THE RELATIONSHIP BETWEEN SHARE REPURCHASES AND SHARE-BASED REMUNERATION OF EXECUTIVE DIRECTORS OF SOUTH AFRICAN LISTED COMPANIES

by

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Dissertation presented for the degree of Doctor of Business Management and Administration in the Faculty of Economic and Management Sciences at Stellenbosch University

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<December 2020>

Degree of confidentiality: A

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Date: 6 October 2020

ABSTRACT

Increasingly, researchers are associating the exponential growth in worldwide share repurchases with a desire by executives to increase the share price (and possibly the earnings per share figure). Increasing the share price financially benefits executives if they have been granted share-based remuneration. Executive share-based remuneration inherently increases in value as the share price increases. Moreover, the vesting of executive share-based remuneration is most often conditional upon the share price or earnings per share, or both, reaching a certain pre-determined target.

The statistical relationship between variables measuring share repurchases and executive share-based remuneration has been studied in other countries. In developed countries, a positive relationship has been found between share repurchases and executive share-based remuneration – pointing to the possibility that executives could possibly be utilising share repurchases to increase the value of their own share-based remuneration. Prior to the present study, this ethical dilemma had not been researched in South Africa, mainly owing to the lack of comprehensive data on both share repurchases and executive share-based remuneration (no public financial database keeps comprehensive record thereof). However, it is critical that this matter is addressed in South Africa, given the high levels of income-inequality existing here – which makes this research important from a social justice point of view. To bridge this knowledge gap, the research aim of the present study was to determine the relationship between share repurchases and executive share-based remuneration for South African listed companies during the 2002–2017 period.

Data on both share repurchases and executive share-based remuneration were collected by using the IRESS financial database and the information disclosed in companies' annual financial statements. In the process, a comprehensive database on both variables of interest was constructed – the first major contribution of the present study. To reach the aim of the present study, regression analyses which statistically quantified the relationship between the two variables were executed. As was expected, based on the findings of previous studies in other countries, a positive relationship was found between share repurchases and executive share-based remuneration (especially as measured by the number of instruments exercised during the year). This finding provides evidence that South African executives may be executing share repurchases in a bid to increase the value of their own share-based remuneration, rather than to maximise long-term shareholder value. To counteract this possibility, regulators should require improved disclosure of share repurchases, as well as the potential effect thereof on executive share-based remuneration, in the annual financial statements or integrated report.

It was also found that a large, and increasing, percentage of general (open market) share repurchases is not announced. This leads to a lack of transparency regarding share repurchase activity in South Africa and could increase the risk of executives primarily using share repurchases to enrich themselves. It is recommended that the Johannesburg Stock Exchange requires all share repurchase activity to be announced in real time, in line with other global stock exchanges. This will improve the transparency of share repurchases and allow stakeholders to actively monitor share repurchases.

Keywords

Executive remuneration

Share repurchases

Share-based remuneration

Managerial power theory

OPSOMMING

Navorsers assosieer toenemend die eksponensiële groei in wêreldwye aandeelterugkope met ’n poging deur uitvoerende direkteure om die aandeelprys (en moontlik die verdienste per aandeel syfer) te verbeter. ’n Toename in die aandeelprys is finansieel voordelig vir direkteure indien hulle vergoed word by wyse van aandeelgebaseerde vergoeding. Die inherente waarde van direkteure se aandeelgebaseerde vergoeding verhoog namate die aandeelprys toeneem. Hiernaas is die vestiging van direkteure se aandeelgebaseerde vergoeding dikwels onderhewig aan bepalings dat die aandeelprys of verdienste per aandeel, of beide, ’n sekere voorafbepaalde teiken moet bereik.

Die statistiese verwantskap tussen veranderlikes wat aandeelterugkope en aandeelgebaseerde vergoeding bepaal, is reeds in ander lande bestudeer. In ontwikkelde lande, is ’n positiewe verwantskap tussen aandeelterugkope en aandeelgebaseerde vergoeding gevind – wat beklemtoon dat direkteure moontlik aandeelterugkope gebruik om die waarde van hul eie aandeelgebaseerde vergoeding te verhoog. Voor die teenswoordige studie, is hierdie etiese dilemma nog nie in Suid-Afrika bestudeer nie, meestal as gevolg van ’n gebrek aan omvattende publieke data oor beide die aandeelterugkope en die aandeelgebaseerde vergoeding van uitvoerende direkteure (geen finansiële databasis bevat omvattende inligting daaroor nie). Maar, dit is krities dat hierdie saak aangespreek word in Suid-Afrika, gegewe die hoë vlakke van inkomste-ongelykheid wat hier heers – wat hierdie navorsing belangrik maak vanuit ’n sosiale geregtigheidsperspektief. Om hierdie kennisgaping aan te spreek, is die navorsingsdoelwit van die huidige studie om die verwantskap tussen aandeelterugkope en die aandeelgebaseerde vergoeding van uitvoerende direkteure te bepaal vir genoteerde Suid-Afrikaanse maatskappye gedurende die 2002–2017 periode.

Data rakende beide aandeelterugkope en aandeelgebaseerde vergoeding is versamel met behulp van die IRESS finansiële databasis en die openbaarmaking soos verskaf in die finansiële jaarstate van maatskappye. In die proses is ’n omvattende databasis oor beide veranderlikes van belang opgestel – die eerste beduidende bydrae van die huidige studie. Om die navorsingsdoelwit van die huidige studie te bereik, is ’n aantal regressie ontledings gedoen ten einde die statistiese verwantskap tussen die twee veranderlikes te kwantifiseer. Soos verwag, gebaseer op vorige studies in ander lande, is ’n positiewe verwantskap gevind tussen aandeelterugkope en die aandeelgebaseerde vergoeding van uitvoerende direkteure (veral in terme van die aantal instrumente uitgeoefen gedurende die jaar). Hierdie bevinding verskaf getuienis wat aandui dat Suid-Afrikaanse uitvoerende direkteure moontlik aandeelterugkope uitvoer in ’n poging om die waarde van hul eie aandeelgebaseerde vergoeding te verhoog, eerder as die lang-termyn aandeelhouerswaarde te maksimeer. Om hierdie moontlikheid teen te werk, word aanbeveel dat reguleerders verbeterde openbaarmaking in die finansiële jaarstate

of geïntegreerde verslag aangaande aandeelterugkope en die potensiële effek wat dit op aandeelgebaseerde vergoeding het, behoort te vereis.

Daar is ook bevind dat ’n groot, en steeds toenemende, persentasie van algemene (ope-mark) aandeelterugkope nie aangekondig word nie. Dit lei tot ’n gebrek aan deursigtigheid met betrekking tot aandeelterugkope in Suid-Afrika en kan die risiko verhoog dat uitvoerende direkteure aandeelterugkope misbruik om hulself te verryk. Dit word gevolglik aanbeveel dat die Johannesburgse Effektebeurs van maatskappye vereis om alle aandeelterugkope onmiddellik aan te kondig, in lyn net oorsese aandelebeurse. Sodanige maatreël sal die deursigtigheid van aandeelterugkope verbeter en belanghebbendes toelaat om aandeelterugkope aktief te monitor.

Sleutelwoorde

Uitvoerende vergoeding

Aandeelgebaseerde vergoeding

Aandeelterugkope

Teorie van bestuursmag

ACKNOWLEDGEMENTS

As I sit and write these acknowledgements during the COVID-19 lock-down, I realise that I have many people in my life to be grateful for! Firstly, I would like to thank the Lord for providing me with the opportunity and resources to attempt this project; I want to honour Him in all I do – including this dissertation. Secondly, I want to thank my family for their support: my mother and father, as well as my husband. They all helped to take care of our children, Anja and Mia, while I was working on my PhD. I am also grateful to our nanny, Charmain, who looked after our children when I had to work over the weekend. Thirdly, I want to thank my friends and colleagues for their interest in the progress of my research and cheering me on! Lastly, I will always be grateful to my ECAD mentor (Dieter von Fintel) and my wonderful supervisors. Thank you, Prof Eon, for asking probing and relevant questions, as well as the wisdom you brought to the project. Nicolene, I cannot express my gratitude for everything you have done: without you sharing your ideas and data, this PhD journey would not even have started. Thank you for walking the road with me, and for every answered email and whatsapp. Thank you for your support and encouragement and believing in me!

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30 March 2020

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ACRONYMS AND ABBREVIATIONS

AFS:	annual financial statements
ALSI:	All Share Index
AGM:	annual general meeting
BEE:	black economic empowerment
CAGR:	compound annual growth rate
CEO:	chief executive officer
CLAA:	Corporate Laws Amendment Act 24 of 1999
CPI:	consumer price index
EPS:	earnings per share
FASB:	Financial Accounting Standards Board
FICE:	financial instruments with characteristics of equity
FRM:	fractional regression model
GDP:	gross domestic product
IASB:	International Accounting Standards Board
IoDSA:	Institute of Directors in Southern Africa
IFRS:	International Financial Reporting Standards
JSE:	Johannesburg Stock Exchange
King II:	Second King Report on Corporate Governance in South Africa
King III:	Third King Report on Corporate Governance in South Africa
King IV:	Fourth King Report on Corporate Governance in South Africa
LPM:	linear probability model
OLS:	ordinary least squares
SAR:	share-appreciation right
SBP:	share-based payment
SENS:	Stock Exchange News Service
STC:	secondary taxation on companies
TSR:	total shareholder return
UK:	United Kingdom
US:	United States
US GAAP:	Generally Accepted Accounting Principles for US companies

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND TO THE RESEARCH PROBLEM

Worldwide, share repurchases are increasingly used. Share repurchases occur when a company buys back its own previously issued shares. The popularity of the practice, as well as the financial impact of the 2007–2009 global financial crisis, have led to questions being asked about the real motivation behind share repurchases and whether companies should be re-investing excess cash in internal growth and innovation rather than paying it out to shareholders (Lazonick, 2014; Wesson, Bruwer, & Hamman, 2015). Although bona fide business reasons for implementing share repurchases could exist (Dittmar, 2000; Lazonick, 2014, pp. 50–52; Wesson et al., 2015, p. 43), they can also be used to increase artificially both the share price and the earnings per share (EPS) (Lazonick, 2014, p. 51; Wesson et al., 2015, p. 43). More specifically, in the absence of proper regulation and disclosure, share repurchases could be used by executive directors (hereafter called executives) to increase the value of their share-based remuneration and extract rents from the company (Lazonick, 2014; Wesson, Smit, Kidd, & Hamman, 2018).

Share repurchases by South African listed companies were legalised in 1999 and increased exponentially in the years 2005 to 2009 (Wesson et al., 2015), but seem to have decreased since the global financial crisis (Buitendag, 2018). South Africa is a developing country, with low economic growth, high unemployment and extreme income inequality (Wesson et al., 2018, p. 181). Although South Africa is an emerging economy, it has certain features that are not typically observed in emerging economies (Wesson et al., 2018, p. 181). One of these features is a sophisticated stock exchange: the Johannesburg Stock Exchange (JSE) has been rated as one of the best stock exchanges in the world (based on the effectiveness of its regulation and supervision), according to PricewaterhouseCoopers (PwC, 2015, p. 4). However, the JSE's disclosure requirements relating to share repurchases lag behind those of other countries. In many countries that allow repurchases, companies have to announce all repurchase activities (either immediately or quarterly in arrears) (Kim, Schremper, & Varaiya, 2005, p. 36). In South Africa, listed companies are required to announce all specific repurchases on the JSE's Stock Exchange News Service (SENS) before they occur, but general (open market) repurchases only need to be announced when three per cent of outstanding shares have been repurchased (JSE, 2017a).

Wesson (2015), in a study that spanned 1999–2009, found that only about half of South African general share repurchases were announced on SENS – and many of these announcements are made subsequent to the event (not in real time, i.e. at the actual time of transacting). On 14 January 2013 an additional JSE requirement was added: companies were required to disclose their share repurchases in their annual reports (i.e. number of shares repurchased and the average price at which

bought back). This is an improvement, but still does not provide real-time information (Massie, Collier, & Crotty, 2014, pp. 39–40), as is provided by stock exchange announcements in other countries. As share repurchases could be employed by executives to artificially increase the value of their own (share-based) remuneration (Massie et al., 2014, p. 36), JSE investors need to know, in real time, when listed companies engage in share repurchases.

Share-based remuneration can be defined as awards made to employees (e.g. executives) where the value of the award depends on the share price of the company (or a company in the group) (Lazonick, 2014; Massie et al., 2014, p. 6). The vesting of share-based remuneration is often contingent upon the meeting of performance targets (linked to, for example, the share price or the EPS figure of the company). Examples of share-based remuneration include share options, share appreciation rights, restricted shares and performance shares.

The main reasoning behind share-based remuneration is that it aligns the interests of executives and shareholders and can help in overcoming the agency problem (a conflict of interest arising where one party is expected to act in another's best interests, e.g. between a company's executives and shareholders) while increasing shareholder value (Lazonick, 2014; Massie et al., 2014, p. 6). In theory, share-based remuneration could be effective in this regard, but only if an increase in share price is the most important indicator of the long-term success of the company, and if any manipulation of the share price by executives can be avoided by regulation (Peng & Röell, 2008). Some detractors have mentioned that share-based remuneration might actually exacerbate the agency problem by incentivising executives to increase their own remuneration by increasing the share price over the short-term (sometimes through financial manipulation of the earnings figure and/or the number of shares in issue), rather than working towards the long-term success of the company (Massie et al., 2014, p. 6).

In the South African environment, executive remuneration is often criticised as excessive (Viviers, Mans-Kemp, Kallis, & Mckenzie, 2019). The share-based remuneration paid to executives has the potential of exacerbating this problem (Steenkamp & Wesson, 2018a). Since 2002, the Second King Report on Corporate Governance in South Africa (King II) has required that the remuneration of each executive needs to be disclosed (on an individual basis) in companies' annual financial statements, according to the Institute of Directors in Southern Africa (IoDSA, 2002), but the disclosures relating to share-based remuneration seem inconsistent and incomplete (Steenkamp & Wesson, 2018a). Users of financial statements are still largely uninformed as to the exact nature and quantum of share-based remuneration actually received by executives (Steenkamp & Wesson, 2018a). The IRESS financial database offers some information regarding share-based remuneration, but is incomplete, especially prior to 2006 (Steenkamp & Wesson, 2018a). Furthermore, the available data have not allowed

stakeholders to determine whether a relationship exists between share repurchases and executive share-based remuneration.

Given the lack of regulation and inadequate disclosure of details in SENS about share repurchases, South African shareholders are unaware of the timing and extent of share repurchases announcements. Moreover, they are uninformed about how share repurchases interact with executive share-based remuneration. This study aims to address this knowledge gap by gathering data on both share repurchases by companies and executive share-based remuneration (primarily by analysing financial statements, as no other sources are available) and by comparing the two data sets to determine their interaction.

The results of the present study could benefit shareholders, regulators, non-executive directors serving on the remuneration committees of JSE-listed companies, business ethics educators and future researchers. Shareholders will gain a fuller understanding of both the quantum of share repurchases and the characteristics of executive share-based remuneration in South Africa, and especially how the two relate to each other. Shareholders will be alerted to the possibility that executives could be enriching themselves through share repurchases – which will equip shareholders for shareholder activism with the information whereby they could demand disclosure in the integrated report regarding the relationship between share repurchases and executive share-based remuneration. Regulators, such as the JSE, should constantly evaluate whether their requirements constitute best practice. As such, the JSE could employ the findings of the present study as rationale in support of drafting stricter announcement regulations relating to general share repurchases in South Africa. Corporate governance regulations, such as the King Reports, could include the obligatory disclosure of the effect that share repurchases have had on the value of executive remuneration.

Non-executive directors serving on remuneration committees of JSE-listed companies are responsible for determining the size and composition of executives' remuneration packages. The characteristics of executive share-based remuneration identified in the present study could inform best practice that those serving on the remuneration committee could consider when formulating executive remuneration policies and implementing these policies. Furthermore, business ethics educators and organisations promoting business ethics in the country could integrate some of the findings into case studies and other teaching materials. Finally, knowledge of the full quantum of share repurchases and the characteristics of executive share-based remuneration will allow future researchers to study the interaction of both share repurchases and executive share-based remuneration with other variables of interest.

1.2 RESEARCH AIM, PROBLEM AND QUESTIONS

1.2.1 Research aim and problem

The aim of the present study was to investigate the relationship between share repurchases and executive share-based remuneration in South Africa in order to gain an understanding of whether additional regulation and disclosure about the timing of share repurchases, and their effect on executive share-based remuneration, might be warranted.

The research problem addressed by this study therefore was as follows: In South Africa the link between share repurchases and executive share-based remuneration has not been established. This lack of information, coupled with the slack SENS announcement rules relating to general share repurchases, could create a loophole for executives to enrich themselves using share repurchases (Steenkamp & Wesson, 2020a). Earlier studies undertaken in other countries have associated a positive statistical relationship between variables measuring share repurchases and executive share-based remuneration with a short-term outlook and the possibility of self-enrichment by executives (Edmans, Fang, & Huang, 2018).

1.2.2 Research questions

To achieve the research aim and address the research problem, three main research questions (or steps) were developed pertaining to South African listed companies over the period 2002–2017:

- Research question 1: What was the extent of share repurchase activity?
- Research question 2: What were the characteristics of executive share-based remuneration?
- Research question 3: What was the relationship between share repurchases and executive share-based remuneration?

To determine the extent of share repurchase activity (Research question 1), a number of research sub-questions were developed pertaining to South African listed companies and the targeted time period of this research. These were:

- Sub-question 1.1: Which companies engaged in share repurchases?
- Sub-question 1.2: What was the total quantum (number and value) of shares repurchased?
- Sub-question 1.3: What percentage of share repurchases was associated with each of the repurchasing entities (i.e the holding company repurchasing from third parties; the holding company repurchasing treasury shares; and subsidiaries)?
- Sub-question 1.4: What percentage of share repurchases was associated with each of the repurchase types (i.e. general repurchases; pro rata specific repurchases; specific repurchases where the holding company repurchases treasury shares; and other specific repurchases)?

- Sub-question 1.5: What percentage of share repurchases was announced and not announced via the JSE's SENS (transparency)?
- Sub-question 1.6: Compared to the 2000–2009 period, was there a difference in the post-2009 share repurchase activity (in respect of number of companies; quantum of shares repurchased; preferred repurchasing entity; preferred repurchase type; and percentage of repurchases that were announced)?

The answer to sub-question 1.1 allowed further comparison between the decision to repurchase and the characteristics of executive share-based remuneration, when addressing Research question 3 (see sub-questions 3.1 to 3.3). Sub-question 1.2 focused on both the number and the value of shares repurchased. Although only the value of share repurchases was used to address Research question 3 (see sub-questions 3.4 to 3.6 below), it was necessary to first collect complete and accurate data on the number of shares repurchased, before attaching rand values to the share repurchases. Sub-questions 1.3 to 1.5 allowed for the categorisation of share repurchase value – which enabled more in-depth analysis in addressing Research question 3. Sub-question 1.6 allowed a comparison of share repurchase activity after the global financial crisis (which is largely unknown) to that of 2000–2009, which was reported by Wesson (2015).

To address Research question 2 and determine the characteristics of executive share-based remuneration, a number of research sub-questions were drawn up:

- Sub-question 2.1: What value was attached to executive share-based remuneration in relation to the value of other executive remuneration?
- Sub-question 2.2: What trends were noted over the 2002–2017 period in terms of the type of schemes being granted to executives?
- Sub-question 2.3: What vesting conditions were attached to executive share-based remuneration?
- Sub-question 2.4: How many share-based instruments were associated with executive share-based remuneration?

Only the answers to sub-questions 2.3 and 2.4 were later employed to address Research question 3. However, the remainder of the sub-questions were necessary to provide context and to enable the development of a comprehensive database on executive share-based remuneration.

To answer Research question 3, several research sub-questions were posed and investigated:

- Sub-question 3.1: What is the relationship between the decision to repurchase and the number of share-based instruments held by executives at the reporting date?
- Sub-question 3.2: What is the relationship between the decision to repurchase and the number of share-based instruments exercised by executives during the reporting period?

- Sub-question 3.3: What is the relationship between the decision to repurchase and the use of performance conditions that are linked to share price, total shareholder return and/or earnings per share?
- Sub-question 3.4: What is the relationship between repurchase value and the number of share-based instruments held by executives at the reporting date?
- Sub-question 3.5: What is the relationship between repurchase value and the number of share-based instruments exercised by executives during the reporting period?
- Sub-question 3.6: What is the relationship between repurchase value and the use of performance conditions that are linked to share price, total shareholder return and/or earnings per share?

1.3 RESEARCH DESIGN

1.3.1 Research methodology

Data on both share repurchases (Research question 1) and executive share-based remuneration (Research question 2) were collected, and appropriate regression models were employed to study the relationship between the two variables (Research question 3). The overall research methodology, as well as the varying research methods applied in addressing the three research questions, are detailed in Chapter 3. To facilitate the development of reliable, valid and effective research methods, a pilot study was conducted prior to finalising the research methods and the research population (further details are provided in Section 3.2.1). Three peer-reviewed papers were published from the pilot study (Steenkamp & Wesson, 2018a, 2018b, 2020a).

1.3.2 Research population of the study

Wesson (2015) compiled the first comprehensive database of share repurchase activity in South Africa for the period 1999–2009, for all JSE-listed companies (except those in the Basic Materials and Financial industries). Subsequent research in the Basic Materials and Financial industries showed that these industries have less repurchase activity (Fortuin, 2015; Vermeulen, 2014), possibly as a result of legislation that specifically applies to mines and banks. With this as background (and since the methodology applied by Wesson (2015) was used in this study to capture share repurchase activity), a decision was made to continue with the Wesson (2015) research population. This choice has the added benefit that share repurchase activity of most of the companies in the research population would already be available for the 1999–2009 period. Thus, for most of the companies, only the share repurchase activity for the period starting 2010 had to be collected.

The population was therefore determined as including all companies:

- that were listed on the JSE's Main Board, except those in the Basic Materials and Financial industries;

- that had been listed for at least three years during the 2002–2017 period;
- that had the JSE as primary listing; and
- that had listed ordinary and/or N-class shares.

Companies were only included in the population if they had been listed for at least three years (i.e. they had three years of annual reports available) during the target period. It is not common for a company to be listed for fewer than three years, and studying the share repurchases of companies for fewer than three years does not allow proper reconciling of the number of shares involved (as information from future years' financial statements is often used to understand prior years' share repurchases). Moreover, given that many share-based schemes have long vesting periods (typically three or more years), it is important to study an extensive period of time for any valid conclusions to be drawn (Avallone, Quagli, & Ramassa, 2014). The three-year rule had also been applied by Wesson (2015).

The target period, for which information on share repurchase activity and share-based remuneration was collected for the companies in the research population, was 2002–2017. When a specific year (e.g. 2002) is mentioned in the present study, it is important to note that this year refers to the financial year of companies which ended in that specific calendar year (e.g. 2002 might be the financial year ended 31 March 2002, or 30 June 2002, or 31 December 2002, depending on the specific company). The starting date of 2002 was chosen to coincide with the requirement to disclose executive remuneration on an individual basis in annual financial statements (as this was required by King II from 2002 onwards) (IoDSA, 2002). Information on the share-based remuneration of individual executives is not available prior to 2002.

Delisted companies were included up to their delisting date, to avoid survivorship bias. Companies that had a secondary listing on the JSE adhered to the announcement rules of the exchange where they had a primary listing and not the JSE's rules, and were therefore not included in the population.

Data on share repurchases were gathered per company per year, for each company and year as explained in the paragraphs above. Data on share-based remuneration were then gathered per executive, for all executives employed by specific companies during specific years (named the 'per-executive database on share-based remuneration'). The information on this database was then condensed to a per-company format (the 'per-company year database on share-based remuneration') to enable a comparison of the share repurchase data.

1.3.3 Limitations of the study

Although appropriate measures were applied to ensure the capturing of complete and accurate data regarding share repurchases and share-based remuneration, some minor problems (such as incomplete and ambiguous annual financial statement disclosure) were encountered. These problems, and how they were addressed, are detailed in Chapter 3. Incomplete and ambiguous annual financial statement disclosures may have affected the completeness and reliability of the data collected on both share repurchases and share-based remuneration.

As part of the present study, the relationship between share repurchases and the exercise of executive share-based remuneration was studied (research sub-questions 3.2 and 3.5). In this study, the assumption was that share repurchases occurred before the exercise date of the share-based instruments. The reason for this was that the share repurchases were associated with an attempt to improve the share price and EPS, thus enhancing the value realised on the exercise of the share-based remuneration (which then occurred subsequent to the share repurchase). However, the exact date when share repurchases were executed and executives exercised their share-based remuneration was usually not known in the South African environment (owing to the announcement rules relating to general repurchases and inconsistent annual financial statement disclosure relating to executive share-based remuneration). When collecting share repurchase data in South Africa, it was therefore not possible to confirm whether a share repurchase preceded the exercise of the share-based remuneration; it was only known that both occurred in the same financial year.

Although most of the companies on the JSE Main Board were included in the population, the results of the study cannot be generalised to all companies on the JSE, as the companies in the Basic Materials and Financial industries were not included in the research population.

