						
Pension funds	1.6	15.9%	11.8	31.5%	29.1	49.1%
Interest in pension funds and long term insurers						
Deposits	0.8	92.5%	6.3	96.1%	22.0	99.1%
Mutual funds	1.6	2.0%	7.3	10.4%	20.3	23.8%
Assets with Monetary institutions						
Self-employment business	1.7	2.3%	13.3	8.5%	100	26.9%
Bonds	0.0	0.2%	10	3.9%	26.2	14.0%
Shares (Publicly traded)	1.4	1.2%	4.3	8.0%	13.9	25.2%
Money owed to household	1.0	7.8%	3.0	5.9%	10.0	8.6%
Other financial assets	0.9	1.7%	3.1	4.7%	10.0	13.8%
Other financial assets						
LIABILITIES						
Mortgage	151.9	4.5%	68.2	29.4%	54.8	22.2%
Other property mortgage	132.5	1.5%	54.1	4.7%	59.8	13.9%
Mortgage advances						
Overdrafts debt	1.0	17.8%	2.0	8.3%	3.1	6.0%
Credit card debt	0.9	3.2%	0.7	5.6%	0.9	4.2%
Non-mortgage debt	5.0	33.5%	6.7	20.3%	10.5	17.6%
Other debt						

Source: ECB, 2013:23, 27, 36, 39, 51 & 55

Table B.2 Europe (used in Table 2.9)

	Lowest		Middle		Highest	
ASSETS	**€ ('000)**	**%**	**€ ('000)**	**%**	**€ ('000)**	
Residential property	91 061	74.6%	1 203 382	84.0%	4 988 319	81.2%
Other non-financial assets	16 393	13.4%	72 332	5.0%	194 790	3.2%
Financial Assets	14 577	12.9%	157 699	11.0%	957 681	15.6%
TOTAL ASSETS	**122 031**	**100%**	**1 433 413**	**100%**	**6 140 790**	**100%**
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	3 154	21.6%	46 091	29.2%	177 173	18.5%
Assets with Monetary institutions	9 573	65.7%	84 487	53.6%	330 254	34.5%
Other financial assets	1 850	12.7%	27 121	17.2%	450 254	47%
TOTAL FINANCIAL ASSETS	**14 577**	**100%**	**157 699**	**100%**	**957 681**	**100%**
LIABILITIES						
Mortgage advances	109 405	82.4%	280 159	93.5%	253 925	90.8%
Other debt	23 334	17.6%	19 410	6.5%	25 690	9.2%
TOTAL LIABILITIES	**132 739**	**100%**	**299 569**	**100%**	**279 615**	**100%**

Source: Researcher's own compilation compiled from ECB, 2013:23, 27, 36, 39, 51 & 55

Great Britain

The WAS balance sheet is divided into ten deciles. These deciles represent the population grouped equally into ten groups. The first decile represents the bottom 10% of households in respective to wealth, where the highest decile represents the top 10% of households (Chamberlain, 2015b:6).

The researcher selected decile one and two of the WAS balance sheet as the lowest quintile; decile five and six as the middle quintile and decile nine and ten as the highest quintile.

The figures in Table B.3 was already calculated by Chamberlain. The researcher used these figures to calculate the contribution ratios for the assets and liabilities which was displayed in Table 2.11.

Table B.3 Great Britain (used in Table 2.11)

	Lowest		Middle		Highest	
	£ ('000)	**%**	**£ ('000)**	**%**	**£ ('000)**	**%**
Property wealth	(771)	(1.3%)	524 722	45.0%	2 296 249	32.4%
Financial wealth	(11)	(0.0%)	430 688	36.9%	4 360 551	61.4%
Physical wealth	61 530	101.3%	211 312	18.1%	439 589	6.2%
Total wealth	**60 770**	**100%**	**1 166 722**	**100%**	**7 096 389**	**100%**

Author's own compilation compiled from Chamberlain (2015b), Chamberlain (2015c), Chamberlain (2015d), Chamberlain (2015e).

United States of America (USA)

The SCF balance sheet is divided into five quintiles. These quintiles represent the population grouped into five groups. Therefore, the first quintile will represent the bottom 25% of households in respective to wealth, where the highest quintile the top 10% of households.

The researcher selected the first quintile of the SCF balance sheet as the lowest quintile; the third quintile of the SCF balance sheet as the middle quintile and the fifth quintile of the SCF balance sheet as the highest quintile.

The contribution ratios for these balance sheets in regards to assets and liabilities were not calculated by the SCF. The number of households, the asset and liability holding percentage and the median asset/liability value were available (Table B.4). The researcher calculated the individual line items for the balance sheet by taking the number of households multiplied by the asset / liability holding percentage and multiplying it again with the median per household. The results are displayed in Table B.5, which was used to calculate the contribution percentages used in Table 2.13.

Table B.4 USA: Median values and holding percentages for assets and liabilities

Number of households	122 500					
	Lowest		**Middle**		**Highest**	
ASSETS	**$ (‘000)**	**%**	**$ (‘000)**	**%**	**$ (‘000)**	**%**
Main residence	120.2	18.5%	173.0	89.8%	720.5	96.6%
Other residential assets	65.7	2.4%	86.0	13.2%	703.9	45.1%
Equity in non-residential property	0.0	0.0%	38.5	7.7%	650.3	24.2%
Residential property						
Vehicles	11.0	66.3%	21.8	92.9%	49.5	94.3%
Other	5.2	2.8%	20.5	6.6%	217.9	16.8%
Other non-financial assets						
FINANCIAL ASSETS						
Pooled investment funds	4.4	1.1%	35.5	6.0%	925.8	36.7%
Retirement accounts	10.5	17.3%	68.8	57.8%	722.5	89.3%
Life insurance	3.2	7.5%	12.5	21.6%	128.1	34.4%
Other managed assets	0.0	0.0%	51.0	4.6%	837.6	19.2%
Interest in pension funds and long term insurers						
Transaction accounts	1.8	80.0%	14.9	98.2%	230.9	99.6%
Certificate of deposits	5.8	1.3%	24.3	9.1%	182.0	15.8%
Saving bonds	0.9	3.4%	4.3	12.4%	16.1	18.1%
Assets with Monetary institutions						
Self-employment business	18.8	3.4%	55.4	10.8%	2 473.1	41.7%
Bonds	0.0	0.0%	0.0	0.0%	46.7	10.1%
Stocks	6.4	1.6%	23.5	11.4%	72.5	50.0%
Other	2.1	6.9%	15.9	7.8%	305.3	10.4%
Other financial assets						
LIABILITIES						
Mortgage	147.8	16.9%	122.9	57.5%	300.2	57.8%
Other property mortgage	110.5	1.5%	84.2	5.8%	288.6	16.1%
Mortgage advances						
Instalment loans	34.3	56.5%	19.9	45.4%	32.0	28.5%
Credit card debt	6.1	33.4%	5.7	45.4%	9.9	20.9%
Non-mortgage debt	5.8	2.1%	17.9	1.8%	162.8	2.6%
Other	10.2	6.3%	6.6	7.1%	86.7	5.5%
Other debt						

Source: Researcher’s own compilation compiled from the SCF

Table B.5 USA (used in Table 2.13)

	Lowest		Middle		Highest	
ASSETS	**$ (Billion)**	**%**	**$ (Billion)**	**%**	**$ (Billion)**	**%**
Residential property	728	66.6%	5 194	63.9%	14 351	27.9%
Other non-financial assets	227	20.8%	660	8.1%	1 021	2.0%
Financial Assets	138	12.6%	2 273	28.0%	36 109	70.1%
TOTAL ASSETS	**1 094**	**100%**	**8 128**	**100%**	**51 481**	**100%**
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	65	46.7%	1 437	63.2%	14 477	40.4%
Assets with Monetary institutions	46	33.4%	533	23.4%	3 203	11.6%
Other financial assets	28	19.9%	303	13.4%	18 330	48.0%
TOTAL FINANCIAL ASSETS	**138**	**100%**	**8 128**	**100%**	**36 109**	**100%**
LIABILITIES						
Mortgage advances	814	54.5%	2 311	85.9%	2 695	91.6%
Other debt	679	45.5%	380	14.1%	247	8.4%
TOTAL LIABILITIES	**1 493**	**100%**	**2 691**	**100%**	**2 942**	**100%**

Source: Researcher's own compilation compiled from the SCF

Spain

The EFF balance sheet is divided into five quintiles. These quintiles represent the population grouped into five groups. The first quintile represents the bottom 25% of households, the second the next 25% (25-49.9), the third the next 25% (50-74.9), the fourth the next 15% (75-89.9) and the last the top 10% of households in respective to wealth.