1.4 MERIT OF THE RESEARCH AND THE PROPOSED CONTRIBUTIONS TO SCIENCE

The first merit of the present study and proposed contribution to science, is the creation of a database containing previously unavailable financial data on both share repurchases and executive share-based remuneration, which can be used in future research (Wesson, 2015, p. 6). While some would contest that creating and maintaining a financial database is best left to commercial providers, such as IRESS and Bloomberg, it is argued that specialist financial accounting knowledge is required to accurately create a database on share repurchases and executive share-based remuneration in the South African context. Neither SENS announcements nor publicly available financial databases contain comprehensive information regarding share repurchase activity, and thus the rand value spent on share repurchases by JSE-listed entities was unknown for the period 2010–2017. The present study addressed this data shortage. Furthermore, the characteristics of the executive share-based remuneration of JSE-listed companies were not readily available in a per-company format, nor

collected in a comprehensive and accurate database. The data gathered in this study fill this knowledge gap for the period 2002–2017.

Having data available on both share repurchases and executive share-based remuneration in South Africa enabled the determination of the relationship between the two variables. The demonstration of a positive relationship between these variables may point to the possibility that South African executives are artificially increasing the value of their own share-based remuneration through share repurchases. Given the rather slack announcement rules relating to South African listed companies, the finding of a positive relationship will support the drafting of improved announcement rules by the JSE. Some recommendations are offered as to how these announcement rules could look, based on the best practices observed in other countries, such as the United Kingdom (UK), United States (US) and developing countries. Reporting the results of the study to the South African Institute of Chartered Accountants, the Independent Regulatory Board for Auditors and the JSE would serve a constructive purpose. The second contribution of the study is therefore foreseen to provide information to regulators in order to enable the development of effective and appropriate regulations regarding share repurchases, and its possible effect on executive share-based remuneration.

The supposition that the present study makes a contribution to the field is confirmed by peer-reviewed papers that were published from the pilot study (Steenkamp & Wesson, 2018a, 2018b, 2020a) and based on dissertation itself (Steenkamp & Wesson, 2020b). To the best of the knowledge of the researcher, prior to the commencement of the present study, no research on the relationship between share repurchases and executive share-based remuneration has been done in South Africa, or in any other developing country. Studies in developed countries have pointed out that such a relationship can exist. It is therefore important to understand whether such a relationship also holds true in South Africa, especially since the announcement rules regarding share repurchases are less strict in South Africa than in developed countries.

1.5 BRIEF CHAPTER OVERVIEW

Figure 1.1 provides an overview of the research aim, questions and objectives, and indicates in which chapter of the study each question/objective is addressed. A brief outline of each chapter is provided below.

Chapter 2: Literature review

A thorough literature review is done by considering individually each of the three main aspects of the study (share repurchases, executive share-based remuneration and the link between the two). Firstly, theoretical perspectives are provided on share repurchases, giving reasons why companies engage in share repurchases and the risks involved. The regulation of share repurchases in South Africa is

detailed and compared to regulation in the global environment. Furthermore, previous studies on share repurchases in South Africa, as well as in other countries, are discussed.

Secondly, share-based remuneration is considered through a theoretical lens, based on the agency and rent extraction theories. Common share-based schemes are discussed, as well as the accounting and regulation of share-based remuneration. Previous local and global studies detailing share-based remuneration are considered. Lastly, the possible relationship between share repurchases and share-based remuneration is discussed based on papers published across the world, as well as the theoretical perspective provided by the rent extraction theory.

Chapter 3: Research methodology

The overall research methodology followed to address the aim of the study is provided and substantiated. In addition, the techniques employed in addressing each of the research questions are discussed.

Chapter 4: Results relating to share repurchases

The results relating to research question 1 are presented and discussed. The chapter deals with the share repurchase activity of the population over the period 2002–2017. Furthermore, this chapter specifically compares the share repurchase activity prior to 2010, as reported by Wesson (2015), and the share repurchase activity from 2010 onwards.

Chapter 5: Results relating to share-based remuneration of executives

Chapter 5 addresses the results relating to Research question 2. The chapter deals specifically with the share-based remuneration characteristics of the research population for the period 2002–2017.

Chapter 6: Results relating to the relationship between share repurchases and share-based remuneration paid to executives

The results relating to Research question 3 are discussed. The chapter addresses the relationship between share repurchases and share-based remuneration over the period 2002–2017.

Chapter 7: Summary and conclusion

A summary of the study is provided and a conclusion is reached on whether there is empirical evidence of a relationship between share repurchases and executive share-based remuneration in South Africa over the period studied. Practical implications of the findings are discussed and changes and additions to share repurchase regulations (announcement rules) are proposed for implementation by the JSE.

RESEARCH AIM	RESEARCH QUESTIONS	CHAPTER
Aim: To investigate the relationship between share repurchases and executive share-based remuneration in South Africa to establish whether additional regulations and disclosure rules about the timing of share repurchases, and their effect on executive share-based remuneration, might be warranted.	**Research question 1:** What was the extent of share repurchase activity in South African listed companies?	4
	Research question 2: What were the characteristics of executive share-based remuneration in South African listed companies?	5
	Research question 3: What was the relationship between share repurchases and executive share-based remuneration in South African listed companies?	6

Figure 1.1. **An overview of the flow of the present study**

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Globally, researchers are increasingly questioning whether the rise in share repurchase activity is linked to executive share-based remuneration (Geiler & Renneboog, 2016; Lazonick, 2014). Share repurchases can increase both the share price and the EPS figure (Wesson et al., 2018), and can thus be used to facilitate the vesting of executive share-based remuneration (which often hinges on performance conditions linked to share price and/or EPS) (Lazonick, 2014; Young & Yang, 2011). An increase in the share price (which could be brought about by a share repurchase) also inherently increases the value that executives realise from share-based remuneration.

In South Africa, the relationship between share repurchases and executive share-based remuneration has not been studied. As is the case globally, South African executives of listed entities are increasingly remunerated through share-based awards, and the usage of performance vesting conditions based on both the share price and the EPS figure are common (Steenkamp & Wesson, 2018a). Share repurchase activity is less transparent in South Africa than globally, owing to the fact that general (open market) repurchases only need to be announced once more than three per cent of the outstanding shares have been repurchased. As such, many general share repurchases are never announced via SENS (Vermeulen, 2014). Share repurchases should be disclosed in annual financial statements, but such disclosure is after the fact, and is not always comprehensive or clear (Wesson, 2015). Shareholders and other company stakeholders are thus unaware of much of the share repurchase activity by South African listed companies, which provides ample opportunity for misuse by executives, should they wish to do so.

The lack of transparency increases the urgency of establishing whether a link exists between share repurchases and executive share-based remuneration in South Africa. The literature review considers the aspects mentioned separately and then jointly, addressing first share repurchases, secondly executive share-based remuneration, and finally the possible link between the two.

2.2 SHARE REPURCHASES

A share repurchase (often referred to as a share buy-back or treasury shares) is when a company repurchases shares that it previously issued (Steenkamp & Wesson, 2020b, p. 465). A repurchase can be affected in several ways: by the company itself, or via other entities controlled by the company (such as subsidiaries or share trusts). Globally there are three types of share repurchases (Vermeulen, 2014, p. 3; Wesson et al., 2015, pp. 44–46), namely:

- Open market or auction repurchases (referred to in South Africa as repurchases under general authority or general repurchases): where the shares are bought back on the open market at the current market price – and not pro rata from all shareholders or from specific shareholders. This will generally raise the demand for the company's shares and is by far the most common method used to repurchase shares globally. The number of shares repurchased can be decided on before the repurchase, but not from whom the shares are repurchased nor the repurchase price (the price is based on the prevailing market price).
- Tender offer repurchases (referred to in South Africa as repurchases under specific authority or specific repurchases, sub-type: pro rata offer): where all current shareholders can have their shares bought back. In tender offers, the price at which the shares will be repurchased is predetermined, as is the window period during which the shares can be repurchased, but the shareholders must choose to take up the offer. In South Africa all tender offers are pro rata (i.e. are offered in equal numbers to all shareholders).
- Private offer repurchases (referred to in South Africa as repurchases under specific authority or specific repurchases, sub-type: other specific offers): where a specific targeted group of shareholders' shares are bought back. In private offers, the counterparty from whom the shares will be repurchased, the price and the repurchase date or period are predetermined.

2.2.1 Share repurchase activity globally

A share repurchase is a relatively new phenomenon. Before the 1980s, most countries applied the concept of 'capital maintenance' (Visser, 2014, p. 6). In the US share repurchases became more prominent from 1981 onwards (when certain restrictions were removed) (Dittmar, 2008, p. 27). Share repurchases were legalised in the UK in 1981 and by several other European countries in the 1990s, while in South Africa (and many other developing countries) they were only legalised by the late 1990s or early 2000s (Dhanani, 2016, p. 333; Wesson et al., 2015, p. 43). During the last two decades (2000–2020), however, share repurchases have become an established practice in most countries and are often used by listed companies globally. The amounts spent on share repurchases worldwide have escalated steeply since 2000, with some commentators viewing the upward trend relating to share repurchases in a positive light and some viewing it in a negative light (Mbawa, 2018, p. 15).

The US is the most studied locality in respect of share repurchases, and also the country where the overwhelming majority of worldwide share repurchases (based on value) occurs (Wesson et al., 2015, p.43). From the 1980s there has been a drastic increase in the amounts spent on share repurchases in the US (Wesson et al., 2015, p.43). Share repurchases have become so widespread and contentious in the US, that they have even been addressed in several politicians' political manifestos for the 2020 US election (Tully, 2019). Several US politicians (on both sides of the ideological fence) consider the

amounts being spent on share repurchases in the US as excessive and have proposed stricter rules for when and how US companies should be allowed to engage in share repurchases (Tully, 2019). The problems listed by the politicians were also identified by Lazonick (2014), who stated that the massive amounts spent on share repurchases would ultimately decrease companies' investment in research and development, new projects, and human capital. A further risk is that – since share repurchases lead to an increase in share price and EPS – they may unfairly increase executive share-based remuneration (Lazonick, 2014).

Both academic studies and the popular media have reported on the large amounts being spent on share repurchases in the US (Abraham, Harris, & Auerbach, 2018; Asness, Hazelkorn, & Richardson, 2017; Birstingl, 2016; Lazonick, 2014; Yardeni, Abbott, & Quintana, 2019). In a report detailing the quarterly share repurchase activity for Standard and Poor's (S&P) 500 companies during 2005–2015, Birstingl (2016) showed that the number of companies engaging in share repurchases and the value of share repurchases grew substantially during 2005–2007. The global financial crisis brought a sharp decline in repurchase activity, with the post-crisis period showing a rise to pre-crisis (2005–2007) levels by 2015 (Birstingl, 2016; Yardeni et al., 2019, p. 3). By 2018, share repurchases (in value terms) had risen to their highest level yet (Yardeni et al., 2019, p. 3). After the financial crisis (from 2010 onwards) the net issuances of shares (gross value of shares issued minus gross value spent on share repurchases) on the S&P 500 had constantly been negative and had become increasingly negative annually (Yardeni et al., 2019, p. 7).

When considering the amounts spent on share repurchases in comparison to the free cash flow of companies, the picture became even clearer. Before the global financial crisis, the average S&P 500 company was spending more on share repurchases than they had available as free cash flow (before dividends) (Birstingl, 2016), meaning that they had to borrow funds to execute share repurchases (Mbawa, 2018, pp. 9–10). During the financial crisis, the share repurchase to free cash flow (before dividends) ratio had dropped, but had increased to more than 50 per cent by 2015 (Birstingl, 2016). If one compares S&P 500 companies' share repurchase activity to net income, a similar picture emerges. Just before the financial crisis, the amounts spent on share repurchases totalled approximately 100 per cent of net income (Birstingl, 2016). With net income plummeting during the global financial crisis, share repurchases reached a level of over 140 per cent of net income. Just after the financial crisis, as net income picked up again, the percentage dropped to less than 30 per cent, but increased to the point where share repurchases were almost 70 per cent of net income by 2015 (Birstingl, 2016). During 2016, share repurchases as a percentage of operating earnings increased to more than 100 per cent, while being at just below 100 per cent in 2018 (Yardeni et al., 2019, p. 10).

Although no other country comes close to the US in terms of money invested in share repurchases, companies in developed countries like those in Western Europe (including the UK) and Japan are increasingly employing share repurchases (Manconi, Peyer, & Vermaelen, 2018). Sakinç (2017) studied the share repurchase behaviour of Western European companies indexed on the S&P 350, between 2000 and 2015. A comparison between the US and Western Europe of the per-company average value spent on share repurchases can be seen in Figure 2.1.

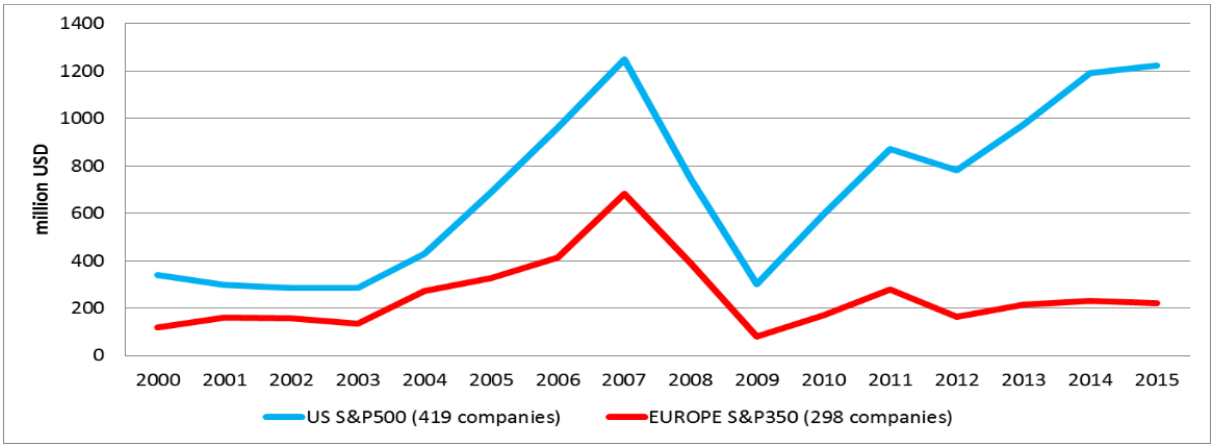

Figure 2.1. **Share repurchase value: Comparing the US and Western Europe (Sakinç, 2017)**

Similar to the US case, share repurchases in Western Europe increased prior to the global financial crisis, and decreased during the crisis (2008–2009). However, contrary to the situation in the US, share repurchases in Western Europe showed only a moderate increase after the financial crisis – and between 2010 and 2015 share repurchase activity was relatively stable (the increasing trend noticed prior to the crisis is absent). What is important to realise, however, is that the companies included in the US S&P 500 and Europe S&P 350 are predominantly large companies. As such, the averages shown in Figure 2.1 provide an indication of the share repurchase trends relating only to the larger listed companies in the US and Europe. Large companies are more likely to execute share repurchases and more likely to spend large amounts on share repurchases (Burns, McTier, & Minnick, 2015; De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016), and thus the average is expected to be substantially lower when one includes smaller companies as well.

Japan was a relatively late entrant to the share repurchases environment as it only legalised share repurchases in 1994, but then allowed share repurchases only in specific circumstances (for example, to offset share options exercised by employees or to affect business combinations) (Franks et al., 2018, p. 8). Unrestricted share repurchases have only been allowed in Japan since 2001 (Franks et al., 2018, p. 8). While most share repurchases in the US and Western Europe are executed in the open market, the majority of Japanese share repurchases did not occur in the open market, but were done to

establish and maintain control in the hands of certain shareholders (using a quasi-tender offer with a very short notice period, aimed at benefitting specific shareholders) (Franks et al., 2018, p. 3).

More than 50 per cent of the companies listed on the premium section of the Tokyo Stock Exchange executed share repurchases during the 2002–2014 period, with the average company repurchasing approximately seven per cent of their outstanding shares during this period (0.53% per year) (Franks et al., 2018, p. 1, 10). In most of the years (2002–2014), the average repurchases were between 0.3 per cent and 0.6 per cent of outstanding shares per year, but the years hereafter saw substantially higher levels of repurchases: 2002 (0.81%), 2003 (0.7%), 2007 (0.66%), 2008 (0.98%) (Franks et al., 2018, p. 43). More shares were repurchased just after the share repurchase restrictions were lifted in 2002 and 2003 and during the global financial crisis, which is contrary to the pattern observed in the US and Western Europe where share repurchase activity decreased during the financial crisis (Franks et al., 2018). Franks et al. (2018, pp. 10–11) mentioned two possible reasons for the spike in share repurchases during the global financial crisis: the desire of companies to increase a share price they believed to be undervalued or depressed, and the increase in shareholder activism just before and during the financial crisis relative to the post-crisis period.

Share repurchase activity in developing countries is substantially lower than in the US, Western Europe and Japan (Wesson et al., 2018, p. 181). Manconi et al. (2018) found that Brazil, China and India each delivered less than one per cent of the global number of repurchase announcements during 1998–2008, while Malaysia's announcements represented 1.5 per cent of the global number. South Africa was excluded from the Manconi et al. (2018) study, but Wesson et al. (2018, p. 181) estimated that South African announcements would equate to 1.1 per cent of the global number (which still understates actual repurchases because announcements are only required once 3% of a company's total outstanding shares have been reacquired). Although the repurchase activity in developing countries is small in comparison to the US and Western Europe, the relative effect thereof could still be significant.

In conclusion, it is informative to understand the effect that share repurchases have on the global equity market (the value of all shares listed on all stock exchanges in the world), which can be viewed in Figure 2.2. Just before the global financial crisis, large amounts were spent on share repurchases causing the net issuances of equity (the value of new shares issued minus the value of shares repurchased) to become sharply negative (Wigglesworth, 2018). During and just after the global financial crisis, this situation reversed itself as less share repurchases occurred, but companies still issued shares. From 2012 to 2018, however, the net issuances of equity were constantly negative (Wigglesworth, 2018). During 2018, the 12-month trailing value of net issuances (as a percentage of

market capitalisation) decreased to its lowest level yet, with the percentage falling at the fastest rate in 20 years (Wigglesworth, 2018).

Figure 2.2. **A global perspective: Net share issuances as percentage of market capitalisation (Wigglesworth, 2018)**

2.2.2 The potentially harmful effects of excessive share repurchasing

Share repurchases have become commonplace globally, but need to be regulated and monitored given the impact they can have on the economic well-being of a company, its shareholders and the country as a whole. A share repurchase is a financial and capital management tool available to companies, through which per-share figures such as EPS and the share price can be affected in the short-term (Wesson et al., 2018). The popularity of share repurchases might be a result of the (recently popularised) idea that a company should seek to maximise shareholder value first and foremost (Lazonick & O'Sullivan, 2000). However, the idea of shareholder value maximisation often ignores the legitimate interests of other stakeholders in the company, such as the government (focused on taxation), employees (interested in job security and equitable pay), suppliers (who desire long-term relationships) and clients (wanting to receive affordable and innovative goods and services) (Lazonick, 2014). Furthermore, the rights of all shareholders should also be considered – and not all shareholders necessarily favour share repurchases.

Whether or not a company maximises shareholder value is often measured using the total shareholder return (TSR) metric, which comprises the increase in share price plus dividends paid to shareholders, expressed as a percentage of the share price at the beginning of the period (Steenkamp & Wesson, 2018a, p. 50, 67). Both TSR and EPS are commonly used to measure the well-being of a company from

the perspective of institutional investors, and the metrics are often reported and monitored on a quarterly basis (Lazonick, 2014). When the short-term TSR or EPS decreases or does not meet pre-determined targets, a company is judged to be struggling, and the market may impose a substantial penalty in terms of share price (Hribar, Jenkins, & Johnson, 2006, p. 6). Given this short-termism then ruling the equity markets, executives might resort to actions resulting in positive movements in the share price and EPS in the short-term (such as share repurchases), while sacrificing the long-term health of the company (i.e. engage in share repurchases to increase the share price and EPS without having a bona fide business reason to engage in share repurchases) (Wesson et al., 2018).

As share repurchases could increase both the share price and the EPS figure, it could also increase the value of executive share-based remuneration. The vesting of share-based awards is most often linked to share price, TSR and/or EPS targets. Furthermore, the value of share-based awards inherently increases as the share price increases. Therefore, there is a risk that share repurchases are used to extract rents (undue compensation) by executives, in the absence of proper regulation and disclosure (Steenkamp & Wesson, 2020a). The beneficiaries of share repurchases are, in general, the richest households in an economy (including those of executives) and institutional investors such as hedge funds (Lazonick, 2015, p. 4) because they share in the payout from the repurchases and/or the increase in the share price. The losing parties are employees (who are both the most vulnerable at times of restructuring and the least likely to benefit financially from share repurchases) and consumers (who do not experience lower product costs as companies rather spend money on innovation and capital investment) (Almeida, Fos, & Kronlund, 2016; Lazonick, 2015, p. 2). As such, excessive repurchasing of shares can have the effect of increasing income inequality. South Africa's income inequality is extreme, causing severe social problems and pressure on government spending (Hundenborn, Woolard, & Jellema, 2019), making it crucial that share repurchase activity is monitored effectively. This will be expanded on in Section 2.4.3.

The net income and cash flow that a company generates can either be returned to shareholders (via share repurchases and dividends) or retained in the company to fund future growth (through research and development, training of employees and capital expenditure) (Almeida et al., 2016, p. 20). To support the economic growth of both a company and the country, it is essential that sufficient earnings be retained in the company. Excessive share repurchasing, however, could negate this. Bhargava (2013) found that companies which spend more money on share repurchases invest less in research and development, as well as in long-term investment instruments. In the US specifically, companies have been increasing distributions to shareholders (through share repurchases and dividends) and decreasing capital expenditure (in future investments) between 2003 and 2013 (PwC, 2016). However, this aspect might not be a concern in South Africa. Looking at the 2000–2009 period, Wesson and

Botha (2019) found no evidence of a negative relationship between share repurchases and company investment decisions.

In summary, share repurchases not done for bona fide business reasons (like excessive share repurchasing) could have a negative long-term effect on the financial health of a company; could lead to decreased investment in innovation and future projects (disadvantaging consumers); and could allow executives to extract rents from the company they work for and so increase income inequality. In addition, excessive repurchasing of shares could negatively affect job creation and job security, and forestall skills development and wage increases. The next section will discuss the bona fide business reasons for engaging in share repurchases.

2.2.3 Reasons for engaging in share repurchases

Academics and practitioners alike have identified the following as possible business reasons for engaging in share repurchases (Abraham et al., 2018; Dittmar, 2000; Lazonick, 2014; Nel, 2018; Wesson et al., 2015, 2018):

- Share repurchases indicate that directors believe the company to be undervalued (that the share price does not reflect the future earnings potential) and companies then 'invest in themselves'. The share repurchase announcement signals to the market that the company is undervalued, and a subsequent increase in share price is most often noted. This is called the undervaluation theory or signalling theory in respect of share repurchases.
- A mature company may have excess cash and no profitable projects to invest in. It may therefore choose to return the excess cash to the shareholders through share repurchases. This is referred to as the free cash flow theory.
- Share repurchases are a flexible method of making a distribution to shareholders as share repurchases are not expected to be recurring (as is expected of a dividend). Furthermore, share repurchases might be a more tax-beneficial reward method for certain types of shareholders. The replacement of dividends with share repurchases is proposed by the dividend substitution theory.
- Share repurchases can make up for the dilution in EPS that occurs when employees and executives are remunerated with shares or exercise share options (when additional shares are issued for no consideration). The EPS figure could increase since the weighted average number of shares (denominator of EPS calculation) decreases when a share repurchase takes place. This is referred to as the offsetting theory.
- When share repurchases occur, the debt/equity ratio of the company is affected (repurchases can be used to change it to a desired level).

- Specific repurchases (private offers) can be used to buy back shares from certain specified shareholders; to concentrate the voting rights in the hands of fewer shareholders; to ease the company's administration; and to decrease the pressure to meet short-term targets. In a similar fashion, share repurchases decrease the chances of a hostile takeover by concentrating ownership on block shareholders and corporate insiders, and can even be employed to enable the privatisation of a company.

The reasons mentioned in the first two bullets, namely undervaluation and having surplus cash available, remain the most important building blocks of a sensible share repurchases strategy according to Warren Buffet (Wesson, 2015, p. 39). The first four bullets above showcase the most prominent theories regarding the determinants of share repurchases and the findings of previous research regarding these theories will be discussed in the following paragraphs.

2.2.3.1 Signalling theory

Signalling theory (also called undervaluation theory or the information-signalling hypothesis) is the most common motivation attached to share repurchases by academics (Wesson, Muller, & Ward, 2014, p. 59). Signalling theory rests on the information asymmetry that exists between corporate insiders (such as executives and managers) and the general stock market participants. Corporate insiders have access to more (private) information regarding a company's future earnings potential (and are thus better equipped to value a company), and might feel that the stock market is undervaluing the company's share at a given time (Wesson, 2015, p. 40). In such a case, managers could express their optimism regarding their company's future by announcing (and engaging in) share repurchases. The repurchasing of shares, in this sense, represents a company stating that it cannot find a better investment than itself (Wesson, 2015, p. 40). The premise behind a share repurchase announcement is that it conveys (or signals) management's perception of undervaluation to the market. If the market then believes this signal, market participants would start buying more of the company's shares, driving up the share price.

This proposed undervaluation, signalled through repurchase announcements and a subsequent increase in share price, has been studied in various countries and over different time periods. Vermaelen (1981), author of one of the seminal works on signalling theory, found an abnormal increase in share price (increases in excess of normal market movements) of approximately three per cent after share repurchase announcements. In studies on signalling theory, the focus was initially on a short-term increase in the share price, but Ikenberry, Lakonishok, and Vermaelen (1995, p. 183) proposed that studying the share price reaction over the short-term, would not bring the full effect of the share repurchase to the fore. Thus Ikenberry et al. (1995) developed the underreaction hypothesis to supplement signalling theory: this proposed that the market had initially met the repurchase

announcement with scepticism (hence the marginal 3% increase, or underreaction, shown in Vermaelen's 1981 study) and that the full share price adjustment would only be apparent if one considered a longer time frame after the repurchase announcement. Ikenberry et al. (1995) found that the abnormal return for their sample of companies increased from two per cent after one year to 12 per cent after four years. Growth shares (with low book-to-market ratios) showed negative abnormal returns, while value shares (with high book-to-market ratios, a possible sign of undervaluation) showed larger than average abnormal returns (5% after one year, and 45% after four years). These findings, regarding potentially undervalued shares, showed a higher percentage of abnormal returns and supported signalling theory in general, but also pointed to the fact that not all companies that engage in repurchases are in fact undervalued.

Chan, Ikenberry, Lee, and Wang (2010) proposed than some companies might be sending false signals (i.e. announcing a share repurchase when the company is not really undervalued) when under pressure in terms of share price and EPS, in the hope of improving the share price. They found empirical support for this idea, showing initial positive share returns that did not last in the long-term (confirming the findings of Ikenberry et al. (1995) that growth companies attain long-term negative abnormal returns after a share repurchase announcement). As stated by Liu and Swanson (2016, p. 78), multiple factors (centring on the improvement of the share price) might be at work simultaneously and cause companies to announce repurchases and/or actually repurchase shares, making it difficult to isolate each factor. When shares are repurchased on the open market, this can increase the share price because of the demand being created for the company's shares. Share repurchases could increase EPS, which may in turn boost the company's share price based on positive market reaction. For potentially overvalued companies, Liu and Swanson (2016) found evidence of 'price support' occurring through share repurchases .

Replication-type studies using the methodologies of either Vermaelen (1981) or Ikenberry et al. (1995) are common in the US as well as globally, but results have been mixed. Fu and Huang (2016) studied US share repurchase announcements from 1984 to 2012 and found that share repurchase announcements had positive abnormal returns until 2002, the period covered by the Vermaelen (1981) and Ikenberry et al. (1995) studies, whereafter they did not. This might be a result of the market growing increasingly sceptical regarding share repurchases (as false signalling increased) or abnormal share returns might rather have become associated with actual share repurchases. It has been pointed out that the results of replication-type studies are greatly influenced by the way share repurchase events are measured (Banyi, Dyl, & Kahle, 2008, p. 462). In the US, many initial studies employed share repurchase announcements as the trigger date to study post-date abnormal returns, but such announcements are merely indicative of companies' intentions to repurchase (companies do not

necessarily repurchase shares after announcing their intention to do so) (Wesson, 2015, p. 43). Yook (2010, p. 330) found that only companies that actually repurchased shares in the year after announcing their intention to do so, showed significant abnormal returns, but that those who did not repurchase shares subsequent to the announcement, did not experience abnormal returns. This could be one of the reasons why previous studies (utilising share repurchase announcements) have shown mixed results. Yook (2010, p. 330) also found that companies that infrequently announced share repurchases showed larger abnormal returns (as their signalling of undervaluation was more believable by the market). Contrary to Ikenberry et al. (1995), Yook (2010) did not find larger abnormal returns for companies with a higher book-to-market value. It seemed as if all companies that acted on their share repurchase announcements experienced similar abnormal returns.

Studies from outside the US tend to examine signalling theory using actual share repurchases, as daily or weekly data regarding actual share repurchases are freely available (Wesson, 2015, p. 45) (in the US, only quarterly data on actually executed share repurchases are available). Again, some studies found evidence in support of signalling theory, while others did not. Findings also differ between countries (possibly owing to different regulatory environments). Lee, Diro Ejara, and Gleason (2010) found that German companies experienced positive abnormal returns of between three per cent and four per cent (in the short-term) after share repurchases, while returns in Italy and the UK were smaller (less than 2% and less than 1%, respectively). Companies in France did not show any significant abnormal returns in the short-term (Lee et al., 2010). In a study on daily share repurchases done in Greece, two different motives were proposed for share repurchases under different conditions – both based on the upward trend in share price following a share repurchase. Drousia, Episcopos, and Leledakis (2019) found support for the signalling (undervaluation) theory for small companies and those with high book-to-market ratios, while large companies and those with low book-to-market ratios seemed to engage in share repurchases purely for price support (following a period of declining share prices).

Some replication-type studies have also been done in emerging economies. Most of the studies conducted in emerging economies confirmed the existence of abnormal returns after share repurchase announcements. For example, Wang, Lin, Fung, and Chen (2013) found short-term and long-term positive abnormal returns in a study of Taiwanese companies from 2000 to 2010.

The premise of the present study rested largely on the fact that share repurchases can cause an increase in the share price, as to cause an increase in the value of executive share-based remuneration (also in South Africa). General share repurchases, whether announced or not, are expected to increase the demand for the company's share, and thus increase the share price. In addition, signalling is expected to play a role. Figure 2.3 shows the abnormal returns found by Wesson (2015) in relation to

the four different repurchase types in South Africa for the period 1999–2009. The repurchase types will be discussed in more depth in Section 2.2.4.2.

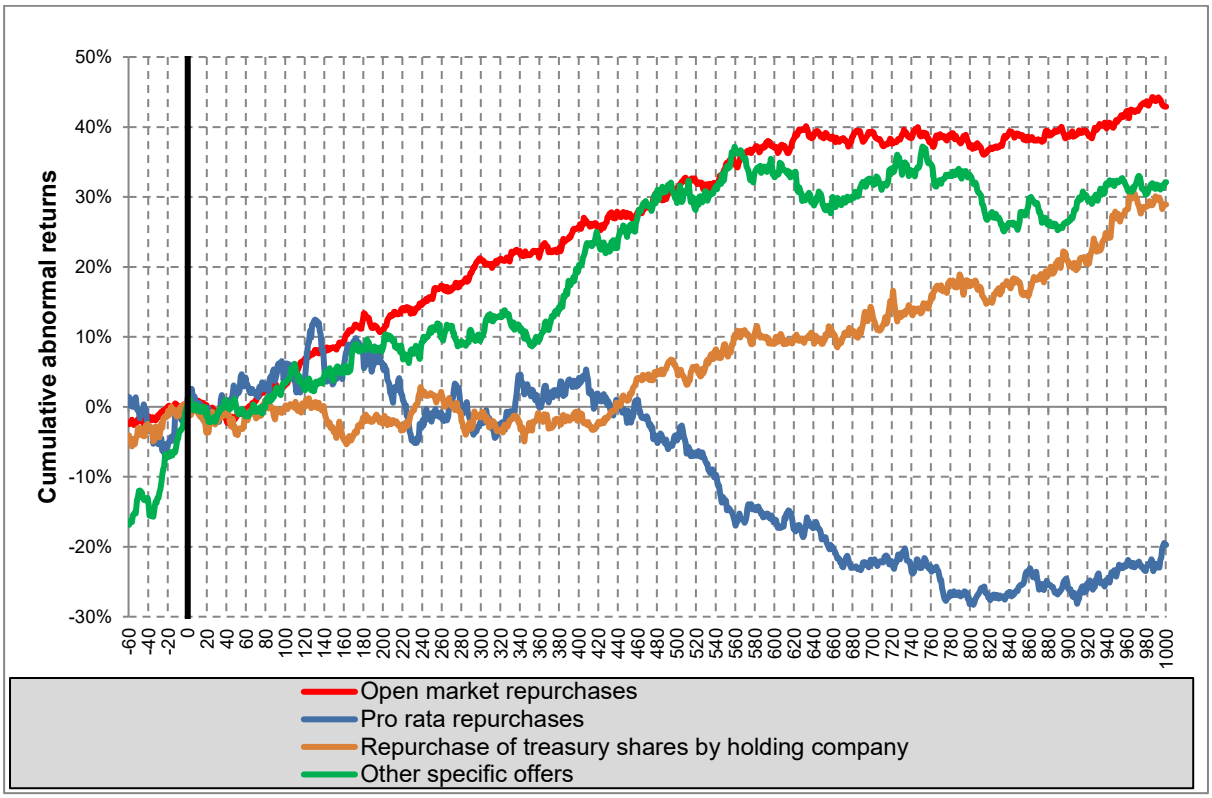

Figure 2.3. **Abnormal returns experienced in South Africa relating to the various share repurchase types (Wesson, 2015, p. 148)**

From Figure 2.3, it can be deduced that announcements of general (open market) repurchases and other specific repurchases (private offers) led to the highest abnormal returns (Wesson et al., 2014; Wesson, Muller, & Ward, 2017). These returns were at their maximum approximately two years after the announcement dates (Wesson et al., 2014, 2017), but were also substantial within the first year after the announcement (Figure 2.3). Within six months after the announcement, general share repurchases led to abnormal returns exceeding 10 per cent (reaching 20% approximately 300 days after the announcement date). Pro rata repurchases were not associated with substantial long-term abnormal returns (which is understandable as this offer was made to all shareholders) (Figure 2.3). The repurchase of treasury shares by the holding company, being intragroup repurchases, only led to substantial abnormal returns from the second year after repurchase announcement onwards and never reached the level of the abnormal returns generated by general and other specific repurchases (Figure 2.3).

The abnormal returns following share repurchase announcements, especially for general (open market) repurchases and other specific repurchases (private offers), give credibility to signalling theory

(i.e. that share repurchases lead to an increase in share price). However, not all companies that engage in share repurchases are undervalued. Some companies might be overvalued and still experience a stabilising effect on their share price (Liu & Swanson, 2016). Shares are often repurchased in bull markets (when prices are high) and not only when prices are low (bear market) – which contradicts the reasoning that directors buy only undervalued shares (Lazonick, 2014). This can be seen when considering US repurchase behaviour, where repurchases increased during the bull market before the global financial crisis, decreased during the crisis, and have increased again as share prices rose after the crisis (Birstingl, 2016). The reason why share repurchases decreased during the global financial crisis might, however, be found in the free cash flow theory, which will be discussed in the next section.

2.2.3.2 Free cash flow theory

The second most commonly cited reason for share repurchases, which centres on a necessary prerequisite to execute the share repurchase, is the availability of free cash flow. When a company makes a profit in a specific year and has available cash flow, it should first seek to invest the cash in profitable projects (Jensen, 1986, p. 323). After investing in profitable projects, excess cash can then either be retained in the company for future contingencies, or be redistributed to the shareholders through dividends and share repurchases (Dittmar, 2000, p. 334). If a company keeps excessive amounts of cash on hand, this would equate to 'empire-building' and be open to potential abuse by executives (Dhanani, 2016, p. 5). Therefore, those companies with more free cash flow (cash flow after investment in new projects, and research and development) would be expected to repurchase more shares. Previous studies have reported a positive relationship between free cash flow and share repurchases (Dittmar, 2000; Stephens & Weisbach, 1998), and free cash flow is commonly used as control variable in studying the relationship between share repurchases and other variables (Geiler & Renneboog, 2016; Kahle, 2002; Liljeblom & Pasternack, 2006). Studies testing stakeholders' perceptions have also established a clear link between share repurchases and returning excess cash to investors (Brav, Graham, Harvey, & Michaely, 2005; Dhanani, 2016, p. 16).

Recently, because of the large amounts being spent on share repurchases (especially in developed countries such as the US and UK), stakeholders have become apprehensive that companies might be distributing too much cash to shareholders, and retaining too little to fund research and development, investment in new projects, and developing human capital (Schneider & Kohlmeyer, 2015, p. 65). Free cash flow, as defined, should be the cash available after all profitable projects have been attempted and many are concerned that executives are not exploring all possible investment opportunities, but rather spend money on share repurchases to increase the share price and EPS and in the process their own remuneration (Lazonick, 2014). Mature companies with experienced staff are ideally situated to innovate and develop new products, at a lower cost than start-up companies (Lazonick, 2014). Invested

funds can bring forth many years of returns, whereas share repurchases only achieve a once-off increase in the share price and EPS figures.

Previous studies have found a negative relationship between investment and share repurchases, but the question is: which causes which? Are companies not able to find profitable projects and hence decrease investment, or do they have excess cash and then choose to redistribute this as share repurchases? Or do executives want to increase share repurchases to improve the share price and EPS, and in the process their own remuneration, and then decrease investment to fund the share repurchases? Almeida et al. (2016) studied this conundrum, and found that share repurchases done explicitly to reach an EPS target (where the EPS target would not have been met in the absence of the share repurchase) led to decreased capital investment, research and development spending, and decreased employment statistics in the year following the repurchase. It would seem that share repurchases that do not occur for conventional reasons (such as to signal undervaluation and distribute excess free cash) might lead to decreased future investment, research and development, and employment.

2.2.3.3 Dividend substitution theory

Theoretically, several other factors may affect the choice between dividends and share repurchases as a method of distributing free cash flow: shareholder characteristics and preferences; the percentage of shares owned by management; whether the proposed distribution is large or small; outstanding options and other share-based remuneration held by management; and whether the company's share was deemed to be undervalued before the distribution (Caudill, Hudson, Marshall, & Roumantzi, 2006; Wesson et al., 2018, pp. 182–183). However, in recent years share repurchase activity has increased at a much faster rate than dividends have, making share repurchases the prominent method of distributing resources to shareholders globally (Wesson et al., 2018, pp. 180–181).

Grullon and Michaely (2002) proposed that share repurchases have started to replace increases in dividends, i.e. where in previous years a company would have increased dividends as a result of excess free cash flow or to signal undervaluation, they now prefer to return cash via share repurchases (instead of raising dividends). Since the market reacts negatively to a company decreasing its dividends, companies prefer not to increase dividend levels as this creates a constructive obligation to maintain the higher level of dividends (Andriosopoulos & Hoque, 2013, p. 66). Companies thus tend to keep their dividend levels constant, while considering, and increasingly implementing, the repurchasing of shares as a more flexible form of payout (Brav et al., 2005; Jagannathan, Stephens, & Weisbach, 2000). It would, however, appear that share repurchases are not replacing special dividends (DeAngelo, DeAngelo, & Skinner, 2000), but that share repurchases are more generally being used as a replacement for increases in regular dividends, especially where the cash flows are transitory in

nature – for example, where the cash flow is earned from non-operating activities, such as the sale of a capital asset (Jagannathan et al., 2000). Jagannathan et al. (2000) also mentioned that share repurchases are highly sensitive to the business cycle of a country and tend to increase during an upswing in the business cycle. However, increased share repurchases could be counteracted by increased capital expenditure during such an upswing in the business cycle.

Executives with large numbers of outstanding share options and other share-based remuneration will prefer share repurchases over dividends (Geiler & Renneboog, 2016). One of the primary reasons for this preference, centres on the dilution that occurs in the price of a share after dividends are paid (the ex-dividend price is lower than the cum-dividend price) (Jolls, 1998). If one ignores the signalling effect of announcing both increased dividends and share repurchases, then paying dividends will decrease the share price while repurchases will not affect the share price (Jolls, 1998) (although the supply and demand effect of open market share repurchases can also increase the share price). Thus, the fair value of a share option would diminish as the dividends expected to be paid before the vesting date increase (Fenn & Liang, 2001), but share repurchases do not affect the fair value of a share option.

When considering dividends versus share repurchases as methods of returning resources to shareholders, it can be argued that dividends are a more legitimate payout method as it rewards shareholders for holding shares and benefits all shareholders equally (Lazonick, 2014). Share repurchases increase the share price to the advantage of the remaining shareholders (but to the relative disadvantage of the shareholders who sold their shares to the company), who will only realise the benefit of the increasing share price if they sell their shares – effectively rewarding shareholders for selling their shares and not holding them (Lazonick, 2014).

2.2.3.4 Offsetting of share-based remuneration issued to employees

Another reason cited for choosing to repurchase shares is to offset the EPS dilution that occurs when employees are issued shares (or exercise share options) as part of their remuneration packages (as the denominator of the EPS calculation will increase when the shares are issued to employees, which will automatically decrease EPS) (Kahle, 2002; Schneider & Kohlmeyer, 2015, p. 66). Although this reasoning makes business sense, the number of shares issued to employees as remuneration is usually much lower than the number of shares repurchased and this cannot (on its own) explain the rise in share repurchases in the US (Lazonick, 2014). In the South African environment during the 2002–2017 target period, however, listed companies often issued shares to qualifying employees in black economic empowerment (BEE) schemes. Such schemes could be facilitated by share repurchases, and thus increase share repurchase activity in the South African context. However, the International Accounting Standards Board (IASB) requires listed companies to forewarn users of the company's financial statements about the decrease in EPS that will occur when employee share-based

remuneration is exercised - through the disclosure of the diluted EPS figure (IASB, 2017a). Furthermore, granting share-based remuneration to employees should ideally incentivise them to work harder, and increase earnings, so that the dilutive effect on long-term EPS would be negligible by the time that the share-based remuneration vests (Lazonick, 2014).

A share repurchase does not automatically increase EPS (although some managers believe it to do so) (Brav et al., 2005, p. 515). EPS is calculated by dividing the earnings (profit after taxation attributable to ordinary shareholders) for a certain period by the time-weighted number of shares outstanding during that period (IASB, 2017a). Given that the number of shares repurchased is time-weighted before being deducted from the 'number of shares outstanding during the year' denominator of the EPS calculation, the effect of a repurchase on EPS is zero if it occurs at the end of the reporting period. If share repurchase occurs during a reporting period, its effect depends on where the cash for the repurchase was sourced. If the money had to be borrowed, then the interest on the borrowing would decrease the earnings-numerator of the EPS calculation, while the number of shares would also decrease, which would lead to either a decrease or an increase in EPS, depending on the number of shares repurchased and the interest expense. When the cash used for the repurchase is extracted from cash balances or projects, then the earnings would decrease as a result of the interest income or return on investment forfeited, while the number of shares will decrease. Thus a share repurchase would only increase EPS (termed an accretive share repurchase) if the funds utilised for the repurchase would otherwise not earn the company's current cost of capital or if the funds utilised could be borrowed at less than the cost of capital (Brav et al., 2005, p. 515).

The previous two paragraphs consider the relationship between share repurchases and EPS dilution owing to employee share-based remuneration being exercised. However, the relationship between share repurchases and share-based remuneration could be viewed from another angle, namely the positive effect of share repurchases on share price. Many studies have postulated that executive share-based remuneration may indeed incentivise executives to engage in share repurchases, as such share repurchases could increase the share price and consequently the executives' own share-based remuneration (Balachandran, Chalmers, & Haman, 2008; Lazonick, 2014).

2.2.3.5 Conclusion on business reasons for engaging in share repurchases

Share repurchases are legal in almost all countries in the world and companies are provided with the opportunity to signal undervaluation and distribute free cash flow in a flexible manner. Share repurchases are used extensively in many parts of the world. Although many business justifications exist for executing share repurchases, executives might also use them for manipulative purposes, namely to increase EPS and the share price to reach short-term targets and increase their own remuneration. As such, it is imperative that share repurchase activity should be monitored by

shareholders and other stakeholders. In most countries, this monitoring is possible because all share repurchases are announced on the relevant stock exchange as they occur, or periodically in arrears. However, as will be discussed in the next section, the regulation and disclosure requirements regarding share repurchases in South Africa do not allow effective monitoring, and might be providing executives with even greater leeway to increase share price and EPS artificially, should they wish to do so.

2.2.4 The regulation and taxation of share repurchases in South Africa

In South Africa, share repurchases were legalised in 1999 with the issuance of the Corporate Laws Amendment Act 24 of 1999 (CLAA) (Republic of South Africa, 1999) which, for the first time, allowed share repurchases as an alternative to dividends (Siddle, 2006; Visser, 2014). Before 1999 South African companies had to maintain their issued capital (the so-called 'capital maintenance' rule) (Wesson, 2015, p. 9).

Several regulatory frameworks governed share repurchases by South African listed companies during the period 2002–2017 (which is the target period of the present study). These include the CLAA (Republic of South Africa, 1999), the Companies Act 71 of 2008 (Republic of South Africa, 2008), the JSE Listing Requirements and International Financial Reporting Standards (IFRS) – which either stipulated specific requirements before a share repurchase could take place, or certain post-date disclosures (Wesson, 2015, p. 9).

2.2.4.1 Repurchasing entities allowed

As from 1 July 1999 the CLAA allowed two types of entities to repurchase shares of the holding company, namely the holding company itself and subsidiary companies (subsidiaries). As per section 85(8) of the act, where the company itself repurchased shares, such shares were to be cancelled and reverted to authorised share capital (Republic of South Africa, 1999). Section 89 of the CLAA allowed subsidiaries to repurchase up to 10 per cent (in total, for all subsidiaries) of the shares issued by the holding company (Republic of South Africa, 1999). Shares repurchased by the subsidiaries would not be cancelled, but would instead be seen as treasury shares (Republic of South Africa, 1999) and held to be re-sold to the holding company or others; used in business combinations; or issued to employees at a later date.

When considering the holding company's separate financial statements, the shares repurchased by subsidiaries are seen as issued, but when consolidated accounts are prepared, the shares repurchased by subsidiaries are seen as repurchased in the group, and need to be deducted from the issued share capital in the group (Wesson, 2015, p. 10). As such, the number of shares in issue recorded in the annual financial statement of the holding company and the separate group financial statement could differ (when subsidiaries have repurchased shares in the holding company). An example of this is

provided by Bester, Hamman, Brummer, Wesson, and Steyn-Bruwer (2008, p.52) and is based on a holding company which has issued 100 shares. Suppose the holding company repurchases six shares, while five are repurchased by subsidiaries: the holding company would cancel the six shares it repurchases, leaving the holding company with 94 issued shares in its separate financial statements. The number of shares in issuance in the group financial statements would, however, be 89 (the 94 minus the 5 repurchased and still held by subsidiaries).

It is important to note that, globally, subsidiaries are usually not allowed to own shares in the holding company (Wesson, 2015, p. 29). If subsidiaries are not allowed to repurchase shares in the holding company, then there could be no difference between the number of shares issued by the holding company and the group (as could be the case in South Africa). However, in many other jurisdictions, the holding company itself can repurchase its shares and then either cancel the shares or retain the shares as treasury shares (Wesson, 2015, p. 29). The South African environment, therefore, differs from the global one in respect of the entities that can be employed for repurchasing purposes.

In South Africa, share trusts controlled by the holding company can also own shares in the holding company. Such shares are then used to settle the share option and other incentive schemes operated by the group. In terms of IFRS, such shares are treated as treasury shares and eliminated on consolidation (IASB, 2017b). However, shares bought by share trusts are not share repurchases as defined by the JSE Listing Requirements, and do not need to be announced via SENS (Wesson et al., 2015, p.45). For this reason, share trusts were not included as a repurchasing entity for the purposes of the present study.

Three repurchasing entities can be identified in the unique South African regulatory environment, namely the holding company repurchasing from third parties; the holding company repurchasing treasury shares; and subsidiaries (Wesson, 2015, p. 95). Wesson (2015, p. 96) studied JSE-listed companies (excluding those in the Basic Materials and Financial industries) and found that subsidiaries were the preferred repurchasing entity in the period 1999–2009. The preference for subsidiary repurchases was affirmed by Vermeulen (2014, p. 9) in relation to the Mining sector during 1999–2010 when considering those companies that had primary listings on the JSE and Fortuin (2015, p. 76) in relation to the Banking and Financial Services Sectors during 1999–2014. The preference to repurchase shares using subsidiaries as vehicle was probably a result of the greater flexibility provided by shares held by subsidiaries (such shares were not cancelled but were available for business combinations or issuing to employees) and favourable taxation treatment (discussed in Section 2.2.4.6) (Wesson et al., 2015, p. 45).

2.2.4.2 Repurchase types allowed

Share repurchases by South African listed companies are either general repurchases (i.e. executed on the open market at the ruling market price) or specific repurchases (i.e. of a specified number of shares from specific shareholders at a specified price) (Vermeulen, 2014, p. 3). The JSE Listing Requirements sub-divides specific repurchases into pro rata offers and other specific offers (Wesson, 2015, p. 12). Pro rata offers are offered to all existing shareholders in the same proportion (pro rata) while other specific offers are made to specifically named shareholders (Section 5.69) (JSE, 2017a).

Contrary to global trends, general (open market) share repurchases were not the preferred type of repurchase of listed companies (Wesson, 2015, p. 97). Based on the rand value employed, specific repurchases represented more than 57 per cent of all share repurchases during the 1999–2009 period in a study considering all JSE-listed companies excluding the Basic Materials and Financial industries (Wesson, 2015, p. 97). The preference for specific repurchases was also found in the Mining sector, where more than 61% of all share repurchases by companies with primary listings on the JSE were specific repurchases (Vermeulen, 2014, p. 8). In the Banking and Financial Services Sectors more than 46 per cent of share repurchases were specific repurchases (Fortuin, 2015, p. 78).

The preference for specific repurchases resulted from a repurchasing entity unique to the South African environment being employed, namely the holding company repurchasing treasury shares (Wesson, 2015, p. 98). The holding company could start to repurchase shares from subsidiaries (specific counterparties) when the 10 per cent threshold was reached (i.e. maximum number of shares had been repurchased by subsidiaries), or when the group no longer required the treasury shares for future projects.

As a large portion of specific repurchases are represented by the holding company repurchasing treasury shares, this type of repurchase can be designated as a separate category of specific repurchases (Wesson et al., 2015). Thus four repurchase types can be identified in South Africa, namely general repurchases; pro rata specific repurchases; specific repurchases: holding company repurchasing treasury shares; and other specific repurchases (Wesson, 2015).