The researcher selected the first quintile of the EFF balance sheet as the lowest quintile; the third quintile of the EFF balance sheet as the middle quintile and the fifth quintile of the EFF balance sheet as the highest quintile.

The contribution ratios for these balance sheets in regards to assets and liabilities were not calculated by the EFF. The number of households, the asset and liability holding percentage and the median asset/liability value were available (Table B.6). The researcher calculated the individual line items for the balance sheet by taking the number of households multiplied by the asset / liability holding percentage and multiplying it again with the median per household. The results are displayed in Table B.7, which was used to calculate the contribution percentages used in Table 2.15.

Table B.6 Spain: Median values and holding percentages for assets and liabilities

Number of households	6 106					
	Lowest		**Middle**		**Highest**	
ASSETS	**€ (‘000)**	**%**	**€ (‘000)**	**%**	**€ (‘000)**	**%**
Main residence	68.6	47.7%	180.3	96.4%	360.4	97.0%
Other residential assets	17.4	10.4%	67.7	44.0%	348.6	89.0%
Residential property						
Vehicles	3.7	70.3%	7.6	80.6%	12.0	89.6%
Valuables	1.5	15.0%	3.0	26.2%	9.6	42.7%
Other	6.9	70.3%	15.0	80.6%	30.0	89.6%
Other non-financial assets						
FINANCIAL ASSETS						
Pension funds	2.9	12.6%	8.0	27.9%	25.0	45.5%
Interest in pension funds and long term insurers						
Deposits	1.0	87.5%	4.0	96.8%	9.9	98.3%
House purchase savings	6.6	9.4%	16.0	27.7%	60.0	42.8%
Assets with Monetary institutions						
Self-employment business	12.0	4.4%	31.2	10.3%	236.3	32.8%
Shares (Publicly traded)	2.2	1.6%	5.3	8.7%	27.2	38.8%
Investment funds	2.0	1.8%	6.2	4.7%	34.4	18.3%
Fixed income securities	0.0	0.5%	8.6	1.4%	21.1	7.2%
Shares (Unlisted)	0.0	0.4%	9.0	2.0%	115.9	7.3%
Other	3.6	10.3%	10.2	10.3%	26.3	21.7%
Other financial assets						
LIABILITIES						
Mortgage	99.2	27.3%	49.1	26.2%	84.1	14.3%
Other property mortgage	103.8	3.0%	44.1	9.2%	91.1	22.8%
Mortgage advances						
Other debt with collateral	52.3	2.8%	39.4	3.2%	41.0	4.2%
Personal loans	6.8	28.0%	6.3	17.0%	10.2	9.0%
Credit card debt	0.9	8,2%	0.5	5.8%	1.1	2.5%
Other	4.2	4.9%	1.4	3.4%	8.9	6.0%
Other debt						

Source: Researchers own compilation compiled from Banco de España (2014:21, 23, 24, 25, 28, 29, 33, 35, 40)

Table B.7 Spain (used in Table 2.15)