2.2.4.3 Requirements before share repurchases can occur

Under the requirements of the CLAA, which became effective from 1 July 1999 until 30 April 2011, share repurchases (both those under general and under specific authority) could be done if allowed by the articles of the company, if the company was solvent and liquid after the repurchase, and if the repurchase was approved via special resolution by shareholders (section 85) (Republic of South Africa, 1999). For share repurchases under general authority, such a resolution could be granted at the annual

general meeting (AGM), but was then only valid until the next AGM (section 85(3)) (Republic of South Africa, 1999).

The Companies Act 71 of 2008 (effective from 1 May 2011) upheld most of the requirements for affecting a share repurchase as contained in the CLAA, but amended the persons authorised to affect a share repurchase as follows: the board of directors are authorised to approve the repurchase (as opposed to the CLAA requiring shareholder approval) (Republic of South Africa, 2008; Vermeulen, 2014). However, as per section 48(8) of the Companies Act 71 of 2008, a special resolution by shareholders is still required should the shares be acquired from a director, prescribed officer or a person related to a director or prescribed officer (Republic of South Africa, 2008). Furthermore, the JSE Listing Requirements still require shareholder approval for most share repurchases done by listed companies, and the stricter rule should then be followed by listed companies executing share repurchases. The JSE Listing Requirements prescribes the following (JSE, 2017a):

- Share repurchases (excluding pro rata repurchases) should be approved by means of 75 per cent shareholder vote (essentially similar to a special resolution) (sections 5.67(B), 5.69(b) and 5.72(c)).
- A general approval granted at the AGM is only valid for 15 months, or until the next AGM (sections 5.67(B)(b) and 5.72(c)). For general repurchases, no more than 20 per cent of a class of shares may be bought back during one financial year (section 5.68).

It is standard practice for companies to request, at the AGM, the general approval of shareholders for directors to repurchase a set percentage of the shares outstanding (Wesson, 2015, p. 12). Shareholders usually provide this approval annually. However, there is no binding obligation on the board to then execute any or all of the share repurchases authorised (Wesson, 2015, p. 12). On the other hand, the approval granted by shareholders for a specific repurchase is a binding agreement to repurchase the shares (Vermeulen, 2014, p. 3).

During September 2018, a draft Companies Amendment Bill (Republic of South Africa, 2018) was circulated for comment. The draft amendments had not yet been promulgated at the time of writing this dissertation. The Amendment Bill proposed that all companies should obtain shareholder approval by means of a special resolution for share repurchases, except if those share repurchases are pro rata from all shareholders or occur “in the ordinary course of business on a stock exchange” (Republic of South Africa, 2018). The meaning of “in the ordinary course of business on a stock exchange” is not clear, as it could refer to all share repurchases executed by listed companies, or only general repurchases executed by listed companies. Either way, this amendment would not affect the listed companies studied in the present study, as the JSE Listing Requirements are stricter (or require the same) and would still apply. However, the amendments would change the authorisation required for

specific repurchases (other than pro rata specific repurchases) by a South African non-listed company from board approval to shareholder approval.

Globally, either board or shareholder approval is required for a company to execute a share repurchase (Kim et al., 2005). Given that the South African approval process requires shareholder approval (the stricter option), the approval process in South Africa seems to provide adequate protection of shareholders' interest. However, it is critical that shareholders should be able to monitor the actual general share repurchases executed by directors (after the shareholders have granted general authority for such repurchases at the AGM). In the next section the announcement of actual executed share repurchases on the JSE will be discussed. It is here that the South African regulatory system may be failing shareholders.

2.2.4.4 Announcement of share repurchases on SENS

According to the JSE Listing Requirements, specific repurchases should be announced via SENS as soon as the terms have been agreed upon (the announcement should indicate the name of the shareholder from whom the shares will be repurchased, the amount to be paid and the number of shares repurchased) (section 11.25) and after the announcement such repurchases should then be executed unless exceptional circumstances arise (JSE, 2017a). As such, all specific repurchases should be announced before they occur, providing adequate information to enable monitoring. The possibly inadequate disclosure rules arise in relation to general share repurchases, as described in the next paragraph.

General repurchases only need to be announced once more than three per cent of the outstanding shares of that class have been bought back cumulatively (section 11.27) (JSE, 2017a). The requirements regarding general repurchases are more lenient and easier to comply with, but lead to some share repurchases (i.e. those that amount to less than 3% cumulatively) never being reported via SENS (Wesson, 2015, p. 12). Moreover, there is some inconsistency in the application of the rule: some companies interpret it as "more than three per cent per year", and some see it as a cumulative rule, not limited to a specific year (the latter being the official view of the JSE) (Wesson, 2015, p. 12). Under the three per cent rule, SENS announcements do not provide a comprehensive record of all general share repurchases affected by listed companies. In addition, stakeholders are not aware of exactly when general share repurchases occur, as those that are announced are announced after the fact (even years after the event).

The current announcement rules in South Africa differ from those employed by most other countries with sophisticated stock exchanges, where daily, weekly, monthly or quarterly announcements relating to the actual number and value of shares repurchased are the norm (Kim et al., 2005, p. 36;

Wesson, 2015, p. 30). Because of the JSE's announcement rules, information about actual general share repurchases are not readily available in real time in South Africa.

To summarise, all general repurchases (if the threshold of 3% or more has been reached) and all specific repurchases executed by South African listed companies need to be announced via SENS. There is presently no requirement to announce (via SENS) where less than three per cent of outstanding shares are repurchased through a general repurchase (Wesson, 2015, p. 45). Previous South African studies all reported high levels of unannounced general share repurchases (unannounced general repurchases exceeding 40% of those actually executed) (Fortuin, 2015, p. 81; Vermeulen, 2014, p. 10; Wesson, 2015, p. 101). Unannounced specific repurchases mainly pertained to intragroup share repurchases, when the holding company repurchased treasury shares (Wesson, 2015, p. 102).

2.2.4.5 Disclosure requirements pertaining to annual financial statements

Listed entities in South Africa have to apply IFRS in their annual financial statements. IFRS do not have specific disclosure requirements regarding share repurchases (Wesson et al., 2015, p. 45), given that it caters for a wide international audience that might not require the information if it has already been provided by stock exchange announcements. In South Africa, however, such disclosures are deemed essential in financial statements so that the full quantum of shares repurchased can be determined, as not all share repurchases are announced via SENS.

Disclosure requirements about share capital in general are contained in *IAS 1 Presentation of financial statements* (IASB, 2017c) and *IAS 32 Financial instruments – Presentation* (IASB, 2017b). *IAS 1* paragraph 79(a) requires that a company (or group) discloses "a reconciliation of the number of shares outstanding at the beginning and at the end of the period" (IASB, 2017c). As IFRS is applicable in both the group annual financial statements and the holding company's separate annual financial statements (which are often published together as one set of financials), this reconciliation should be done for both the group's number of shares (after deducting shares held by subsidiaries and consolidated share trusts) and the company's number of shares (before shares held by subsidiaries and consolidated share trusts are deducted) (Wesson, 2015, p. 15).

IAS 1, additionally, requires disclosure of the "shares in the entity held by the entity or by subsidiaries or associates" (IASB, 2017c). In South Africa shares repurchased by the holding company itself are cancelled and, as such, the entity itself cannot hold (treasury) shares (Wesson, 2015, p. 15). However, in South Africa subsidiaries and share trusts can repurchase and then hold (treasury) shares in the holding company (Wesson, 2015, p. 15). *IAS 32,* paragraphs 33 and 34, reaffirm that treasury shares should be deducted from equity and the amount of treasury shares held by subsidiaries (and share

trusts) should be disclosed separately either on the statement of financial position itself or in the notes thereto (IASB, 2017b). Wesson (2015, p. 15) commented that, in the South African environment, companies should disclose both the number of treasury shares held and the rand value involved. However, many South African companies do not disclose treasury shares comprehensively.

South African companies interpret the requirements of *IAS 1* and *IAS 32* relating to reconciliations of number of shares outstanding for group and company, as well as amounts (both in number and value) of treasury shares held by subsidiaries and share trusts, inconsistently owing to the fact that IFRS do not cater for the South African regulatory environment (Wesson, 2015, pp. 15–17):

- Some companies disclose only a reconciliation of the number of shares outstanding for the company, and not for the group as well.
- Some companies disclose only the rand value of treasury shares held, and not the number as well. The movement in treasury shares is not always disclosed, and some companies do not separate the treasury shares held by share trusts and subsidiaries.

The annual financial statement disclosure requirements contained in the JSE Listing Requirements complement the IFRS requirements. Section 3.43 of the JSE Listing Requirements prescribes an analysis of the non-public shareholders (defined in section 4.25), who own the shares in the company at a given reporting date (referred to as the shareholder spread) (JSE, 2017a). Share trusts are explicitly described as non-public shareholders (in section 4.25), but it is unclear whether subsidiaries of the holding company would qualify as non-public (Wesson, 2015, p. 21). Most companies disclose the number of shares held by subsidiaries as either ‘treasury shares’, ‘own holdings’ or by giving the subsidiaries’ names under the non-public section of the shareholder spread (Wesson, 2015, pp. 20–23). The shareholder spread should also provide the identity of any person owning more than five per cent of the company’s shares (section 8.63(e)) (JSE, 2017a).

In response to comments that disclosure regarding share repurchases by listed companies is insufficient, the JSE added an additional annual financial statement disclosure requirement to its JSE Listing Requirements, called section 8.63(o) (Wesson, 2015, p. 24). Effective from 14 January 2013, South African listed companies should disclose in their financial statements, for share repurchases in the reporting period, the number of shares repurchased (distinguishing between those shares that were cancelled, i.e. repurchased by the holding company, and those held as treasury shares, i.e. repurchased by subsidiaries) and average price paid (JSE, 2017a). However, Mawere (2016) and Buitendag (2018) reported that compliance with the requirements of section 8.63(o) is relatively low in practice. Section 8.63(o) was amended, effective December 2017, to ensure that it is clear that the number of shares repurchased by subsidiaries during the reporting period is to be disclosed, and not only the number of shares held by subsidiaries at the reporting date (JSE, 2017b, p. 28)

2.2.4.6 The taxation of share repurchases in South Africa

During the period under review (2002–2017), two major changes took place in South African taxation legislation regarding the treatment of share repurchases (in the hands of the entity executing the share repurchase). Firstly, the definition of what constitutes a 'dividend' was amended on 1 January 2011, and general repurchases then no longer qualified as a dividend (Nel, 2018, p. 75). Secondly, secondary taxation on companies (STC) had been levied on all 'dividends' paid by companies (including those share repurchases that qualified as a dividend) before 1 April 2012, when this levy was replaced by a dividends tax on the beneficial shareholder (Nel, 2018, p. 75).

Since the introduction of dividends tax (1 April 2012), share repurchases executed by all repurchasing entities (and both general and specific repurchases) have had no tax effect for the repurchasing entity – as the beneficial owner of the share was possibly liable for tax (Nel, 2018, p. 76). Even before 1 April 2012, share repurchases executed by subsidiaries had no tax effect for the subsidiary as such repurchases were never defined as dividends (and never attracted STC) (Fortuin, 2015, p. 17). The fact that subsidiaries were never liable for tax on share repurchases probably added to their popularity as repurchasing entity, especially before 1 April 2012. With this as background, it is important to consider the tax effect that both general and specific repurchases executed by the holding company had prior to 1 April 2012.

Before 1 January 2011, both general and specific repurchases executed by the holding company were seen as a dividend, and the holding company had to pay STC on the value exceeding the nominal value of the shares repurchased (Fortuin, 2015, p. 17). When the holding company repurchased treasury shares from the subsidiaries this repurchase was exempt from STC before 1 October 2007, but attracted STC from that date onwards (Wesson et al., 2015, p. 45).

From 1 January 2011, the dividend definition was amended to exclude general repurchases (i.e. repurchases executed in the open market) (Fortuin, 2015, p. 18). From this date, the holding company was no longer liable for STC on general share repurchases, as the beneficial shareholder (who sold shares) was already liable for tax (Nel, 2018, p. 76). The beneficial shareholder selling shares on the open market would not know that the holding company itself was repurchasing them, and would pay tax on the gain realised (Nel, 2018, p. 76). If the holding company was then also liable for tax, the same transaction would have been taxed in the hands of both parties.

Specific repurchases qualified as dividends before the 1 January 2011 amendments, and could potentially still qualify as a dividend after the amendments (depending on whether the value of the share repurchase exceeded the contributed tax capital) (Nel, 2018, p. 76). A holding company executing a specific repurchase constituting a dividend was liable for STC until 30 March 2012; from 1

April 2012 the beneficial shareholder was liable for dividends tax on the amount received as a consequence of the share repurchase (Nel, 2018, p. 76).

To summarise, subsidiary repurchases before 1 January 2011 were the most tax-beneficial (no tax was payable by the repurchaser). Both specific and general repurchases executed by the holding company were liable for STC before 1 January 2011 (except when treasury shares were repurchased, which were exempt before 1 October 2007). Between 1 January 2011 and 30 March 2012, only specific repurchases executed by the holding company could attract STC (while subsidiary repurchases and general repurchases executed by the holding company did not). Since 1 April 2012, share repurchases have not had a tax effect for the person affecting the repurchase (instead the beneficial owner might be liable for tax). The aforementioned tax changes could affect both the preferred repurchasing entity and the preferred repurchase type in the period under review.

2.2.5 Previous studies on share repurchases in South Africa

In a study by Massie et al. (2014, p. 44), the authors pointed out:

> "By 2009 it was apparent that share repurchasing was a significant part of corporate activity in South Africa. Despite this and despite the fact that institutional shareholders tend to vote overwhelmingly in support of share buy-backs, there has been very little research done on the reasons for, and implications of, share buy-backs by listed companies in South Africa."

After share repurchases were legalised in South Africa in 1999, the initial research regarding South African share repurchases only considered share repurchases announced via SENS – and, as such, ignored general repurchases which amounted to less than three per cent of outstanding shares (Bester et al., 2008; Bhana, 2007; Daly, 2002). Both the Daly and Bhana studies examined short periods of time (1999–2001 and 2000–2003, respectively) and excluded specific repurchases.

Bester, Wesson, and Hamman (2010) noted that it would be incomplete to concentrate solely on announced share repurchases, as this would severely understate the importance of the phenomenon. The first comprehensive study which evaluated both announced and unannounced share repurchases for the majority of the JSE Main Board listed companies (excluding those in the Basic Materials and Financial industries) was Wesson (2015). As the SENS announcements did not provide a comprehensive record of all share repurchases executed, Wesson (2015) hand-collected share repurchase data from the annual financial statements of the companies. A comprehensive database on share repurchases from 2000 to 2009 was compiled – which can be seen in Table 2.1 (Wesson, 2015, p. 103).

Table 2.1

Rand value spent on total, announced and unannounced share repurchases 2000–2009 (Wesson, 2015, p. 103)

Year	Total share repurchases	Announced share repurchases	Unannounced share repurchases
	R	R	R
2000	2 681 648 478	2 461 253 199	220 395 279
2001	2 969 991 036	1 986 147 611	983 843 425
2002	4 322 450 445	2 788 921 874	1 533 528 571
2003	3 718 359 573	1 660 634 995	2 057 724 578
2004	2 938 399 471	1 780 001 249	1 158 398 222
2005	12 183 006 110	7 868 060 566	4 314 945 544
2006	20 108 963 794	11 926 850 407	8 182 113 387
2007	25 804 509 767	23 931 637 047	1 872 872 720
2008	21 659 223 717	18 588 614 496	3 070 609 221
2009	40 499 959 367	34 238 566 317	6 261 393 050
Total	**136 886 511 758**	**107 230 687 761**	**29 655 823 997**
Percentage	**100.00%**	**78.34%**	**21.66%**

Concerning the period 1999–2009, for all JSE-listed companies excluding the Basic Materials and Financial industries, Wesson et al. (2015, pp. 88–90) found that:

- Just over half (51%) of companies in the sample had repurchased shares during the period.
- There was a general upward trend in the value of repurchases over the years from 2000 to 2009, with 2009 having had the largest repurchase value.
- A few companies contributed the bulk of the share repurchase value, being mainly those companies with larger market capitalisations. However, smaller companies also engaged in repurchases and constituted the largest number of repurchasers.
- Four large companies were responsible for more than 50 per cent of the value repurchased: Sasol Limited (R38 billion – 28%); MTN Group Limited (R21 billion – 16%); Remgro Limited and Netcare Limited (each more than 5%).
- The value of dividend payout exceeded the rand amount spent on share repurchases (dividends represented 72% of the total payout), but dividend growth was smaller than the growth in share repurchases.

As discussed above, Wesson (2015) compiled a comprehensive database for South African share repurchases by scrutinising companies' annual financial statements for the period 1999–2009. This database, however, had to be updated from 2010 onwards to investigate the post-global financial crisis period, and to ascertain the effect of major taxation changes on the quantum of share repurchases in South Africa. Buitendag (2018) evaluated the post-crisis share repurchase behaviour of 30 JSE-listed companies included in the Wesson (2015) study, but the post-crisis repurchase activity for the majority of the companies listed on the JSE has yet to be established. The companies in the Buitendag (2018) study were those which most actively repurchased shares in the Wesson (2015) study, and were studied for the period 2010–2015 (Buitendag, 2018). It was found that fewer shares were repurchased by the sampled companies after the financial crisis (during the 2010–2015 period) than before and during the crisis (Buitendag, 2018).

Subsequent to the Wesson study, three studies have been done which focused on share repurchases in the Mining (Vermeulen, 2014) and Banking and Financial Services (Fortuin, 2015; Mbawa, 2018) sectors respectively, as these JSE sectors had been excluded by Wesson (2015). The three studies have shown that share repurchase activity in the Basic Materials and Financial industries is less pronounced than in the remainder of the JSE (Fortuin, 2015; Mbawa, 2018; Vermeulen, 2014).

Vermeulen (2014) studied share repurchases in the Mining sector during 1999–2010. Similar to Wesson (2015), share repurchases in the Mining sector became more prevalent in the latter years (2006 to 2008) and 20 per cent (based on rand value) of the share repurchases (executed by companies with primary listings on the JSE) were not announced via SENS (Vermeulen, 2014). However, Vermeulen (2014) found that the companies in the Mining sector spent less on share repurchases in the period 2009–2010 (during and just after the global financial crisis). Companies in the Mining sector were severely affected by the global financial crisis and might have experienced a decrease in free cash flow, resulting in fewer share repurchases.

Fortuin (2015) investigated share repurchase activity in the Banking and Financial Services sectors of the JSE during 1999–2014. General repurchases were the preferred repurchase type employed and a substantial portion (72% if based on rand value) of the general repurchases was not announced on SENS (Fortuin, 2015). In the Banking sector there was a spike in repurchase value during 2006, with post-financial crisis share repurchases being minimal, except for the repurchasing of treasury shares by the holding company (Fortuin, 2015, p. 48). In the Financial Services sector, there was minimal share repurchases during and after the global financial crisis, while the activity was more pronounced during 2001–2007 (Fortuin, 2015, p. 60).

Mbawa (2018) studied share repurchases executed by companies listed in the real estate investment trusts and investment instruments sectors of the JSE during 1999–2017. Share repurchase activity (based on rand value) was quite volatile during the period: a once-off spike occurred in 2004, with a substantial increase during the period 2007–2008 (just before and during the start of the global financial crisis) followed by a slump during 2009–2012 (Mbawa, 2018, p. 52). During 2013–2016 the average amounts spent on share repurchases reached its highest levels yet, with almost half the repurchase value during the period 1999–2017 being spent in 2016 (Mbawa, 2018, p. 52). The sudden increase during 2016 should caution stakeholders that share repurchase activity should be closely monitored – especially in the period following the global financial crisis. However, the share repurchase trends after the global financial crisis still needs to be ascertained for companies outside the Financial Industry.

2.2.6 Conclusion

Share repurchase activity in the US and Western Europe increased drastically prior to the global financial crisis, but then decreased during the crisis. After the financial crisis, by 2015, share repurchase activity in the US had again increased to its pre-crisis levels. In Western Europe only a moderate increase occurred in 2010, after the financial crisis, with share repurchase activity being relatively stable between 2010 and 2015 (no increasing trend was noticed after the crisis). In Japan, share repurchase activity was high during the global financial crisis, possibly to extend price support in times of share prices falling.

Share repurchases are associated with undervaluation (where undervalued companies would signal optimism about their future earnings potential to the market by announcing or executing a share repurchase) and is often done when a company has excess free cash flow. However, share repurchases can be used by executives to influence key metrics (the share price and EPS) and increase the value of executive share-based remuneration (leading to self-enrichment). Increased share repurchases could also decrease a company's internal investment (in human resources and the development of innovative products or services). A such, stakeholders should actively monitor share repurchase activity.

In South Africa, however, active monitoring of all share repurchase activity is not possible. Specific repurchases have to be announced on SENS before they occur, but general (open market) repurchases only need to be announced once three per cent of the outstanding shares have been repurchased. Therefore, stakeholders are not aware of almost half of the general repurchases that occur in the South African environment. As such, a comprehensive picture of South African share repurchases activity can only be obtained by hand-collecting this information from annual financial statements. This has been

done for most JSE-listed companies up to the year 2009, but comprehensive data on post-financial crisis share repurchase activity was not available prior to the present study.

2.3 SHARE-BASED REMUNERATION OF EXECUTIVES

The share-based remuneration of executives has increased in usage and complexity in the last two decades, both globally and in South Africa (PwC, 2015; PwC, 2019). Initially, share options were mainly used, but were superseded by share appreciation rights (SARs) and more recently contingent shares (Steenkamp & Wesson, 2018a). In Section 2.3, executive share-based remuneration and the financial theories underpinning it will be discussed. The types of share-based incentives, their accounting treatment and measurement, as well as global trends and previous studies regarding executive share-based remuneration, will be examined. Finally, the regulation and disclosure requirements of executive share-based remuneration in South Africa, as well as previous South African studies dealing with executive share-based remuneration, will be considered.

2.3.1 Executive remuneration in general

Remuneration of executives of listed companies has become a topic of interest to shareholders, regulatory authorities and other stakeholders, as well as the general public (Rankin, 2010, p. 241). The popular media have often criticised executive remuneration for being excessive and, more recently, for not being sufficiently linked to the financial performance of the company (Mans-Kemp & Viviers, 2018, p. 155, 160; Padia & Callaghan, 2020, p.1) – issues which were accentuated by the global financial crisis and corporate scandals (Padia & Callaghan, 2020, p. 1; Rankin, 2010, p. 242). In South Africa, these issues have been aggravated by the high wage inequality between the remuneration earned by executives and the remuneration of other employees (Collier, Idensohn, & Adkins, 2010; Viviers, 2015). On the other hand, however, remuneration could be employed as an incentive to focus executives' attention on the maximising of shareholders' value (Goergen & Renneboog, 2011, p. 1069) and increasing company performance (Murphy & Jensen, 1990). Effective remuneration of executives can increase company performance, leading to the creation of new jobs and the improvement of the overall South African economic situation (Steyn, 2015, p. 1). As such, ensuring that the executives of South African listed companies are appropriately remunerated has become important in many respects.

Executive remuneration consists of short-term and long-term payments, and usually contains a mixture of guaranteed and variable compensation (Goergen & Renneboog, 2011, pp. 1069–1070; PwC, 2019). Guaranteed pay is usually fully short-term (payable within a year of the date that the services have been rendered) and consists of salary, medical aid and pension contributions, allowances and other non-monetary benefits (e.g. free housing) (Steyn, 2015, p. 19; Urson, 2016, p. 27). As the name

suggests, guaranteed pay is not conditional and will be paid irrespective of the performance of the executive.

Variable pay, in contrast, is contingent upon the satisfaction of some performance condition (such as the revenue figure, EPS, or share price reaching a certain level). Variable pay can be divided between short-term incentives (which are usually paid annually and called bonuses) and long-term incentives (Steyn, 2015, p. 18). Short-term incentives are usually paid in cash, whereas long-term incentives are either paid in cash or in the company's own equity instruments. Long-term incentives are commonly share-based payments (SBPs) – i.e. the value of the payment depends on the change (increase) in the share price of the company (Urson, 2016, p. 27). Share-based remuneration of executives takes on a variety of forms, including share options, SARs and contingent shares (see more detail in 2.3.3). Share-based remuneration is seen as long-term as it usually vests (becomes payable) after a period of between three and five years (Steenkamp & Wesson, 2018a, p. 60).

2.3.2 Financial theories underpinning executive remuneration

Theories regarding executive remuneration were initially grounded in the agency theory. The agency theory centres on the division between ownership (shareholders) and control (managers and especially executives) in a company (Jensen & Meckling, 1976). Because of this division there is a need to govern and, in addition, incentivise executives to ensure that they act in the best interest of the shareholders. Firstly, corporate governance should ensure that executives that do not act ethically are identified and that corrective measures are taken; this will reduce agency risk (Dorff, 2005, p. 257). Secondly, agency theory has led to the development of financial incentives (and especially share-based remuneration) as an attempt to align the interests of shareholders and executives and so mitigate agency problems (Pepper & Gore, 2014). Under the agency theory, share options are expected to stimulate risky behaviour in otherwise risk-averse executives, and so reduce agency costs and increase company value (Martin, Gomez-Mejia, & Wiseman, 2013, p. 451). A definitive link between company performance and executive pay is proposed by the agency theory (Urson, 2016, p. 12).

The optimal contracting theory builds on the agency theory. It proposes that the executive labour market is akin to other labour markets, where the most qualified person is appointed and arms-length remuneration is then decided upon (Dorff, 2005, p. 261). Under optimal contracting, the executive remuneration packages seen in practice, provide effective incentives to executives (and so reduce agency risk), as the packages are developed by neutral boards (which include independent directors) (Dorff, 2005, p. 258). Appropriate structuring of the remuneration packages is done by choosing optimal proportions of guaranteed pay, short-term variable pay and long-term variable pay, as well as by employing appropriate performance vesting conditions to ensure alignment between shareholders

and executives' interests and to maximise shareholder value (Bebchuk, Fried, & Walker, 2002; Steyn & Cairney, 2016).

Opposing the optimal contracting theory is the managerial power theory. The managerial power theory centres on the assumption that certain executives (because of characteristics of the executive or the internal structure of the company) can influence their own pay, and that this will lead to an extraction of rents (payments exceeding the optimal level) from the company (Bebchuk et al., 2002), especially by using share-based remuneration (Avallone et al., 2014). This will lead to remuneration contracts being ineffective in mitigating agency costs as they are not at arms-length, and emphasises the importance of corporate governance in enforcing pay-for-performance (Bebchuk et al., 2002). Where the managerial power theory is at work, one should not expect to find a link between company performance and executive remuneration (Urson, 2016, p. 13).

In an attempt to better explain and comment on executive remuneration, other financial theories (which differ from each other and from the original agency theory) have been developed over the years. These include labour market theory, tournament theory and stewardship theory. Labour market theory emphasises the supply and demand of qualified executives and the remuneration required to attract the best individual for the position (Chalmers, Koh, & Stapledon, 2006). It argues that chief executive officer (CEO) pay is high because a limited number of people are willing and able to fulfil the role (Dorff, 2005, p. 262). The tournament theory is similar, and pivots on the fact that the executive has won the tournament and is remunerated for the job-level attained within the company (Bebchuk et al., 2002, p. 843). Tournament theory can also be used to explain pay differentials between employees at various levels within a company (e.g. CEO versus other executives or the average worker) (Ntim, Lindop, Osei, & Thomas, 2015). Both labour market theory and tournament theory are influenced by the fact that companies often benchmark their executive compensation against that of a peer group in the market (Steyn, 2015, pp. 15–16).

Stewardship theory differs substantially from agency theory (McConvill, 2006), in that it proposes that executives are more selfless than assumed by agency theory and rather see themselves as stewards of the company, being innately desirous of acting in the best interest of the company (Sun, Zhao, & Yang, 2010). According to this view, executives should not be incentivised as this would change their focus from the overall long-term success of the company to certain short-term perspectives (McConvill, 2006). Recently, some have proposed that agency theory needs to be adapted into a behavioural agency theory (which combines agency theory and some aspects of stewardship theory) (Martin et al., 2013). Behavioural agency theory proposes that share-based remuneration might be a sub-optimal motivator as executives are loss-averse and risk-averse, and dislike inequality (Pepper & Gore, 2015). Share-based remuneration is therefore of reduced value to the executives (relative to the actual

market value of share-based remuneration) (Pepper & Gore, 2014). Behavioural agency theory proposes a balanced mix between intrinsic and extrinsic motivators, as well as an emphasis on the performance of the individual executive rather than on that of the company (Pepper & Gore, 2015). Under the behavioural agency model, newly granted share options have the effect of stimulating risk-taking, but previously granted options (now close to vesting date) reduce risk-taking (Martin et al., 2013).

Another theory to consider is institutional theory which incorporates environment-specific factors when examining executive remuneration (Sahakiants & Festing, 2019). The economy, regulation, disclosure requirements, current practice, taxation and accounting rules could influence executive remuneration in a given environment (Hall & Murphy, 2003; Sun et al., 2010). Murphy (2013) found that government interventions (regulation, disclosure requirements, accounting rules and taxation changes) in reaction to the issues surrounding executive remuneration, themselves bring about certain changes. Asian countries and emerging economies have different executive remuneration structures, leading to some questions as to whether agency theory can explain executive remuneration in all environments (Sahakiants & Festing, 2019; Sun et al., 2010). Especially in emerging economies, institutional theory can be useful in explaining and understanding executive remuneration (Sahakiants & Festing, 2019). Bruce, Buck, and Main (2005) mention that institutional theory can draw together aspects of agency, managerial power and stewardship theories and provide an overall understanding of the changes in executive remuneration.

A final theory that is relevant to the present study is the upper echelons theory. While the upper echelons theory is not normally associated with executive remuneration per se, it could be useful in explaining why some executives engage in rent seeking behaviour. The upper echelons theory proposes that the characteristics of the executives influence their strategic actions and ultimately company performance (Hambrick & Mason, 1984). The executive characteristics include both the observable (for example: age, tenure, education, and experience) and the psychological (for example: personality traits and values) (Hambrick & Mason, 1984, p. 198; Wang, Holmes, Oh & Zhu, 2016, p. 777). Van der Zee and Swagerman (2009) took this thought process one step further and connected executive characteristics with ethical behaviour (or the lack thereof). Their reasoning was that the upper echelons theory proposes a link between executive characteristics and strategic actions, with the strategy of the company determining its targets and how executives are remunerated. Van der Zee and Swagerman (2009, p. 31) postulated that young executives, with a short tenure, could feel pressured to meet certain strategic targets on which their remuneration is based, and were thus more likely to engage in unethical and manipulative behaviour.

2.3.3 Characteristics of common share-based remuneration

Different types of instruments are employed as share-based remuneration globally. Some share-based remuneration schemes are classified as appreciation schemes (as they reward only for the increase in the share price), while others are classified as full quantum schemes (as they remunerate based on the entire value of the share) (Steenkamp & Wesson, 2018a, p. 49). When comparing appreciation schemes (such as share options, SARs and share purchase plans) and full quantum schemes (such as deferred bonus schemes and contingent share plans), the following differences are noted (Mavrodinov, 2012, p. 25; PwC, 2015; Steenkamp & Wesson, 2018a):

- Full quantum schemes expose executives to both upside gain and downside risk, while appreciation schemes compensate exclusively for increases in the share price without exposure to losses if the share price decreases.
- Share options (the dominant type of appreciation scheme) are derivative instruments and increase risk-taking by the holders thereof, while the same cannot be said of full quantum schemes, which are non-derivative instruments. Some propose that the risk-taking facilitated by share options is desirable (because executives are naturally risk-averse), while others feel that share options induce excessive risk-taking.
- Executives who hold appreciation scheme instruments (such as share options) are more likely to engage in share repurchases than pay out dividends. However, certain full quantum schemes (those where ownership is transferred on grant date although the share may still be forfeited) do not affect the proportion of shareholder distributions made up of share repurchases and dividends.
- When the schemes are equity-settled (i.e. settled through the company issuing shares), appreciation schemes are more EPS-dilutive, as more shares have to be issued to transfer a certain value.

When discussing share-based remuneration, it is important to consider several dates that occur during the life of such an award. The first important date is the grant date (when the awards are contractually promised to the employees and the vesting conditions are set); the second is the vesting date (when the employee meets all vesting conditions and becomes unconditionally entitled to the award); and the third is the exercise date (when the employee exercises the award and receives the shares or cash) (Massie et al., 2014, p. 3). The vesting date and the exercise date might be the same date, or alternatively the exercise date could occur at some point after the vesting date. Vesting conditions almost always include that the executive must stay in service during the vesting period (referred to as a service vesting condition). In addition, performance vesting conditions (hereafter referred to as performance conditions) have become increasingly common (Steenkamp & Wesson, 2018a). The

common types of share-based remuneration schemes will now be discussed with the aforementioned dates and vesting conditions as background.

2.3.3.1 Appreciation scheme: Share options

Share options were the most common form of share-incentive during the 1990s and early 2000s (Steenkamp, Dippenaar, Fourie, & Franken, 2019, p. 3). What is commonly referred to as a share option, is in fact an option written by the company which entitles the holder thereof (the executive) to buy shares in the company at a pre-determined exercise price (Hall & Murphy, 2002). The executive is granted the option, and takes ownership thereof after the completion of a vesting period (during which the executive has to remain in service for the share option to vest) (Steenkamp & Wesson, 2018a, p. 49). After the vesting date, the executive usually has a lengthy exercise period in which to exercise the option (Mavrodinov, 2012, p. 13,15). The share option holds value for the executive if it is 'in the money' i.e. if the exercise price is lower than the current share price. As share options are often granted 'at the money' (i.e. at an exercise price equal to the share price on the grant date), they effectively remunerate executives for the increase in the share price between grant date and exercise date (Steyn, 2015, p. 22).

Share options lead to large gains during a bull market, and may then reward executives for general market movements rather than the individual performance of the company (Mavrodinov, 2012, p. 6). Share options that are indexed to the market (where the exercise price is set equal to the grant date share price adjusted for general market movement over the period) is a way to employ options but still control for the general market movement, and only reward executives for above-market performance (Hall & Murphy, 2003). However, indexed options are rarely used (Hall & Murphy, 2003). Share options are usually equity-settled and not tax deductible for the company (employer) in South Africa (Steenkamp & Wesson, 2018a, p.50), unless the scheme qualifies as a broad-based employee share plan (Mavrodinov, 2012, p. 22).

2.3.3.2 Appreciation scheme: Share appreciation rights

Share appreciation rights (SARs) are effectively cash-settled share options, where the cash pay-out received by the executive equals the increase in the share price from grant date to exercise date (Massie et al., 2014, p. 5). SARs vest after the completion of a service period and, in addition, performance conditions are sometimes applied (Steenkamp & Wesson, 2018a, p. 60). The advantage of SARs over share options is that no dilution of current shareholders' interest occurs and that SARs are deductible for tax purposes in South Africa, although the disadvantage is the cash outflow required to settle the obligation (Mavrodinov, 2012, pp. 22–23).

2.3.3.3 Appreciation scheme: Share purchase plans

A share purchase plan allows executives the opportunity to buy shares in the company on credit, through the company granting a loan to finance this purchase. The shares are granted or acquired at a certain price, but the executive does not pay the price immediately as this amount is credited to a loan account with the company (Mavrodinov, 2012, p. 23). The executive only needs to repay the loan by a later date and then takes ownership of the shares. Effectively, a share purchase plan is similar to a share option plan – as the executive gains the increase in share price from grant date to the date the loan is repaid, because the executive pays the original price credited to the loan account – and is accounted for as such (Steenkamp & Wesson, 2018b, p. 4).

2.3.3.4 Full quantum scheme: Contingent shares

A contingent share plan (in contrast to share options, SARs and share purchase plans) is a full quantum scheme, i.e. the executive receives the full value of a company share at the exercise date, and not only the increase in a share's value from grant date to exercise date. The executive needs to stay in service throughout a pre-determined vesting period (and possibly also comply with certain performance conditions) after which the executive receives shares in the company (at no cost) on the vesting date (Steenkamp & Wesson, 2018b, p. 4). The vesting date and the exercise date are thus the same date. If the vesting of the scheme only requires the executive to stay in service for a number of years, but does not require the meeting of certain performance targets, the scheme is referred to as a restricted share plan (Steenkamp & Wesson, 2018a, p. 50). If performance targets are added, the scheme is referred to a performance share plan (Steenkamp & Wesson, 2018a, p. 50). The performance targets (called performance conditions) can be divided into non-market conditions (those not based on the share price, for example if based on EPS) and market conditions (those based on the share price) (IASB, 2017d).

Some schemes are structured so that the executive receives the shares upfront (on grant date) and will forfeit them if the service and performance conditions are not met (called forfeitable share plans for tax purposes) (Steyn, 2015, p. 20). An executive who has received a forfeitable share has the right to vote and receive dividends from the grant date (Steyn, 2015, p. 20). Other schemes only provide the executive with the shares on the vesting date (called conditional share plans for tax purposes) (Steyn, 2015, p. 20). These schemes are usually equity-settled and therefore no tax deduction can be claimed by the company (unless the scheme qualifies as a broad-based employee share plan) (Mavrodinov, 2012, p. 22). Similar to share options, the benefit of contingent shares is the absence of cash outflow accompanying them, but the downside is the dilution of current shareholders' interest that occurs when additional shares are issued.

2.3.3.5 Full quantum scheme: Phantom shares

When an executive receives the cash value of a share on the exercise (or vesting) date, instead of the actual share itself, this is referred to as a phantom share scheme (Massie et al., 2014, p. 5). Similar to a SAR (which is the cash-settled version of an option), the phantom share is the cash-settled version of a contingent share. As with SARs, the cash payout would be deductible for the company for taxation purposes, but the downside is the cash outflow required to settle the phantom shares.

2.3.3.6 Full quantum scheme: Deferred bonus plans

Some entities offer their executives the opportunity to defer a portion of their annual (short-term) bonus into shares. An executive would then forfeit a cash bonus, but in exchange receives shares at a later date, provided that certain vesting conditions are met (Massie et al., 2014, p. 5). To make it attractive for the executive, the number of shares to be received is generally a multiple (e.g. double) of the value of the cash bonus forfeited (Mavrodinov, 2012, p. 25).

2.3.4 Effective design of share-based remuneration schemes

Poorly designed incentives may increase rather than reduce agency costs. Poor design could include using inappropriate types of incentives (appreciation versus full quantum), employing performance conditions that can be manipulated, and choosing badly designed thresholds for performance conditions (Murphy & Jensen, 2011). Recently there has been a move away from appreciation schemes (share options and SARs) towards full quantum schemes (contingent shares) – as holding actual shares allow executives to be rewarded in the same way as shareholders (Steenkamp & Wesson, 2018a). Moreover, appreciation schemes have not been as successful as hoped in properly incentivising executives (PwC, 2015). Murphy and Jensen (1990), Dittman and Maug (2007) and Beck (2016) advised that executives should rather hold material investments in company shares (rather than being offered share options). Dittmann and Maug (2007) ascribed the prevalent use of share options to rent extraction by executives.

The performance conditions employed should be chosen carefully as they will focus the executive's actions and energy only on certain aspects of company performance, which will naturally lead to a decreased concentration on other aspects (Gibbs, 2012). A possible solution is using a number of performance conditions that sandwich together and so fix the executive's attention on multiple performance measures. Ideal performance conditions should reflect the executive's performance accurately and completely, and exclude aspects that are out of the control of the executive (Gibbs, 2012). The ideal performance measure is the individual contribution that the executive adds to the value of the company – unfortunately this is very difficult to measure (Murphy & Jensen, 2011, p. 27).

The share price of the company is often used as performance condition, although it is influenced by many factors beyond the executives' control (Gibbs, 2012). The company's share price movement relative to the movement of the entire stock exchange or subsector thereof would be more appropriate. Accounting earnings is used often, but is prone to manipulation (smoothing) and furthermore ignores the cost of capital (Murphy & Jensen, 2011, pp. 28–29). Ratios, such as EPS, are also often employed, but cause even more problems as both the numerator and denominator can be manipulated to reach the target – this could be detrimental to company value if the executive seeks to alter the denominator (e.g. through repurchasing shares to increase the EPS figure) (Murphy & Jensen, 2011, p. 29). Another possible solution is basing the performance conditions on so-called economic profit (the operating profit after allowing for cost of capital) (Murphy & Jensen, 2011, p. 33).

In addition to choosing the correct performance conditions, the thresholds or targets of these conditions should be set appropriately (Murphy & Jensen, 2011). Thresholds must be set at appropriate levels (not too high and not too low). If the threshold is set too low, it does not really incentivise executives to expend energy and the executives do not want to surpass the threshold by too much, as they are concerned that this will increase the threshold for subsequent periods (Murphy & Jensen, 2011, pp. 5–7). The threshold should not be determined by using budgets and figures of prior years, but should rather be based on peer groups (as long as the peer groups are not selected by the executives themselves) (Murphy & Jensen, 2011, p. 19, 23).

Additional problems may arise if a fixed-threshold performance condition is employed (e.g. the EPS must be R5.00 before the options vest – before this level is met the executive does not qualify for the incentive, and any subsequent increase above the set level does not lead to additional remuneration) (Murphy & Jensen, 2011, pp. 5–7). Examples of the possible negative effects of fixed thresholds include (Murphy & Jensen, 2011, pp. 5–7):

- When the specific performance target has already been met (or the executive feels that the benchmark is not possible to meet), this might encourage executives to withhold effort (not engage in new projects) to save the positive effects of new projects for the next measurement period.
- When the specific performance measure is close to meeting the required target, the executive would be incentivised to manipulate figures or engage in projects with a negative value for the company just to meet the target, without considering other factors such as the cost of capital.

A more linear relationship between the performance condition and the reward should be used (for example, as soon as a minimum threshold is met, every increase above the threshold leads to additional rewards or more shares) (Murphy & Jensen, 2011, p. 12). If the thresholds are not appropriately set, it could lead to the manipulation of accounting figures and the share price (the

performance condition), excessive risk-taking, not undertaking projects with positive net present cash flows, and ignoring the internal cost of capital (Murphy & Jensen, 2011).

2.3.5 The accounting treatment and measurement of executive share-based remuneration

The accounting treatment of share-based remuneration has always been a contentious issue. Globally, most listed companies either apply the accounting rules of IFRS, which are issued by the IASB, or Generally Accepted Accounting Principles for US companies (US GAAP), published by the Financial Accounting Standards Board (FASB). After a long process, the IASB issued IFRS 2 *Share-based payments* (IASB, 2017d) in 2004 to prescribe the accounting treatment of SBPs in general (including executive share-based remuneration) for financial years ending on or after 31 December 2005. The FASB also issued FAS 123R (subsequently renamed ASC 718 *Compensation – Stock compensation*) which was effective for financial years commencing after 15 June 2005 and provides rules similar to those of IFRS 2, but for US companies (Bettis, Bizjak, Coles, & Kalpathy, 2018; Hopkins & Lazonick, 2016). Given that South African listed companies have to apply IFRS in their annual financial statements, most of the discussion below centres on the accounting requirements contained in IFRS 2, but, additionally, brief mention is made of the US requirements.

2.3.5.1 Before the effective date of IFRS 2

Before the effective date of IFRS 2, equity-settled share-based remuneration paid to executives was not expensed in the annual financial statements of companies applying IFRS, although most companies did disclose some details regarding the share-based remuneration paid (Pretorius & De Villiers, 2013). Cash-settled share-based payments were employed infrequently, as they would have been expensed even before the effective date of IFRS 2. Under US GAAP, share options were also not expensed before 2005 if granted 'at the money' (i.e. at an exercise price equal to grant date fair value of the share under option) – as was commonly done (Geiler, 2012, p. 21). The predominant type of scheme in the 1990s and early 2000s was share options (Mavrodinov, 2012) and the popularity of share options was probably fuelled, at least in part, by its favourable accounting treatment (Hall & Murphy, 2003).

2.3.5.2 The development of IFRS 2

Share options (and other equity-settled share-based remuneration) to employees are substantially the same as other payments made to employees (such as salaries) and should therefore be expensed in a company's annual financial statements (Sacho & Wingard, 2004) as this provides relevant, reliable and comparable financial information (Fisher & Wise, 2006). Based on this argument, IFRS 2 concluded that it is appropriate to expense equity-settled SBPs (IASB, 2017d).

After the initial debate regarding whether equity-settled share-based remuneration of executives should be expensed, a secondary debate raged regarding how the expense should be calculated (i.e.

when the value of the share-based remuneration should be measured, to then expense it over the vesting period) (Grey, Cotter, & Barnes, 2002). The measurement is problematic as it is a bartering transaction (employee services for shares) – the measurement of which needs to be determined by accounting rules (Guay, Kothari, & Sloan, 2003). Equity-settled share-based remuneration could be measured at the grant date, the vesting date, or the exercise date. The precise value of the SBP is only known on the exercise date, but is unconditionally due at vesting date (Grey et al., 2002) and conditionally due at the grant date.

Sacho and Oberholster (2005) argued that exercise date accounting would be more appropriate for the recognition of equity-settled SBPs to employees than grant date fair value. Their motivation included that the economic substance of the transaction was similar to that of a liability, and exercise date accounting would therefore reconcile the actual amount received by employees to the expense in the annual financial statement and would lead to simpler accounting treatment (Sacho & Oberholster, 2005). Furthermore, it could be argued that no share option or share exists during the vesting period (it is then still contingent upon the satisfying of the vesting conditions) – and the claim is a contingent one for which a variable number of shares will vest (the number of shares for which vesting conditions are satisfied) (Ohlson & Penman, 2005). In the end, the IASB settled this debate by ruling that equity-settled SBPs to employees should be recognised at the grant date fair value (IASB, 2017d).

2.3.5.3 Measuring share-based remuneration under IFRS 2

IFRS 2 distinguishes between three types of SBPs: equity-settled, cash-settled and choice-settled. Equity-settled SBPs are those SBPs which will eventually be settled in the company's own shares, while cash-settled SBPs will be settled in cash with the value of the cash being determined by the company's share price in some manner (IASB, 2017d). Choice-settled SBPs are less common and provide either the company or the counterparty with the choice on how the SBP should be settled eventually – either using cash or using shares (IASB, 2017d). Table 2.2 explains the accounting treatment of the three types of SBPs, as they pertain to transactions with employees (including executives).

Table 2.2

IFRS 2 accounting treatment relating to share-based payments (Steenkamp & Wesson, 2018a, p. 48)

Type of share-based payment	Accounting treatment
Equity-settled	The fair value of the share or share option granted is measured once only, at grant date. Every year, the annualised grant date fair value (the grant date fair value divided by the number of years in the vesting period) is then recognised as expense and equity reserve. When exercised, the equity reserve is transferred to share capital. No subsequent remeasurement takes place if the fair value changes subsequent to grant date.
Cash-settled	At every reporting date until the instrument has been settled, the fair value of the instrument is determined (this fair value would probably change over time). A liability is recognised, and remeasured at each reporting date. The liability's value at a certain reporting date equals the fair value at that reporting date multiplied by the percentage of the vesting period that has been completed. The remeasurement of the liability is recognised as an expense, and is a result of both the passage of time and the fair value of the instrument changing. Upon settlement (payment of cash) the liability is derecognised.
Choice-settled	Usually the choice of settlement (in cash or shares) rests with the company, and then the SBP's accounting treatment matches that of equity-settled SBPs during the vesting period, with some differences on exercise date.

IFRS 2 does not prescribe the use of any specific technique in determining the fair value of equity-settled SBPs on grant date or the fair value of cash-settled SBPs on reporting date (IASB, 2017d). Option pricing models, such as Black-Scholes and Binominal, are often used to value share options (and other equity-settled share-based remuneration) on grant date because no quoted market price is available for these instruments (Hall & Murphy, 2002; Steyn, 2015, pp. 22–23). However, executive share options differ extensively from conventional traded options (which the option pricing models were intended to value), given that they are non-tradeable and have long exercise periods, but are usually exercised earlier in the exercise period (Hall & Murphy, 2002). Aspects to be considered are the risk-free interest rate, current value of shares, exercise price (if any), volatility of share price, expected dividends, length of vesting and exercise period, and the probability of performance conditions being met, if applicable (IASB, 2017d; Steyn, 2015, pp. 22–23).

It is important to note, from Table 2.2, that recognising equity-settled SBPs at the grant date fair value (irrespective of later changes in the fair value) could lead to the value actually realised by executives on the exercise date differing substantially from the amount expensed in the annual financial statement (Murphy, 2013). In a typical bull market, employing the grant date fair value as measure would understate the value that executives derive from share-based remuneration. The potential difference between grant date fair value and exercise date fair value emphasises the importance of

extensive financial statement disclosure regarding the value that executives actually derive from share-based remuneration during the reporting period (Hopkins & Lazonick, 2016). As IFRS 2 does not require disclosure of the value realised on exercise date (IASB, 2017d), it is imperative that this disclosure should be prescribed by other sources (such as listing requirements or corporate governance frameworks).

In the US, however, the disclosure requirements sometimes exacerbated the confusion between grant date and exercise date value (for some incentives the grant date value should be disclosed, and for some the exercise date value) (Murphy, 2013, pp. 219–220). In South Africa, a similar situation was noted in respect of the disclosure of share-based remuneration paid to individual executives. The previous Companies Act 61 of 1973 prescribed that the gain on exercise of share options be disclosed (Republic of South Africa, 1973), while the current Companies Act 71 of 2008 requires the disclosure of the "value" of all share-based remuneration, without determining how and when this should be measured (Republic of South Africa, 2008). Some South African companies disclose the exercise date value, while others disclose the grant date fair value, or employ a mixed method (Dippenaar & Steenkamp, 2017). The disclosure requirements pertaining to per-director disclosure of share-based remuneration will be further discussed in Section 2.3.5.

Murphy (2013) noted that when and how to measure share-based remuneration remains one of the most contentious and important issues surrounding executive compensation. As IFRS 2 recognises equity-settled share-based remuneration based on the grant date fair value of such incentives, most academic research has followed suit (Murphy, 2013, p. 218), although some have used the IFRS 2 expense or the value on exercise date (Urson, 2016). In reviewing the previous research on executive share-based remuneration, it is critical to consider the measurement basis employed.

2.3.5.4 The recent review of IFRS 2

Although the accounting treatment prescribed by IFRS 2 is generally well-accepted, the IASB has received an abnormally large number of interpretation requests regarding IFRS 2 and in 2012 earmarked IFRS 2 for further research (IASB, 2015). During this research project (which lasted from 2012 to 2016) the IASB found that one of the main problems surrounding IFRS 2 is using grant date fair value in accounting for equity-settled SBPs with employees (IASB, 2016). During the research project, alternative classification and measurement methods were considered for equity-settled SBPs to employees. After developing the alternatives, the IASB decided to halt the IFRS 2 research project, as commentators felt that IFRS 2 was operational and significant changes could only be considered after the conclusion of the ongoing research project on *Financial instruments with characteristics of equity (FICE)* (IASB, 2016). A discussion paper on FICE has been published and comments have been gathered,

but the further direction of the project will only be determined during 2020 (IASB, 2019). As yet, no exposure draft or finalised IFRS is forthcoming based on the FICE project.