	Lowest		Middle		Highest	
ASSETS	**€ ('000)**	**%**	**€ ('000)**	**%**	**€ ('000)**	**%**
Residential property	52 713	76.7%	310 791	85.4%	402 900	76.5%
Other non-financial assets	11 719	17.0%	29 006	8.0%	25 481	4.8%
Financial Assets	4 321	6.3%	24 200	6.6%	98 538	18.7%
TOTAL ASSETS	**68 753**	**100%**	**363 997**	**100%**	**526 919**	**100%**
FINANCIAL ASSETS						
Interest in pension funds and long term insurers	558	12.9%	3 407	14.1%	9 724	9.9%
Assets with Monetary institutions	2 283	52.8%	12 676	52.4%	21 622	21.9%
Other financial assets	1 480	34.3%	8 117	33.5%	67 192	68.2%
TOTAL FINANCIAL ASSETS	**4 321**	**100%**	**24 200**	**100%**	**98 538**	**100%**
LIABILITIES						
Mortgage advances	46 093	89.2%	25 831	87.5%	20 026	91.1%
Other debt	5 569	10.8%	3 676	12.5%	1 955	8.9%
TOTAL LIABILITIES	**51 662**	**100%**	**29 507**	**100%**	**21 981**	**100%**

Source: Researchers own compilation compiled from Banco de España (2014:21, 23, 24, 25, 28, 29, 33, 35, 40)

Turkey

The Turkish balance sheet is divided into five quintiles. These quintiles represent the population grouped into five groups. The first quintile represents the bottom 25% of households, the second the next 25% (25-49.9), the third the next 25% (50-74.9), the fourth the next 15% (75-89.9) and the last the top 10% of households in respective to wealth.

The researcher selected the first quintile of the Turkish balance sheet as the lowest quintile; the Turkish quintile of the EFF balance sheet as the middle quintile and the fifth quintile of the Turkish balance sheet as the highest quintile.

The contribution ratios for these balance sheets in regards to assets and liabilities were not calculated by the Yilmazer. The number of households, the asset and liability holding percentage and the median asset/liability value were available (Table B.8). The researcher calculated the individual line items for the balance sheet by taking the number of households multiplied by the asset / liability holding percentage and multiplying it again with the median per household. The results are displayed in Table B.9, which was used to calculate the contribution percentages used in Table 2.17.

Table B.8 Turkey: Median values and holding percentages for assets and liabilities

Number of households	4 432					
	Lowest		**Middle**		**Highest**	
ASSETS	**TL (‘000)**	**%**	**TL (‘000)**	**%**	**TL (‘000)**	**%**
Main residence	50	1.6%	50	89.2%	120	93.1%
Other residential assets	0	0.5%	50	7.5%	100	48.4%
Other property	0	0.4%	20	12.5%	100	50.2%
Residential property						
Vehicles	8.5	2.5%	8	27.1%	20	57.6%
Other	0	0.5%	1	1.6%	2	4.0%
Other non-financial assets						
Self-employment business	5	1.2%	15	6.1%	160	31.6%
Transactional accounts	0	1.2%	2	7.2%	4	18.5%
Time deposits	0	0.1%	6	2,5%	12	9.7%
Loans to others	2	3.3%	2	8.0%	9	19.1%
Gold	0	2.2%	2	12.4%	3	27.5%
Saving (non-fin institutions)	0	0.1%	2	2.3%	5	5.9%
Other financial assets	0	0.4%	0	0.9%	6	6.6%
Financial assets						

Source: Researchers own compilation compiled from Yilmazer (2010)

Table B.9 Turkey (used in Table 2.17)

	Lowest		**Middle**		**Highest**	
ASSETS	**TL (‘000)**	**%**	**TL (‘000)**	**%**	**TL (‘000)**	**%**
Residential property	88 640	70.8%	5 611 643	93.0%	9 321 382	75.8%
Other non-financial assets	23 545	18.8%	241 019	4.0%	514 112	4.2%
Financial Assets	13 037	10.4%	179 551	3.0%	2 468 580	20.0%
TOTAL ASSETS	**125 222**	**100%**	**6 032 213**	**100%**	**12 304 074**	**100%**

Source: Researchers own compilation compiled from Yilmazer (2010)

NIDS

The NIDS grouped wealth into ten deciles. These quintiles represent the population grouped equally into ten groups. The first quintile represents the bottom 10% of households in respective to wealth, where the highest quintile represents the top 10% of households.

The researcher selected the first and second decile of the NIDS balance sheet graphs as the lowest quintile; the fifth and sixth decile as the middle quintile and the ninth and tenth as the highest quintile.