2.3.6 Global trends regarding executive share-based remuneration

Globally, companies are increasingly employing share-based remuneration for executives and this has probably contributed to the sharp rise in overall executive compensation (Pepper & Gore, 2014). The global trend regarding executive share-based remuneration will now be discussed (in terms of the types of share-based incentives which were common in the last 30 years, and the quantum of remuneration comprising share-based incentives). The US is probably the most studied country in this regard (Qu, Percy, Stewart, & Hu, 2016), followed by the UK and other Western European countries. However, some mention will also be made of the trends in developing countries.

2.3.6.1 The United States

In the US, share options were already widely used during the 1990s (Fisher & Wise, 2006) and were the pay component with the highest value during most of this period (Hall & Murphy, 2002). Factors that probably contributed to the extensive use of share options during the 1990s were: the non-recognition of share options as expense items before the effective date of FAS 123R; the favourable tax treatment of gains in the hands of executives; and the prevailing bull market in the 1990s (Hall & Murphy, 2003). After the Enron scandal in 2001, regulators and stakeholders identified share options as a possible aggravating factor (Murphy, 2013). This event started the US out on a road of instituting corporate governance regulations and mandatory accounting recognition which altered the structure and characteristics of share-based remuneration in the US during the first decade of the new millennium (Fisher & Wise, 2006). From 15 June 2005, companies in the US were required to expense share options granted as a result of FAS 123R being issued (Murphy, 2013). This levelled the playing field between share options (previously unrecognised as expenses in financial statements) and contingent shares (which had been recognised as expenses in financial statements since 1972), and caused a decrease in the use of share options and an increase in the use of contingent shares during the last part of the 2000s (Murphy, 2013).

In the years 2006 to 2010, share-based incentives were used extensively and made up 45 per cent of executive earnings in 2006 and 48 per cent in 2010 (Pepper & Gore, 2014). By 2014 this percentage had increased to 62 per cent (if share-based incentives are measured using the grant date fair value) or 81 per cent (if share-based incentives are measured using the value realised on exercise date) (Hopkins & Lazonick, 2016). The substantial difference between the grant date fair value and the value realised on exercise date emphasises the need to disclose the realised value, especially when share-based remuneration is equity-settled and recognised based on the grant date fair value.

Performance conditions were increasingly used, especially after the effective date of the FAS 123R (Bettis et al., 2018). By 2018, most companies employed two or three different incentive schemes, with performance share schemes being most popular, followed by restricted shares and then share options (Meridian Compensation Partners, 2018, p. 19). The performance conditions employed most often were based on TSR (53% of companies), EPS, and operating income (indexed to those of a peer group) (Meridian Compensation Partners, 2018).

2.3.6.2 The United Kingdom and the rest of Western Europe

In the UK, 40 per cent of executive earnings in 2006 were attributable to share-based incentives, with this figure increasing to 50 per cent in 2010 (Pepper & Gore, 2014). By 2015, over 60 per cent of the remuneration received by a sample of UK executives was attributable to share-based pay (if one measures the share-based incentives based on the fair value on exercise date) (Kotnik, Sakinç, & Guduras, 2018, p. 10). This trend of share-based incentives increasing can also be found in most Western European countries (Pepper & Gore, 2014). Kotnik et al. (2018, p. 10) reported that, by 2015, 51 per cent of executive remuneration was share-based in a study that combined companies from the UK, France, Germany, Sweden and Italy. The percentage was highest in the UK (60%), slightly lower in France (58%) and Sweden (42%), and substantially lower in Germany (29%) and Italy (14%) (Kotnik et al., 2018, p. 10). These varying percentages emphasise the heterogeneity that exists between countries – as pointed out by institutional theory.

In 2005, before the effective date of IFRS 2, share options were the prevalent type of share-based incentives offered (Avallone et al., 2014). Evidence from Italy suggests that the adoption of IFRS 2 did not significantly decrease the usage of share options, but rather that share option usage decreased during the global financial crisis (Avallone et al., 2014). By 2015, the most common form of share-based incentive was contingent shares, and share options were rarely employed (in France, however, share options were still often used) (Kotnik et al., 2018, p. 9). Even before they became prevalent in the US, performance conditions were common in the UK, already being employed in the early 2000s (Carter, Ittner, & Zechman, 2009). By 2019, around 75 per cent of the top 250 UK companies employed performance conditions that were based on either TSR or profit metrics (including EPS), or both (WillisTowersWatson, 2019).

2.3.6.3 Other countries

Executive remuneration trends in Asian countries and developing countries might differ from those in the US, UK and Western Europe, and are relatively less researched (Sahakiants & Festing, 2019; Sun et al., 2010). Some Chinese firms use share-based remuneration, but in Japan, share-based remuneration has never been widely accepted (Pepper & Gore, 2014), with only between 15 and 20 per cent of executive remuneration being share-based (Morikuni, 2018). However, since 2016 companies have

been able to issue restricted shares to executives, and by 2018 the number of restricted share plans exceeded the number of share option plans (Morikuni, 2018), signalling a possible increase in future share-based remuneration.

Less is known about the value of executive share-based remuneration in developing countries, as the disclosure thereof is even less detailed (Mercer, 2014). For example, in Malaysia, disclosure of executive remuneration per director is not mandatory (Jaafar, Nawawi, & Salin, 2014). This makes data regarding share-based remuneration trends difficult to obtain. However, share options were in usage in Malaysia when IFRS 2 became effective (Atan, Jasni, & Shahwan, 2010), and still seem to be used in India (Seth, 2018). Much of the research on executive remuneration in developing countries ignores share-based remuneration, and focuses solely on guaranteed remuneration, such as salaries and benefits. The trends relating to executive share-based remuneration in South Africa will be discussed in Section 2.3.9.

2.3.7 Previous global studies on executive share-based remuneration

Much of the previous global research on executive remuneration tended to consider:

1. The link between corporate performance (past, current and future – measured by using different proxies) and executive remuneration (including or excluding a measure for share-based remuneration); and
2. The company or executive characteristics (including corporate governance) that determine the size and structure of executive remuneration.

Some of the research conducted in relation to the above-mentioned two main focus areas has included share-based remuneration as part of executive remuneration. However, probably because of its complexities, most earlier studies excluded share-based remuneration when measuring executive remuneration (Ntim et al., 2015, p. 68; Steyn, 2015, p. 1). Research done specifically on share-based remuneration has considered the appropriate accounting treatment of share-based remuneration (discussed in Section 2.3.5) and the characteristics of share-based remuneration over the years (discussed in Section 2.3.6). The link between employing share-based remuneration and the manipulation of earnings and share price metrics, as well as share repurchases, has also gained increased research attention in the last few years (Avallone et al., 2014).

Most previous studies deal only with the CEO as a proxy for all executives (Steyn, 2015, p. 8), although some variation is noted between the CEO, the next highest paid executive and those lower down in the hierarchy (seen as a group) (Rankin, 2010, p. 242). The following section will discuss some pertinent findings of previous studies which pertain to executive share-based remuneration.

2.3.7.1 Pay–performance link

An important theme in recent research in the field of executive remuneration has centred on the so-called pay–performance link (i.e. whether higher executive remuneration can be linked to improved company performance) (Mans-Kemp & Viviers, 2018). Murphy and Jensen (1990) initiated this debate by advocating that the large amounts being paid as executive remuneration do not represent the main problem, but rather the fact that executive remuneration and company performance appear to be unrelated. So far, research has failed to establish a strong link between total executive pay and company performance, and this has left many scholars questioning whether agency theory can fully explain the quantum of executive remuneration, especially in times of financial crisis (Pepper & Gore, 2015).

Executive pay is, however, more strongly linked to company performance (measured by the share price) when share-based remuneration is employed (Hall & Murphy, 2002; Ntim et al., 2015). Moreover, using performance conditions could improve this link (Qu et al., 2016). However, most of the previous research has excluded share-based remuneration as part of the proxy for executive remuneration (Ntim et al., 2015). To test whether (actual) company performance and executive pay are correlated, it would be more appropriate to include the actual value realised from SBPs exercised in the remuneration proxy, and not the fair value of awards granted during the year (as the grant date fair value is more important when structuring executive remuneration beforehand) (Murphy, 2013, p. 219).

2.3.7.2 Determinants of share-based remuneration

Company size (as proxied by market capitalisation or total assets) remains the number one determinant of executive remuneration, including share-based remuneration (Gabaix, Landier, & Sauvagnat, 2014; Walker, 2010), with larger companies being more likely to employ share-based remuneration (Steyn & Cairney, 2016). In addition, larger companies are more likely to attach performance conditions to their share-based remuneration (Bettis et al., 2018). Some characteristics pertaining to the executives themselves may also influence share-based remuneration, for example CEOs who are more powerful and have been in tenure for longer periods often have vesting conditions that are easier to attain (Qu et al., 2016). However, effective corporate governance may curb the effect of executive characteristics on share-based remuneration.

On observing that “executive compensation forms a litmus test for corporate governance law’s effectiveness”, Dorff (2005) went on to make the point that “[t]he interests of management and shareholders diverge most sharply in this arena, where every dollar taken from shareholders transfers directly to management”. Companies with better corporate governance are more likely to employ appropriately designed share-based remuneration that aligns the interests of the shareholders and

executives (Bebchuk, Grinstein, & Peyer, 2010). Improved corporate governance leads to longer vesting periods and the increased usage of performance conditions (Qu et al., 2016). Moreover, shareholder activism can lead to increased disclosure and transparency regarding share-based remuneration in annual financial statements and in this way shape a company's policies regarding this critical aspect of executive remuneration (Mans-Kemp & Viviers, 2018; Viviers, 2015).

2.3.7.3 Possible manipulation as a result of share-based remuneration

Financial incentives were originally instituted to reduce agency problems, but may cause more problems than they solve (Mans-Kemp & Viviers, 2018). Shareholders and regulators have become concerned that share-based remuneration might encourage, rather than stifle, self-serving and fraudulent behaviour in executives (Qu et al., 2016; Sahakiants & Festing, 2019). For example, during the 2000s it became known that executive share options were sometimes repriced or backdated (Arya & Sun, 2004; Bernile & Jarrell, 2009). This repricing or backdating was often orchestrated by executives to increase their own remuneration and negated the incentive purpose of executive share-based remuneration (Adam & Schwartz, 2009; Arya & Sun, 2004). Furthermore, granting appreciation scheme instruments, such as share options, might lead to a short-term focus and opportunistic behaviour (Gopalan, Milbourn, Song, & Thakor, 2014).

Most performance conditions and incentives provide opportunity for manipulation and unethical behaviour (Rodgers & Gago, 2003, p.189–190; Jacquart & Armstrong, 2013) and, as such, the design of optimal incentives with appropriate performance conditions has become important (Qu et al., 2016). During the last decade full quantum schemes (Steenkamp & Wesson, 2018a), which more closely align the financial interests of shareholders and executives have become more prevalent. The performance conditions employed, however, are most often based on EPS and TSR, which are open to manipulation through earnings management and the excessive repurchasing of shares (Murphy & Jensen, 2011).

Bebchuk et al. (2002) were first to link share-based remuneration to possible rent extraction by executives. They pointed out that share-based remuneration allows executives many opportunities to influence their own pay. Share-based remuneration is intrinsically linked to the share price and, with performance conditions also becoming common, executives can enhance their own pay in two major ways: by manipulating the share price (through share repurchases, for example) or by artificially enabling performance vesting targets to be met (for example, through earnings management when the vesting is contingent upon EPS). Studies have found evidence of discretionary accruals to manage earnings (Bergstresser & Philippon, 2006) and share repurchases to increase EPS, where EPS targets are employed for share-based remuneration (Farrell, Unlu, & Yu, 2014; Farrell, Yu, & Zhang, 2013; Hribar et al., 2006; Young & Yang, 2011). Goergen and Renneboog (2011) reviewed the existing

literature on share-based remuneration and found that rent extraction by executives provided the most plausible explanation for the practices found in the share-based remuneration landscape. It has been hypothesised that executive pay and company performance will only be related (and so reduce agency costs) in a strong corporate governance environment (Ntim et al., 2015), while in an environment with weak corporate governance, rent extraction will prevail (Goergen & Renneboog, 2011).

2.3.8 The regulation and disclosure of executive share-based remuneration in South Africa

Luiz (2006) mentioned the following as key requirements relating to the governance of executive remuneration in its totality: detailed disclosure regarding individual remuneration; independent remuneration committees that determine the structure and size of remuneration; an established link between pay and company performance; and shareholders having a voting right on remuneration policy. Executive remuneration is becoming increasingly regulated in South Africa. By 2020 all the requirements identified by Luiz (2006) had been included in the corporate governance regime applicable to the executive remuneration of South African listed companies. King IV, which came into effect from March 2018 year ends onwards, has prescribed requirements regarding all these issues (IoDSA, 2016). However, not all the requirements mentioned by Luiz (2006) were addressed by corporate governance regulations throughout the period under review (2002–2017).

This section covers only the disclosure and other requirements relating specifically to executive share-based remuneration (and not all executive remuneration in general) in South Africa during 2002–2017, as this is the aspect of corporate governance relevant to this study. If one considers share-based remuneration specifically, extensive disclosure regarding the extent of the share-based remuneration (in both number and value) is critical. Furthermore, comprehensive information is needed on the nature and functioning of the share-based remuneration schemes, as well as the vesting conditions employed.

When one specifically considers the share-based remuneration of executives, the following regulations need to be taken into account: IFRS 2 (IASB, 2017d), the JSE Listing Requirements (JSE, 2017a), the previous Companies Act 61 of 1973 (Republic of South Africa, 1973), the current Companies Act 71 of 2008 (Republic of South Africa, 2008), and the King Reports on corporate governance in South Africa (King II, III and IV) (IoDSA, 2002, 2009, 2016). King IV was not effective during the target period of the present study (it is effective from reporting dates which end on or after 31 March 2018). However, King IV is also discussed in this section as it has provided much improved requirements on the value of share-based remuneration earned by and owed to individual executives.

2.3.8.1 Disclosure of individual executive's remuneration

Disclosure of the remuneration received by individually named executives provides detailed and useful information that can hold executives accountable and so deter excessive remuneration, but allows for benchmarking which may again lead to increasing levels of remuneration (Madlela & Cassim, 2017, pp. 387–388). It is important that both the number of instruments involved, as well as the value thereof, should be disclosed.

The disclosures prescribed by the JSE Listing Requirements pertain mainly to the number of instruments involved, and remained unchanged throughout the target period of the present study. In section 7.B.7 (i), the JSE Listing Requirements require disclosure (per named executive) regarding each type of share-based remuneration held by an executive (JSE, 2017a):

> in respect of share options or any other right given which has had the same or a similar effect in respect of providing a right to subscribe for shares ("share options"):
>
> (i) the opening balance of share options, including the number of share options at each different strike price;
>
> (ii) the number of share options awarded and their strike prices;
>
> (iii) the strike dates of differing lots of options awarded;
>
> (iv) the number of share options exercised and at what prices;
>
> (v) the closing balance of share options, including the number of share options at each different strike price.

Moreover, the JSE Listing Requirements prescribe (in section 7.B.7 (j)) that certain details be provided in respect of share purchase plans (JSE, 2017a):

> (j) any shares issued and allotted in terms of a share purchase/option scheme for employees (or other scheme/structure effected outside of the issuer which achieves substantially the same objectives as a share purchase/option scheme), usually held as a pledge against an outstanding loan to an employee in a share purchase scheme trust, which have not been fully paid for, including the number so issued and allotted, the price of issue and allotment, the release periods applicable to such shares and any other relevant information.

In South Africa, the disclosure requirements pertaining to the value of executive share-based remuneration is contained in company law (both the previous and current Companies Act) and corporate governance regulations (the King Reports). Several 'governance periods' can be identified

during the period of study (based on the various regulations that were effective during different periods):

- 1 January 2002 (start date of the study) to 28 February 2010: the previous Companies Act and King II were applicable;
- 1 March 2010 (effective date of King III) to 30 April 2011: the previous Companies Act and King III were applicable; and
- 1 May 2011 (effective date of current Companies Act) to 31 December 2017 (end date of the study): the current Companies Act and King III were applicable.

The previous Companies Act 61 of 1973, in section 297(2A)(g)(i), required companies to disclose the "gains made on the exercise of share options, the gain being the difference between the price paid for the shares and the market price of the shares on the date of exercise" (Republic of South Africa, 1973). This was required in a table format, showing separately the gains made by executive and non-executive directors; however, no disclosure per individual director was required (Republic of South Africa, 1973). But, from 2002, King II (IoDSA, 2002, p. 61) prescribed that "companies should provide full disclosure of director remuneration on an individual basis, giving details of earnings, share options, restraint payments and all other benefits". In 2002, this requirement in King II initiated a trend of disclosing all remuneration to directors on an individual basis, even the gain on share options required by the previous Companies Act (although individual disclosure was not required by the previous Companies Act).

King III (read together with its Remuneration practice note) extended the disclosure initiated by King II, and prescribed that the fair value of share-based remuneration granted during the year should be disclosed (IoDSA, 2009, 2012, p. 16). King III also noted that disclosure of the fair value of all outstanding share-based instruments at reporting date, as well as the value received on exercise of instruments during the year, could be regarded as best practice, although not required (IoDSA, 2012, p. 16).

The current Companies Act 71 of 2008 requires, in section 30(6)(e), that companies disclose per individually named director "the value of any option or right given directly or indirectly to a director" (Republic of South Africa, 2008). Thus, the current Companies Act has extended the requirement of the previous Companies Act (all share-based remuneration is included, not just share options) and requires per-director disclosure. Although the previous Companies Act was clear that it required the gain on the exercise of share options, the current Companies Act is less clear regarding how and when this value should be calculated. It could be interpreted as the fair value of all share-based remuneration granted, the value of all instruments that were exercised during the year, or even the IFRS 2 expense (Dippenaar, 2018). Considering that King III and the current Companies Act were drafted at the same

time, and that King III requires the disclosure of the grant date fair value (IoDSA, 2012), it can be assumed that the current Companies Act was alluding to the grant date fair value (Dippenaar, 2018).

Given that multiple sources required disclosure on the value of the share-based remuneration of individual executives during the target period (2002–2017), companies seem to be applying the requirements in various ways and formats in their annual financial statements, and the disclosure is sometimes still incomplete in some respects (Steyn & Cairney, 2016, p. 246; Urson, 2016, p. 57). By 2014 (i.e. after King III became effective), Dippenaar and Steenkamp (2017) found that some listed companies did not provide the value of share-based remuneration earned per individual director at all, while others provided inconsistent measures – some provided the IFRS 2 expense, some the fair value on exercise date and some the fair value on grant date. Even within one financial statement a single company could be using various measures for different schemes: for one scheme the grant date fair value would be disclosed per director, and for another the exercise date fair value (typically for options) (Dippenaar & Steenkamp, 2017). Steenkamp et al. (2019), in a study of companies listed in the Financial, Industrial and Basic Materials industries of the JSE, found that regulatory requirements relating to the disclosure of share-based remuneration on an individual level were not always complied with, especially by smaller companies. Companies also disclosed the value of share-based remuneration inconsistently, vacillating between grant date fair value, exercise date fair value, and the IFRS 2 expense (Steenkamp et al., 2019).

King IV (effective from 1 April 2017, i.e. for reporting periods ended on or after March 2018) explicitly requires the fair value of share-based remuneration granted, outstanding at reporting date and those that were exercised during the year (IoDSA, 2016). If complied with, these disclosures should enable appropriate monitoring regarding the value of executive share-based remuneration. Another key difference between the disclosures required by King III and King IV is that King III required a company to comply or otherwise explain why it did not comply. King IV, on the contrary, requires ‘apply and explain’, meaning that a company is expected to comply with the disclosures but, in addition, to explain how it has complied and calculated amounts used (Natesan & Du Plessis, 2019).

2.3.8.2 Requirements relating to the disclosure of performance conditions

Share-based remuneration schemes can be quite complex to annual financial statement users owing to the variety of scheme types employed in the market and the fact that performance conditions are increasingly being attached. IFRS 2 requires explicit disclosure of the nature of the scheme (i.e. its operation) and the vesting conditions (IASB, 2017d). King III advised that share-based remuneration should have a vesting period of at least three years (IoDSA, 2009).

Furthermore, adequate disclosure is needed on the performance conditions employed as well as on the actual performance of executives in respect of the chosen targets (when previously granted awards vest in the current reporting period). Mans-Kemp and Viviers (2018) conducted a study on the disclosures that JSE-listed companies provided regarding the actual performance of executives in relation to performance conditions that were set, and found that the number of companies that provided such disclosures increased over the period 2002–2015. However, much of the disclosure lacked depth and provided insufficient information to trigger shareholder activism in this regard (Mans-Kemp & Viviers, 2018).

King III required that performance conditions should be linked to shareholder value and company performance (preferably measured against a peer group) (IoDSA, 2009). Comprehensive disclosure of the performance conditions employed, as well as the reasons for their selection as vesting conditions, should be made (IoDSA, 2009). Moreover, the thresholds set in relation to the performance conditions should be on a sliding scale to reward basic, moderate and significant performance differently (IoDSA, 2009).

King IV firmly established the principle that separate disclosure should be made of the remuneration policy chosen and the implementation thereof – this would include the performance conditions chosen as well as the measurement of actual performance in relation to the chosen targets (IoDSA, 2016). King IV even advised that performance conditions should be based on economic, social and environmental measures (the so-called triple bottom line) instead of on pure financial metrics only (IoDSA, 2016).

2.3.8.3 Conclusion

King IV, especially, has stipulated extensive disclosures regarding the value of share-based remuneration, requiring that the value of share-based instruments granted during the year, exercised during the year and outstanding at the reporting date should be provided (IoDSA, 2016). Additionally, King IV requires disclosure regarding the link between executive remuneration and company performance – not only regarding financial performance, but also the so-called triple bottom line (IoDSA, 2016). From 2018 onwards, if companies comply with King IV, it would thus seem that stakeholders would have adequate information to monitor executive share-based remuneration effectively. It is critical, going forward, that financial databases adjust their capturing processes, to provide researchers with comprehensive information on the value of executive share-based remuneration. During the 2002–2017 period, IRESS only had the one line, ‘gain on shares’, which captured whatever value the company disclosed (which could be the gain on exercise, the IFRS 2 expense, or the grant date fair value).

2.3.9 Previous studies in South Africa regarding executive share-based remuneration

Although emerging markets are increasingly adopting the Western style of executive remuneration (including share-based remuneration) (PwC, 2015), most previous South African studies on executive remuneration have excluded share-based remuneration (Steyn & Cairney, 2016, p. 248). This was identified as a weakness in two recent studies, Urson (2016) and Steyn (2015). Moreover, much of the research deals exclusively with the remuneration paid to the CEO (Steyn, 2015, p. 8). A summary of the previous research papers in South Africa that have included share-based remuneration is shown in Table 2.3.

Most previous South African studies examined whether executive remuneration is linked to company performance (Bussin & Blair, 2015; Crafford, 2015; De Wet, 2012; Deysel & Kruger, 2015; Dommisse, 2011; Kirsten & Du Toit, 2018; Ntim et al., 2015; Steyn, 2015; Urson, 2016). Some of the studies investigated only the CEO's remuneration (Bussin & Blair, 2015; Deysel & Kruger, 2015; Dommisse, 2011; Steyn, 2015; Urson, 2016), while the others studied the remuneration of all executives.

The earlier studies (looking at the pay–performance link) did not pay much attention to the measurement of the share-based remuneration portion of executive remuneration, perhaps because share options were predominantly employed at that stage. In accordance with the previous Companies Act (read together with King II), the gain realised on the exercise of share options was typically disclosed in annual financial statements, and then captured by the IRESS financial database. When a study examined only CEO remuneration, the data were typically captured from financial statement remuneration reports or IRESS (Dommisse, 2011). An earlier study that considered the remuneration data of all executives collected the directors' remuneration expense per the income statement (which would contain the IFRS 2 expense from 31 December 2005 year ends onwards) (De Wet, 2012).

Later, when both share options and contingent shares were employed by companies (Steenkamp & Wesson, 2018a), the financial statement disclosures regarding the value of executive share-based remuneration became inconsistent (Steenkamp et al., 2019). The inconsistent disclosure might have been the result of the current Companies Act 71 of 2008 requiring the 'value' of share-based remuneration to be disclosed without stating how this value should be measured (Dippenaar, 2018). Given that annual financial statement disclosure became more inconsistent, the measurement of executive share-based remuneration in the later studies became more problematic. In some of the later studies, the measurement of the share-based portion was unclear (Ntim et al., 2015) or merely stated that the share-based remuneration data were collected from annual financial statements without indicating the measurement basis (grant date fair value, IFRS 2 expense, or value realised on exercise) (Deysel & Kruger, 2015).

Recently, the IFRS 2 expense (Kirsten & Du Toit, 2018; Urson, 2016) was mainly employed, although the IFRS 2 expense comprises both equity-settled incentives (which are annualised based on the grant date fair value) and cash-settled incentives (which are based on the reporting date fair value). Other studies employed the annualised expected value (Bussin & Blair, 2015; Steyn, 2015), which is similar to the annualised grant date fair value method employed by IFRS 2 for equity-settled SBPs. However, Murphy (2013, p. 219) advised that the value realised on exercise date would be more appropriate to use in studies seeking to explore the link between executive pay and company performance, as realised pay would be expected to be closely linked to actual performance. This is especially true in an environment where share options (that can be exercised long after vesting date) are used less often, and contingent shares (which are exercised on the day they vest) are more common.

Table 2.3

A summary of previous South African studies on executive share-based remuneration: Sample, data source and period covered (Steenkamp & Wesson, 2018a, p. 54)

Name of study	Sample	Data source	Period
Waweru, Gelinas, and Uliana (2009)	4 listed banks	Annual financial statements (AFS)	2005
Dommisse (2011)	Top 120 listed companies	IRESS	2009
De Wet (2012)	All listed companies	IRESS	2006–2010
Mavrodinov (2012)	50 large and mid-cap listed companies	AFS	Around 2011
Massie, Collier, and Crotty (2014)	50 listed companies	AFS	2012
Bussin and Blair (2015)	All listed companies	IRESS	2008–2012
Crafford (2015)	Companies listed in the Industrials Industry	TimbukOne	2002–2010
Deysel and Kruger (2015)	Companies listed in the Banking Sector	AFS	2008–2014
Ntim, Lindop, Osei, and Thomas (2015)	All listed companies	AFS	2003–2007
Scholtz and Engelbrecht (2015)	Top 100 listed companies	AFS	2009–2012
Steyn (2015); Steyn and Cairney (2016)	Top 100 listed companies	AFS	2011–2013
Urson (2016)	51 companies listed in the Consumer Goods and Consumer Services industries	AFS	2006–2014
Steenkamp and Wesson (2018a, 2018b)	32 listed companies in a wide range of industries	IRESS updated to AFS	2002–2015
Kirsten and Du Toit (2018)	42 companies listed in the Consumer Goods and Consumer Services industries	IRESS	2006–2015
Steenkamp, Dippenaar, Fourie, and Franken (2019)	62 companies listed in the Financial, Industrial and Basic Materials industries	AFS	2017

Waweru, Gelinas and Uliana (2009) compared the executive remuneration of a number of South African listed banks to those in Canada. They found that in 2005 South African banks were less likely to employ share-based remuneration than their Canadian counterparts (Waweru et al., 2009). Scholtz and Engelbrecht (2015) found that improved corporate governance decreased executive remuneration, and specifically share options. Similarly, Ntim et al. (2015) found that company performance and executive remuneration were best correlated where effective corporate governance processes were in place.

The first comprehensive South African study done focusing solely on executive share-based remuneration was by Mavrodinov (2012). At the end of 2011, Mavrodinov (2012) examined the share-based remuneration schemes employed by 50 JSE-listed companies and found that SARs and contingent shares were used more often than share options. The majority of the companies (72%) were using full quantum schemes (about half of these companies were employing both full quantum and appreciation schemes) (Mavrodinov, 2012, p. 38). Most companies were employing multiple schemes (some for retention purposes and some to incentivise executives). The most popular scheme grant was performance shares with a three-year vesting period, and as a result of this the usage of performance conditions had escalated (Mavrodinov, 2012). It was usual for companies to employ several targets (share price related targets were most popular, followed by EPS and return on equity), although these targets were poorly disclosed in annual financial statements (Mavrodinov, 2012, pp. 42–43). The Mavrodinov-study found that most schemes were equity-settled, and that appreciation schemes often employed staggered vesting over a three- or four-year period (commencing two or three years after grant date).

Massie et al. (2014) studied the 2012 executive remuneration of 50 JSE-listed companies in depth. They connected the large amounts of share-based remuneration being realised by executives to the growing income inequality in South Africa, and pointed out that share-based remuneration could be artificially increased by repurchasing shares, allowing for rent extraction by executives (Massie et al., 2014).

Steyn and Cairney (2016) studied the importance of SBPs (and other long-term incentives) among the top 100 JSE-listed companies, in relation to total compensation. They specifically considered performance shares and share options. Such share-based remuneration was found to make up 38 per cent of total compensation on average (28% when based on medians) – if measured at the annualised expected value (Steyn & Cairney, 2016, p. 256). The proportion of pay comprising share-based remuneration is lower than in the US, but still significant (Steyn & Cairney, 2016). The larger the company, the higher the percentage of total remuneration comprising share-based remuneration (Steyn & Cairney, 2016). They advised that share-based remuneration should be included in future

research on executive remuneration, even if it is difficult to measure and some assumptions have to be made in the measurement process (Steyn & Cairney, 2016; Urson, 2016).

As part of the pilot work for the present study, Steenkamp and Wesson (2018a) performed a trend analysis of the share-based remuneration schemes employed during the period 2002−2015 for a small sample of companies. The number of schemes employed increased from 2002 to 2008, but remained constant thereafter (Steenkamp & Wesson, 2018a, p. 59). Share options were employed extensively until 2008, but were first replaced by SARs and later by contingent shares as the dominant scheme type (Steenkamp & Wesson, 2018a). The authors found that the effective date of IFRS 2 led to a decrease in share options as primary share incentive scheme, SARs seemingly replacing share options after that date. Contingent shares, and the use of performance conditions, became more prominent after the global financial crisis of 2008–2009 (Steenkamp & Wesson, 2018b).

During the 2002–2015 period, most schemes were equity-settled (except SARs) and the vesting period was usually between three and five years (Steenkamp & Wesson, 2018a, p. 60). TSR and EPS were the performance conditions employed most often (Steenkamp & Wesson, 2018a, p. 60). In addition, it was found that the IRESS financial database (in the 'gain on shares' data line) did not accurately record the value executives realised from share-based incentives, and that these amounts had to be collected from the annual financial statements (although financial statement disclosure was also inconsistent) (Steenkamp & Wesson, 2018a).

2.3.10 Conclusion

Share-based remuneration is increasingly employed as a long-term incentive for executives. Executive share-based remuneration originated from the agency theory. Share-based remuneration can align the interests of shareholders and executives, and improve the link between company performance and executive pay. However, in the absence of strong corporate governance, share-based remuneration can also allow executives to influence and enhance the value of their own pay.

In South Africa, it seems as if share-based remuneration constitutes a smaller portion of total executive remuneration than in the US and the UK, but it is still substantial. However, the disclosures relating to the value of executive share-based remuneration, per individual executive, were inconsistent during the 2002–2017 period and did not allow proper monitoring and research. The requirements of King IV, if adhered to, will solve this shortcoming from 2018 year ends onwards.

Previous South African studies, looking exclusively at executive share-based remuneration, have only considered short periods of time or small samples of companies. From the limited research conducted in South Africa, it appears that share options were the most common share-based incentive employed

during the earlier years of the present study (before the effective date of IFRS 2 and the start of the global financial crisis), but was systematically replaced first by SARs, and more recently, by contingent shares. However, a comprehensive longitudinal study of executive share-based remuneration has not been completed for the 2002–2017 period.

2.4 THE RELATIONSHIP BETWEEN SHARE REPURCHASES AND EXECUTIVE SHARE-BASED REMUNERATION

> … executives motivating such buy-backs may face a conflict of interest because they usually hold valuable quantities of share-based instruments as part of their remuneration, which may either increase in value or be sold by an executive during a buy-back program. A buy-back program also has the potential to determine whether or not any of these share-based incentives vest in the executive if the buy-back results in the executive meeting a financial target that serves as a vesting condition (Massie et al., 2014, pp. 45–46).

Share repurchases in South Africa are not well disclosed in financial statements nor always announced in real time via SENS, and as such cannot be monitored adequately. This is a problem because, as shown in the quotation above, share repurchases create a potential avenue for executives to reach certain performance targets based on share price, TSR and/or EPS (which enables the vesting of share-based remuneration) and could also increase the share price and thus the value of their own share-based remuneration (Lazonick, 2014; Massie et al., 2014). In criticising share repurchases in the US, Lazonick (2015, p. 3) states that “the only logical explanation for the prevalence of buybacks is that stock-based pay gives executives ample incentives to do them”.

2.4.1 Previous research

The relationship between share repurchases and executive share-based remuneration has not yet been researched in South Africa, but a number of studies have been done elsewhere. Earlier studies mostly explored the link between share options and share repurchases, as share options initially were the predominant type of share incentive offered to executives. However, other types of scheme have now also become popular (Steenkamp & Wesson, 2018b) and are included in more recent studies.

Table 2.4 shows the earlier studies that have investigated the relationship between executed share repurchases (dependent variable) and executive share-based remuneration (independent variable). Liljeblom and Pasternack (2006) were excluded from the list of previous studies as they used repurchase announcements (i.e. planned repurchases and not executed repurchases) as dependent variable. Similarly, Cuny, Martin, and Puthenpurackal (2009) were excluded as they employed only net payout (including repurchases) as dependent variable, but did not separately analyse share repurchases as dependent variable.

Table 2.4

Previous studies examining the relationship between share repurchases and executive share-based remuneration: Scope and main findings

Name of study	Period and country studied	Executives and incentives studied	Main findings on relationship
Jolls (1998)	1992; US	All executives; All instruments	Positive relationship between decision to repurchase and number of share options held
Fenn and Liang (2001)	1993–1997; US	All executives; Share options	Positive relationship between repurchase value and number of share options held
Kahle (2002)	1991–1996; US	All executives; Share options	Positive (no) relationship between decision to repurchase (repurchase value) and number of share options held
Weisbenner (2004)	1995; US	CEO and top five executives; Share options	No relationship between repurchase value and number of share options held
Aboody and Kasznik (2008)	2002–2003; US	CEO; All instruments	Positive (negative) relationship between share repurchases and share options granted (restricted share grants)
Lamba and Miranda (2010)	1997–2000; Australia	All executives; Share options	Positive relationship between open market share repurchases and share options held
Young and Yang (2011)	1998–2006; UK	All executives; All instruments	Positive relationship between share repurchases and the use of EPS-related conditions
Bhargava (2013)	1996–2005; US	Top five executives; Share options	Positive relationship between repurchase value and share options exercised
De Cesari and Ozkan (2015)	2002–2009; Europe	CEO and all executives; Share options	No relationship between share repurchases and number of share options held
Burns, McTier, and Minnick (2015)	2003–2011; Europe	CEO; All instruments	Positive relationship between share repurchases and share-based remuneration
Geiler and Renneboog (2016)	1996–2007; UK	CEO; All instruments	Positive relationship between share repurchases and share-based remuneration
Edmans, Fang, and Huang (2018)	2006–2016; US	CEO; All instruments	Positive relationship between share repurchases and vesting of share-based remuneration
Moore (2018)	2004–2014; US	CEO; All instruments	Positive relationship between share repurchases and vesting of share-based remuneration
Department for Business, Energy and Industrial Strategy (2019)	2009–2016; UK	CEO; All instruments	No relationship between share repurchases and the employment of EPS and/or TSR-related conditions
Gao and Kronlund (2020)	1992–2017; US	All executives; Share options	Positive relationship between share repurchases and share options

Earlier studies undertaken in other countries (Table 2.4) mostly found a positive statistical relationship between share repurchase and executive share-based remuneration variables. This is also the premise on which the present study hinges: that executives might be increasing the share price through repurchasing shares, to increase the value of their own share-based remuneration.

The number of share-based instruments held by executives was mostly used as proxy during the initial studies conducted on data before 2010 (De Cesari & Ozkan, 2015; Fenn & Liang, 2001; Jolls, 1998; Kahle, 2002; Lamba & Miranda, 2010; Weisbenner, 2004). As share options were the dominant incentive type as the stage of these studies, the researchers only considered the number of share options held by executives as independent variable. Two studies in the US found a positive relationship between the decision to repurchase and the number of share options held (Jolls, 1998; Kahle, 2002), while another in the US (Weisbenner, 2004) and one in Europe (De Cesari & Ozkan, 2015) found no relationship between the two variables. Only one study (Fenn & Liang, 2001) found a positive relationship between share repurchase value and the number of share options held, while three others did not (De Cesari & Ozkan, 2015; Kahle, 2002; Weisbenner, 2004). However, Lamba and Miranda (2010) did find a positive relationship between the number of shares repurchased and the number of share options held by executives.

Looking at the studies mentioned in the previous paragraph, it seems as if evidence of a relationship between share repurchase variables and the number of share-based instruments held by executives could only be found in the early years of the present study (i.e. before 2010). Before 2010 share options were the dominant scheme type employed. Share options have long exercise periods and thus the number of share options that executives were able to accumulate could become quite large (in comparison to full quantum schemes where instruments are automatically exercised on vesting date, and an executive cannot accumulate extensive numbers of unexercised instruments). Executives holding large numbers of share options are more likely to favour share repurchases over dividend payments, owing to the fact that the payment of dividends causes a decrease in the share price (which is not advantageous to the holder of an option) and share repurchases do not affect the fair value of share options (Jolls, 1998).

Recently conducted studies (Edmans et al., 2018; Gao & Kronlund, 2020; Moore, 2018) focused on the share-based instruments exercised or vested. Most of these studies included all types of share-based incentives and found a positive relationship between both the decision to repurchase and share repurchase value and the share-based instruments exercised and/or vested. These recently conducted studies spanned a lengthy period and, seen together, they covered the entire period of the present study.

Young and Yang (2011) found a positive relationship between share repurchases (both the decision to repurchase and share repurchase value) and the usage of EPS-related conditions. They, however, only considered the period up to 2006 in the UK, when EPS-related conditions might not have been very common. In a later study in the UK, covering the 2009–2016 period, no relationship was found between repurchasing shares and the use of conditions related to TSR and/or EPS (Department for Business Energy and Industrial Strategy, 2019).

2.4.2 Expected findings of the present study: Based on previous research

Since no study exists on the statistical relationship between share repurchase and executive share-based remuneration variables in South Africa, the findings of earlier studies undertaken in other countries (discussed in Section 2.4.1) were used to formulate an expectation (alternative hypothesis) on the relationship in South Africa. Looking at the findings of previous studies, it was expected that, in South Africa, positive relationships would be found between share repurchase variables and:

- the number of instruments held by executives (but only in the early years of the present study when share options were the dominant type of share-based incentive);
- the number of instruments exercised by executives; and
- the usage of conditions related to share price, TSR and/or EPS (but only in the early years of the present study).

To infer the possibility of executives extracting rents from the companies they work for, the share repurchase (and increase in share price) should theoretically occur before the exercise of the share-based remuneration. In practice, the exact dates when a share repurchase occurs is not always available. Gao and Kronlund (2020), for example, could narrow the date of the repurchase down to a certain month (owing to US announcement rules), while Edmans et al. (2018) and Moore (2018) employed quarterly repurchases to ensure that the share repurchase and vesting of share-based remuneration were closely aligned. In the South African environment, however, it is not possible to pinpoint the exact timing of all share repurchases owing to the nature of announcement rules relating to general repurchases. The most accurate record of share repurchases in South Africa is found in annual financial statements, which provide only annual data on repurchases. It is therefore a limitation of the present study that, when studying the relationship between share repurchases and the exercise of share-based remuneration, it was not possible to ensure that the date of the share repurchases preceded the date of the exercise of the share-based remuneration.

2.4.3 The importance of this study from a social justice and ethical perspective

As the expected findings suggest that executives of JSE-listed companies might be using share repurchases to enrich themselves, the present study is also important from a social justice and an ethical point of view. When the apartheid regime in South Africa ended, principles of equality and

social justice were enshrined in the new constitution, making the reduction of inequality a legal concern (Collier et al., 2010, p.86). Income inequality is very high in South Africa (Hundenborn et al., 2019), mostly caused by a high wage differential between the highest earners (for example, executives) and the lowest earners (for example, unskilled workers) in a company (Collier et al., 2010, p. 85; Viviers et al., 2019). The implications of the so-called wage gap include a lack of social cohesion, decreased economic growth, socio-economical problems (for communities, families and individuals), high crime rates and political corruption (Collier et al., 2010, p. 88). As such, social justice would be served if the wage gap in South Africa decreases, but, if executives increase their own share-based remuneration (though share repurchases or other actions) this could widen the wage gap even further.

The Employment Equity Act requires employers to submit a statement regarding the remuneration paid to employees in each 'occupational category and level' (Collier et al., 2010, p. 91). If large differences exist between the remuneration of employees in the different categories and levels, then a company must enact measures to reduce the differentials (Collier et al., 2010, p. 91). However, share-based remuneration is not included in the definition of the remuneration that needs to be reported (Collier et al., 2010, p. 91), which reduces the effectiveness of this process in decreasing the wage gap between executives, who are often remunerated extensively using share-based remuneration, and other employees. In the current South African context, the only deterrent for the wage gap widening because of executives earning large amounts from share-based remuneration seems to be corporate governance, shareholder activism and media attention (Viviers et al., 2019). King IV, for example, requires that executive remuneration "be fair and responsible in the context of overall employee remuneration" (IoDSA, 2016, p. 31).

The possibility that the executives of JSE-listed companies could be using share repurchases to enhance the value of their own remuneration also has ethical implications. Increased usage of share-based remuneration might have inadvertently led to executives having an incentive to behave unethically, manipulate financial results and focus on strategies that lead to short-term increases in the share price (Collier et al., 2010, p. 98; Perel, 2003, p.383; Rodgers & Gago, 2003, p.189–190). As a result, Perel (2003, p. 381) questioned whether it is ethical to link executive remuneration to the company share price. If the performance conditions attached to incentives such as share-based remuneration entice executives to focus solely on the interests of shareholders, then the interests of other stakeholders (such as clients, suppliers, and employees) are neglected (Perel, 2003, p.383; Rodgers & Gago, 2003). Ethical behaviour, defined as honesty, transparency and concern for the welfare of all company stakeholders, decreases as executives aim to increase the short-term share price to maximise shareholder value and increase the value of their own share-based remuneration (Perel, 2003, p.386).

2.5 CONCLUSION

Repurchasing shares does not presuppose unethical activity, but share repurchases do provide executives with a loophole to 'financially engineer' a company's performance metrics (share price, TSR and EPS). Improved metrics can lead to increased executive share-based remuneration. As such, share repurchases allow executives the opportunity to increase the value of their own share-based remuneration, and therefore it is important that stakeholders actively monitor share repurchases in South Africa (Massie et al., 2014, p. 36). Since the study of Wesson (2015), the JSE has required listed companies to disclose their share repurchase activities in their annual financial statements (after the fact), but the JSE does not require real-time announcements of all executed general share repurchases. This shortcoming in the regulation of share repurchases necessitates the present study: to ascertain whether a positive statistical relationship between share repurchase and executive share-based remuneration variables exists in South Africa. Earlier studies undertaken in other countries have confirmed the existence of such a relationship.

Chapter 3 describes the research methodology employed to address the research aim of this study: namely to determine whether a positive statistical relationship exists between share repurchases and executive share-based remuneration. If such a relationship were found to exist in South Africa, it would point out that executives might be abusing share repurchases in an attempt to enhance their own remuneration. Such a finding would strengthen the case of many stakeholders that are seeking stricter regulation regarding share repurchases, and its effect on executive share-based remuneration, in South Africa.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The aim of the present study was to investigate the relationship between share repurchases and executive share-based remuneration in South Africa in order to gain an understanding of whether additional regulation and disclosure about the timing of share repurchases might be warranted. To achieve this aim, data regarding both share repurchases (Research question 1) and share-based remuneration (Research question 2) were gathered. After data collection, appropriate regression models were applied to ascertain the nature of the relationship between the two variables (Research question 3). A detailed description of the research methodology followed is provided in this chapter.

3.2 OVERALL RESEARCH METHODOLOGY

In business research, a certain tension exists between the world of basic and applied research (Burns & Burns, 2008, p. 10), as business research seeks to address real world business issues (Zikmund, Babin, Carr, & Griffin, 2013, pp. 4–5). However, since pragmatic business research is conducted with academic rigour, it is relevant in practice (Saunders, Lewis, & Thornhill, 2012, p. 8). Although this study was conducted with a strong theoretical foundation and using rigorous methods, it still sought to address the real-world problem of whether share repurchases in South Africa could be used by executives to increase the value of their own share-based remuneration, which would warrant improved regulation of share repurchases in the South African environment.

This study was conducted from a positivistic paradigm, as an objective approach was taken where the researcher remains value-neutral regarding the research subjects (companies) (Burns & Burns, 2008, pp. 13–14; Saunders et al., 2012, pp. 134–135). A deductive approach was followed as a hypothesis was developed based on the literature review conducted, and then tested (Burns & Burns, 2008, p. 23; Saunders et al., 2012, p. 145). To test the hypothesis, quantitative data (amounts and numbers) regarding share repurchases and share-based remuneration were collected and statistically analysed. Thus a quantitative research design was followed (Saunders et al., 2012, p. 162). Panel data were used to allow more in-depth analysis. This study was firstly descriptive (Saunders et al., 2012, p. 171; Zikmund et al., 2013, p. 53), as it described the extent of share repurchase activity in the South African environment (Research question 1) and the characteristics of executive share-based remuneration (Research question 2). Furthermore, the study possessed explanatory elements (Saunders et al., 2012, p. 172), as it endeavoured to explain the relationship between the two variables (Research question 3).

Further details regarding the pilot study and the selection of the final research population are provided in Sections 3.2.1 and 3.2.2. In Sections 3.3 to 3.5 the detailed research methods and techniques applied to address the three separate research questions are described. Section 3.6 addresses the reliability and validity of the research methodology, while Section 3.7 concludes this chapter by addressing the ethical considerations and why it was necessary to collect public data on share repurchases and executive share-based remuneration afresh into a new database.

3.2.1 Pilot study

Before finalising the research methods, a pilot study was undertaken for a limited number of companies (Saunders et al., 2012, p. 171; Zikmund et al., 2013, pp. 52–53). Although the data collection process and previous trends regarding share repurchases have been well-documented by researchers like Wesson (2015), less was known regarding executive share-based remuneration. No existing studies in South Africa had collected comprehensive longitudinal data on share-based remuneration, and the methods to capture data on share-based remuneration accurately had to be developed during the pilot study. The issues noted during the pilot study and the effect they had on the final research method are discussed in Section 3.2.1.1.

No previous study had been done on the relationship between share repurchases and executive share-based remuneration in South Africa. Earlier studies undertaken in other countries employed different proxies for share repurchases (dependent variable) and executive share-based remuneration (independent variable). The pilot study informed the choice regarding the most appropriate proxies to be employed in the South African environment – given the quality of the data available. These aspects are addressed in Section 3.2.1.2.

Before conducting the pilot study, the research hypotheses employed in the present study (see Section 3.5) had already been developed, based on the work of Lazonick (2014) and in line with the findings of previous research (see Section 2.4.2). As such, no data snooping or data mining occurred in the present study.

3.2.1.1 Executive share-based remuneration

Section 3.2.1.1 deals with the issues that were noted during the capturing of data on executive share-based remuneration in the pilot study. These aspects were also discussed in Steenkamp and Wesson (2018a; 2018b).

Per-executive disclosure of both the number of instruments involved and the value of executive share-based remuneration is provided by companies in annual financial statements as required by the Companies Act (previous and current), the JSE Listing Requirements, and the King Reports (King II and

King III). However, varying values are provided by different companies – some disclose the gain realised on exercise, others the IFRS 2 expense, and yet others the grant date fair value in respect of executive share-based remuneration.

The per-executive data contained in the annual financial statements, relating to both the value of share-based instruments and the number of instruments, are captured by the IRESS financial database (previously called INET BFA or BFA McGregor) in the IRESS product called 'Director Search'. The value-based and the number-based data are presented in two separate sections in IRESS, per executive, and need to be combined to form a complete observation on a single executive for a certain year. The number-based data are also provided separately for each scheme in which the executive partakes, and need to be classified under the correct scheme type (for example, share options, SARs, performance shares). To gather the data required for the present study, the IRESS data had to be extracted from the financial database per executive per year (no data dump was available) and then combined and sorted under the correct scheme type, resulting in a time-consuming data collection process.

Concerning the value-based data, IRESS captures a line item called 'gain on shares' which was reported from 2002 onwards, and was probably designed to capture the gain realised from the exercise of share options (as required by the previous Companies Act read together with King II). Over the years, as the previous Companies Act was replaced by the current one and King II was replaced by King III, companies have started to disclose different values pertaining to share-based remuneration. Thus the 'gain on shares' value captured by IRESS could be any of the following: gain realised on all or some of the share-based remuneration exercised; IFRS 2 expense; or grant date fair value for all or some of the share-based remuneration granted. Furthermore, it was noted that IRESS reported no 'gain on shares' while instruments were exercised during the year (and thus a gain would actually have been realised), or reported a 'gain on shares' while no instruments were exercised (and thus no gain could be realised). The 'gain on shares' line item, if assumed to be the gain on the exercise of all share-based incentives, was significantly understated by IRESS (when compared to the annual financial statements), based on an analysis of variance test (statistically significant at less than 1%) (Steenkamp and Wesson, 2018a).

Relating to the number-based data, IRESS captures the following (per scheme): the number of instruments held at the start of the reporting period, the number granted during the period, the number exercised during the period, the number lapsed or forfeited during the period, and the number of instruments held at the end of the reporting period. On comparing the data contained in IRESS to the data in the source annual financial statements, some input errors were found (resulting from human error and the inconsistent disclosure practices of companies). Some cells in IRESS were blank while it was obvious they should not be; some inaccuracies were noted (i.e. when the closing balance number of instruments did not agree with the opening balance adjusted for changes that occurred

during the year); and data were sometimes duplicated. The difference between the data in the financial statements and the data captured by IRESS, in relation to the number of schemes employed, was statistically significant at the five per cent level (based on an analysis of variance test) (Steenkamp & Wesson, 2018a).

From 2006 (when IFRS 2 became effective), the number-based section in IRESS captured a description of the scheme, which sometimes enabled an understanding of the vesting conditions attached to the scheme. However, this was not always the case (sometimes the description was not clear or comprehensive). Moreover, prior to 2006 no descriptions were available. To enable a thorough understanding of the performance conditions employed, annual financial statements had to be consulted.

It was found that some companies did not employ executives, only non-executive directors (e.g. Pick n Pay Holdings Limited). For such companies, data on share repurchases could thus be collected, but no data on executive share-based remuneration could be collected. Based on the pilot study, it was decided that companies that do not have executives would be included in the population and data on their share repurchases would be collected for the sake of completeness, but that they would be excluded from the final analysis of the relationship between share repurchases and executive share-based remuneration.

Previous studies which investigated the relationship between share repurchases and executive share-based remuneration either employed the value attached to executive share-based remuneration or the number of instruments involved as proxy for executive share-based remuneration (see Table 3.1). If one employed the value, then the measurement of the value (as either grant date fair value, IFRS 2 expense, or the value realised on exercise) should be determined and consistently used throughout the study to enable valid results. Based on the results of the pilot study, it was decided that the value of executive share-based remuneration was not consistently reported in annual financial statements, nor captured by IRESS. It would be impossible to gather, for every company for every year, a consistent measure of the value of share-based remuneration. Therefore, the pilot study assisted in clarifying that it would be most appropriate, when considering the 2002–2017 period in the South African context, to employ the number of share-based instruments as proxy for executive share-based remuneration.

The pilot study also showed that it would be inaccurate merely to extract the data regarding the number of instruments employed from IRESS. The data extracted from IRESS would have to be updated according to the relevant annual financial statements in the case where cells in IRESS were blank, or obviously inaccurate. Furthermore, it was noted from the pilot study that financial statements would

have to be consulted to obtain or confirm the type of scheme employed, as well as the performance conditions attached to each scheme.

3.2.1.2 Relationship between share repurchases and executive share-based remuneration

During the pilot study, the previous studies which considered the relationship between share repurchases and executive share-based remuneration (listed in Table 2.4) were consulted to develop an appropriate strategy to examine this relationship in the South African context. When looking at the previous studies, it was found that one could measure both share repurchases (the dependent variable) and executive share-based remuneration (independent variable) as either a rand value or a number of shares or instruments.

Given the poor disclosure quality of the rand value of executive share-based remuneration, it was decided that it would be most appropriate to employ the number of share-based instruments as proxy for executive share-based remuneration (Steenkamp & Wesson, 2020a). The proxies employed by previous studies prompted the decision to utilise three different variables: the number of share-based instruments held at year end; the number of share-based instruments exercised during the year; and a binary variable indicating whether or not performance vesting conditions based on share price, TSR and/or EPS were employed (Steenkamp & Wesson, 2020a).

After considering previous studies, it was decided to employ two variables for share repurchases. Firstly, a binary variable, indicating whether or not a share repurchase occurred during the year and, secondly, a ratio-scale variable indicating the quantum of share repurchases (Steenkamp & Wesson, 2020a). To ensure that possible reverse causality was averted, share repurchases were measured in rand values (given that executive share-based remuneration was not measured in rand value) (Steenkamp & Wesson, 2020a).

The pilot study on the relationship between share repurchases and executive share-based remuneration (Steenkamp & Wesson, 2020a) studied only a small sample of companies, and thus only correlation techniques were applied. During the execution of the pilot study, the importance of scaling the dependent and independent variables was noted, based on the procedures followed by previous global studies considering the same research problem (Steenkamp & Wesson, 2020a).

3.2.2 Further details regarding the research population

The research population was defined in Chapter 1 as those companies with primary listings on the JSE's Main Board, excluding those in the Basic Materials and Financial industries, for the period 2002–2017. All companies that formed part of the research population were included in the study. As such, a

census of these companies was conducted, and no sampling occurred. This section details the process followed to ensure that all relevant companies were included. Important criteria were:

- that companies were registered in JSE industries other than Basic Materials and Financial industries;
- that companies had a primary listing on the JSE; and
- that three years of annual financial statements were available over the period under investigation.

The first two criteria (JSE industry and primary listing) were tested in 2017 (end date of the study) or at the date of the company's delisting (if earlier). The JSE industry was determined using either responses to email correspondence with the JSE (info@jse.co.za, April 5, 2019), or the Profile's Stock Exchange Handbook (2018 Issue 1) (Profile Media, 2018), or earlier versions of the Profile's Stock Exchange Handbook (for delisted companies). The listing status of dual-listed companies was verified directly with the JSE, via email correspondence (info@jse.co.za, February 22, 2017; April 5, 2019). The number of years of annual financial statements available (third criteria) was verified using the IRESS financial database (product: Library).

The companies selected by Wesson (2015), in a study of share repurchases during the period 1999–2009, were used as starting point to construct the population. Companies included in the Wesson study (which commenced in 1999) that had fewer than three years of annual financial statements from 2002 (the start date of the present study) onwards were eliminated from the population. The remaining companies were included in the present study if they still had a primary listing in an appropriate JSE industry (in 2017, or at the point of delisting). Some companies had moved to the Basic Materials and Financial industries of the JSE, while some had changed their dual listing status to receive a primary listing elsewhere (e.g. Steinhoff International Holdings N.V. and Mediclinic International PLC).

New companies were then added to the Wesson (2015) list of companies (amended as detailed above). Firstly, all companies that had fewer than three listed years (fewer than three annual financial statements available) before 2009 (as recorded during the Wesson study), but met the criteria of the present study were included. These were verified with the JSE (info@jse.co.za, email, May 31, 2017). Secondly, companies which registered on the JSE's Main Board or moved from the Alternative Exchange (AltX) to the Main Board from 2010 onwards (lists were received from JSE via email correspondence) were also analysed to determine their industry, dual-listing status and number of years listed (info@jse.co.za, emails, February 20, 2017; June 1, 2017; February 28, 2018; April 2, 2019). Companies which met all the criteria were included.

A list of all companies with primary listings on the JSE as at 31 December 2017 in the selected industries was obtained from the JSE (info@jse.co.za, email, April 5, 2019). As a secondary check for completeness, it was ensured that all these companies formed part of the final research population. The remaining companies in the research population (those that were not listed as at 31 December 2017) were identified as companies that had delisted prior to 31 December 2017.

The present study included the share-based remuneration of all executives (not only CEOs). It must be noted that a limited number of companies in the population did not have executives (or data available on executives). Such companies were included in the population, and data were collected regarding their share repurchases. Such companies' data are thus included in the analysis provided in Chapter 4 (on share repurchases). However, companies without executives were excluded from Chapter 5 (on executive share-based remuneration) and Chapter 6 (which considers the relationship between share repurchases and executive share-based remuneration). A list of such companies is provided in Section 5.2, where their exclusion is explained.

3.3 RESEARCH QUESTION 1: EXTENT OF SHARE REPURCHASE ACTIVITY

Research question 1 sought to ascertain the extent of share repurchase activity by South African listed entities during the period 2002–2017. This entailed, firstly, an identification of company years in which share repurchases did occur and, secondly, the tallying of the quantum (number of shares and rand value) involved. Detailed research sub-questions were developed and are listed in Chapter 1.

Wesson (2015) completed a database for South African share repurchases for the period 1999–2009 for companies listed on the JSE's Main Board (except those in the Basic Material and Financial industries). For companies in the Wesson (2015) study that also formed part of the present study's population only the share repurchases in the period 2010–2017 were still outstanding, as the data for the 2002–2009 period could be obtained from the Wesson (2015) study. For companies that formed part of the present study but not the Wesson (2015) study (for example, new listings and companies that moved from the AltX), the share repurchases for the entire 2002–2017 period had to be determined.

As data from the Wesson (2015) study and the present study were combined, it was deemed important that the present study employed the Wesson study's method of collecting data on share repurchases. The method was applied for each company, separately. This is explained in the following two sections (3.3.1 deals with the identification of companies which repurchased and the number of shares repurchased, while 3.3.2 deals with the rand value spent on share repurchases).

It is important to note that repurchases done by share trusts were not identified as share repurchases in this study, as the JSE Listing Requirements do not identify them as share repurchases, and share trust repurchases are not required to be announced via SENS (Wesson, 2015). However, to ensure the complete and accurate collection of share repurchases done by the holding company and subsidiaries, the number of shares held by share trusts were captured and reconciled, as detailed in the next section.

3.3.1 Research procedure regarding number of shares repurchased

No commercial financial database provides complete and accurate data on the number of shares repurchased by JSE-listed companies, and therefore the data had to be collected directly from companies' annual financial statements. However, most annual financial statements also do not explicitly report the number of shares repurchased. To ensure that all share repurchases were captured accurately, reconciliations had to be done from the data gathered from the financial statements. Figure 3.1 shows an example of the spreadsheet used for one company and one year, called Spreadsheet 1 going forward. In Spreadsheet 1 the following were reconciled (between opening balance number of shares, shares issued, shares repurchased, and closing balance number of shares):

- Shares outstanding in the group (numbered 1 in Figure 3.1)
- Shares in issue by holding company (numbered 2 in Figure 3.1)
- Shares held by subsidiaries (numbered 3 in Figure 3.1)
- Shares held by consolidated share trusts (numbered 4 in Figure 3.1)

Every year's reconciliation for a specific company (for each of the four entities mentioned in the bullets above) included a check on whether the opening balance number of shares, plus shares issued, minus shares repurchased, equalled the closing balance number of shares (second to last column in Figure 3.1). In addition, the shares outstanding in the group were supposed to equal the shares in issue by the holding company, less those held by subsidiaries and consolidated share trusts. A validity check (numbered 5 in Figure 3.1) was therefore built into the spreadsheet used to capture the reconciliation described above, to ensure that the holding company number of shares (numbered 2 in Figure 3.1), minus shares held by subsidiaries (numbered 3 in Figure 3.1) and consolidated share trusts (numbered 4 in Figure 3.1), did indeed equal the group number of shares (numbered 1 in Figure 3.1).

		ISSUED		REPURCHASED						
	Opening balance	Outside group by holding company	Holding company directly to subsidiaries	Holding company repurchasing from third parties	Subsidiaries directly from holding company	Subsidiaries from third parties	Holding company repurchasing treasury shares	Closing balance	Check – rows	Reference
1. Number of shares: Group										
2017	107 891					-971		106 920	-	p. 71
2. Number of shares: Holding company										
2017	114 272							114 272	-	p. 71
3. Number of shares held by subsidiaries										
2017	6 381					971		7 352	-	Opening balance, p. 42, p. 71
4. Number of shares held by consolidated share trusts										
2017	0							0	-	p. 72
5. Check (compares number 1 with 2,3,4)										
2017	-							-		

Figure 3.1. **An example of the reconciliations executed to identify the number of shares repurchased**

The data to populate Spreadsheet 1 was collected from the company's annual financial statement (which was obtained either in hard copy or electronic copy from the IRESS database (product: Library)). As the disclosures regarding share capital issued and held by subsidiaries and consolidated share trusts were not always disclosed in a single note in the annual financial statement, the following parts of the financial statement had to be searched: directors' report, cash flow statement, statement of changes in equity, share capital note, treasury shares note, and shareholder spread (shareholders' analysis). The pages on which each piece of information was found to populate the reconciliation were noted on Spreadsheet 1 (last column in Figure 3.1).

Once the reconciliations had been completed, the number of shares repurchased were determined (these are the numbers of shares indicated in the grey-shaded columns). The repurchasing entity (the holding company repurchasing from third parties; the holding company repurchasing treasury shares; or subsidiaries) involved was clarified from Spreadsheet 1. The first grey-shaded column in Figure 3.1 (labelled 'Holding company from third parties') was allocated to the 'holding company from third parties' repurchasing entity. The second and the third grey-shaded columns in Figure 3.1 (labelled 'Subsidiaries directly from holding company' and 'Subsidiaries from third parties') were both allocated to the 'subsidiaries' repurchasing entity. All repurchases by 'subsidiaries' (both those labelled 'Subsidiaries directly from holding company' and 'Subsidiaries from third parties') were included in the treasury share balance (number of shares held by subsidiaries) and subsequent repurchases thereof by the holding company qualified as the 'Holding company repurchasing treasury shares'. Lastly, the fourth grey-shaded column (labelled 'Holding company repurchasing treasury shares') was attributed to the 'holding company repurchasing treasury shares' repurchasing entity.

After the repurchasing entities had been determined, further analyses were done on the type of repurchase involved (specific versus general) and whether the repurchase was announced via SENS. This analysis was done in another custom-designed spreadsheet (hereafter called Spreadsheet 2). Spreadsheet 2 contained only the repurchases done by the holding company and subsidiaries (as repurchases by share trusts were not included in the study given that they did not qualify as repurchases under the JSE Listing Requirements). In Spreadsheet 2, for every year in which a repurchase had occurred, the number of shares repurchased by each of the repurchasing entities (holding company from third parties; holding company repurchasing treasury shares; and subsidiaries) was listed (this information was extracted from Spreadsheet 1).

To determine whether the type of repurchase was general or specific, two sources were considered. Firstly, the annual financial statement disclosure frequently indicated the repurchase type, and this information had already been obtained when Spreadsheet 1 was populated (when the financial

statement indicated the repurchase type, this information was added to Spreadsheet 2 immediately while busy populating Spreadsheet 1). Secondly, the SENS announcement (if the repurchase was announced via SENS) mostly indicated the type of repurchase. When the financial statement did not give any detail, the repurchase type was usually clarified using SENS data. Where neither the financial statement nor SENS indicated the type of repurchase, it was assumed to be general (as general repurchases only need to be announced via SENS after the 3% threshold is reached, but all specific repurchases need to be announced via SENS).

In the literature review, four repurchase types were identified: general repurchases; pro rata specific repurchases; specific repurchases where the holding company repurchases treasury shares; and other specific repurchases. Other specific repurchases included where subsidiaries purchased shares directly from the holding company (second grey-shaded column in Figure 3.1). Other specific repurchases also included where shares were repurchased by the holding company or subsidiaries from a share trust.

To determine whether the repurchase was announced via SENS or not, the SENS announcements (obtained from IRESS: product Library) were consulted. To search for the applicable SENS announcements, the following terms were employed: “buy back”, “buy-back”, “buyback”, “treasury” and “repurchase” (Wesson, 2015). The term “repurchase” reaped the most applicable announcements. The SENS announcements were studied to determine to which period or date they related and whether the announcements related to specific or general repurchases. Based on the information provided in the SENS announcements, the announced repurchases were paired to the repurchases already identified in Spreadsheet 2. When a share repurchase announcement pertained to general repurchases, the announcement occasionally related to repurchases executed over multiple reporting periods. If the number of shares actually repurchased during the multiple reporting periods was greater than the number of shares announced via SENS, then the announced share repurchases were first allocated to the earliest reporting period(s) until all announced share repurchases had been allocated (this is similar to the first-in-first-out method). This method would cause the residual (unannounced) share repurchases to fall in the last reporting period.

3.3.2 Research procedure regarding rand value spent on share repurchases

In deciding on the most accurate rand value for the repurchases identified in Spreadsheet 2 (the process is detailed in 3.3.2), the values reported in the directors’ report, statement of changes in equity, cash flow statement, share capital notes and SENS announcements were considered. Where the statement of changes in equity and the cash flow statement were the only available values (and they differed), the statement of changes in equity was considered to be most accurate, as this reflected the change in share capital that occurred. Many times no cash was expended for share

repurchases as the repurchases were intragroup (then the holding company's separate statement of changes in equity was considered) or settled with non-cash resources (in which case the group statement of changes in equity was considered). The rand value spent on share repurchases included any transaction costs paid, as this was most often how the rand value was reported in the statement of changes in equity.

After the rand value contained in all the available sources had been documented, the most reliable value was chosen (often all sources stated the same value). Then, as a reasonableness test, the rand value paid per share repurchased was calculated. The value per share was compared to the value per share of the other repurchases that occurred for the same company. Where the value per share of a certain repurchase seemed unduly high or low in comparison to the other repurchases in the same time range for the same company, or all the values seemed unusual, the value per share was compared to the average share price of the company over that period (using the IRESS price data function). If the average share price (from IRESS price data function) differed substantially from the value per share for a certain repurchase in Spreadsheet 2, the annual financial statements and SENS announcements were reread to ensure that all information had been taken into account.

3.3.3 Problems encountered when collecting share repurchase data

Some minor problems were encountered during the collection of share repurchase data. These problems, and how they were addressed or solved, are detailed in this section. Company names are used to explain the phenomenon observed and for recordkeeping. Where a company name is mentioned, this is not meant as an example (unless explicitly stated as such) but rather this would be the only case in which the problem was encountered.

3.3.3.1 Number of shares or rand value unknown

In a limited number of cases, the rand value spent on repurchases was unknown, while the number of shares repurchased was known (or vice versa). In such cases, a nominal amount of R1 or 1 share repurchased was added to the relevant category, to indicate that such repurchase had taken place, but the number of shares or rand value was unknown.

3.3.3.2 Splitting between subsidiaries and trusts

Shares repurchased by the subsidiaries and consolidated share trusts are both accounted for as treasury shares in consolidated annual financial statements (and sometimes presented as one figure in these statements). However, repurchases by subsidiaries are included in the present study as they are defined as share repurchases by the JSE Listing Requirements, while consolidated share trust repurchases are excluded from the scope of the present study. As such, it was sometimes necessary

to split treasury share repurchases between those repurchased by subsidiaries (included in the present study) and share trusts (excluded from the present study). Where the number and rand value of share-repurchases by the subsidiaries and trusts were combined into one figure in the annual financial statements, this split was done using several methods – as appropriate or possible, given the available information. Moreover, the disclosures in subsequent years were consulted to verify whether improved disclosures in subsequent years could assist in splitting more accurately in the prior years.

The primary method applied, when assigning values to subsidiaries and trusts repurchases, related to instances where the cumulative treasury share repurchases for the period – as well as the treasury shares held by each of these entities at year end – were known. Therefore, if the opening balance and closing balance number of shares held by both subsidiaries and trusts were available, and both showed a net increase in shares held during the year (therefore representing a net repurchase of shares), the total treasury share repurchases for the period (disclosed as a combined figure for subsidiaries and trusts) could be split between subsidiaries and trusts based on the proportionate net increase in the subsidiaries' and trusts' holdings during the year.

To illustrate this, assume the net change in treasury shares held (subsidiaries and trusts together) was an increase of 100 shares, comprising a net increase of 80 in shares held by subsidiaries and a net increase of 20 in shares held by trusts (all information available in annual financial statements). It must be noted that 80 per cent (80 shares divided by a total of 100 shares) of the increase in treasury shares was then seen as attributable to subsidiaries, while the remainder (20%) was attributed to trusts. If the annual financial statement disclosure indicated that 600 treasury shares were acquired during the period, the 600 was then split as follows: subsidiaries were allocated 600 multiplied by 80 per cent (equalling 480 shares repurchased by subsidiaries), while trusts were allocated 600 multiplied by 20 per cent (equalling 120 shares). A similar method was then followed to split the rand value.

This primary method could only be applied if the gross treasury share repurchases (by subsidiaries and trusts cumulatively, i.e. the 600 shares in the example above) and the increases in the number of shares held by each separately (i.e. the 80 and the 20 increases in the example above) was known. Other variants of the primary method applied to individual cases are discussed in the following paragraphs.

When the cumulative number of treasury shares repurchased (i.e. the 600 in the example above) for the period were not known, a different method (to the primary method discussed above) had to be applied. This was done for Stefanutti Stocks Limited where the net movement in shares held by both

subsidiaries and trusts (individually) was disclosed, but not the cumulative number of shares purchased or sold (neither for subsidiaries nor trusts separately, nor for them cumulatively). In such a case, the net movement in shares for subsidiaries (which could have been an increase or a decrease) was seen as either a repurchase or a sale of shares. The combined rand value in the statement of changes in equity for net repurchases (movement in all treasury shares) was then split as follows:

- When the number of shares held by subsidiaries and trusts both increased, the rand value was seen as being proportionally divided between the two entities (proportionate to the number of shares repurchased by each entity).
- When the number of shares held by subsidiaries increased, while the number of shares held by trusts decreased, the entire decrease (outflow) in the statement of changes in rand value was seen as attributable to subsidiaries. This amount is actually the net of the outflow as a result of subsidiary repurchases and inflow as a result of trust sales, but it was not possible to split. This understates the rand amount, but at least attaches a value other than a nominal R1 to the repurchase (refer to Section 3.3.3.1). If a net increase (inflow) was shown in the statement of changes in equity, a R1 value was ascribed to repurchases (this only occurred once, in 2012, and the number of shares repurchased was small).

Where the number of shares repurchased by subsidiaries and trusts (individually) were known, but the rand value was combined in the statement of changes in equity, this was split proportionally. An example was Cashbuild Limited in 2016, where trusts repurchased 200 000 shares and subsidiaries almost 500 000. The rand value on the statement of changes in equity for repurchases was split by apportioning two-sevenths for trusts and five-sevenths for subsidiaries.

When the subsidiaries repurchased shares, while the trusts only transferred shares to employees to settle SBPs, then the entire change in treasury share value in the statement of changes was seen as attributable to subsidiaries. This only occurred for Business Connexion Limited, in 2011 and 2014. In the other years studied, only the trusts transferred treasury shares (and the subsidiaries did not repurchase) and there was no rand value effect on the statement of changes in equity or cash flow statement. Therefore, in 2011 and 2014, the full rand value shown on the statement of changes in the equity and cash flow statement was assumed to be for the repurchase and not pertaining to the transfer by trusts.

3.3.3.3 Splitting shares repurchased and sold by subsidiaries

In some cases the disclosure in the annual financial statement pertaining to shares repurchased by the subsidiaries only reported a netted figure (on the number of shares and rand value involved) for

repurchases and sales of previously repurchased shares. In such cases (and similar to the method applied in Section 3.3.3.2 for Stefanutti Stocks Limited), the net amount of shares and net rand value was seen as repurchases (if the net amount of shares and/or rand value still constituted a repurchase). This occurred only for EOH Limited, in 2011 and 2013.

When the number of shares repurchased and sold by subsidiaries was known, but the rand value was netted off, the amount spent on repurchases was estimated using a grossing up technique. This was done by dividing the net amount spent (or received) by the net shares repurchased (or sold), to calculate an average price per share. The average price per share was then multiplied by the number of shares repurchased (known) to approximate the rand value spent. This occurred in the cases of Cognition Holdings Limited (2017), ELB Limited (2017), and Metrofile Holdings Limited (2016 and 2017).

Where the rand value of treasury shares repurchased and sold by subsidiaries were known separately, but the numbers of shares involved were netted off, a process similar to the one in the previous paragraph (but reversed) was followed. In such cases, the rand value paid to repurchase shares, and the price at which treasury shares were sold were netted off, and then this net amount was divided by the net movement in shares, to determine an average price per share. The rand value spent on repurchases was then divided by this per-share figure to approximate the number of shares repurchased by subsidiaries. This occurred in Invicta Holdings Limited (2012 and 2013), but some adjustments were needed in 2013. In 2012 the market value of the shares sold (transferred as settle SBPs) was disclosed as a transfer in the statement of changes in equity, but in 2013 the cost price of the shares sold (transferred to settle SBPs) was shown as a transfer in the statement of changes in equity (the measurement was described in the share capital note). Thus, in 2013, the cost price of shares sold (transferred to settle SBPs) and the fair value at which shares were repurchased would be incompatible measurement bases. To compensate for this, another entirely different method was used in 2013. As the cost price of all treasury shares held by subsidiaries at the start of the year was disclosed in the notes to the annual financial statement, this total cost price was divided by the number of shares held by subsidiaries at the start of the year (to determine the average cost price per treasury share held by subsidiaries). The value transferred per statement of changes in equity (relating to the shares sold or transferred by subsidiaries) was divided by the average cost per treasury share, to determine the number of shares sold or transferred by subsidiaries. The number of shares sold or transferred was added to the net movement in shares held by subsidiaries (it was a net increase in the number of shares held), to calculate the number of shares repurchased by subsidiaries.

3.3.3.4 Black economic empowerment trusts

Companies in South Africa often employ BEE trusts to allocate shares to qualifying employees and to improve their own BEE status. BEE trusts (and any shares repurchased by them) were excluded from this study, even if the BEE trusts were consolidated, because repurchases by share trusts were excluded. The shares owned by consolidated BEE trusts were, however, reconciled (in Spreadsheet 1) to ensure that all share repurchases by other entities were captured. Sometimes companies, instead of trusts, were employed to effect BEE transactions – such companies were referred to as BEE companies in the present study. BEE companies that were consolidated (only one or two were noted) were included in the study (repurchases done by them were seen as repurchases), but BEE companies that were not consolidated (which was the case for most of the BEE companies) were excluded as such companies did not qualify as subsidiaries. Where a BEE company was consolidated during the initial years of its existence, but not consolidated in later years (and also removed from comparative figures), such a BEE company was deemed to be unconsolidated (i.e. that it had mistakenly been consolidated in the initial years).

3.3.3.5 Forfeitable share plans

During the latter years covered by the study, performance and restricted shares (contingent shares) became increasingly popular. Some of the contingent share schemes in use were forfeitable share plans for taxation purposes, i.e. the shares were delivered to the executive (or a proxy) on the grant date. The accounting treatment and disclosure of the forfeitable shares issued differed vastly between companies and complicated the Spreadsheet 1 reconciliation. In many Spreadsheet 1s an additional control (akin to the number of shares held by consolidated share trusts) was added to reconcile the movement in the shares granted under such schemes. Shares were often repurchased by the holding company and then granted to the employees, but still treated as treasury shares (similar to a share trust) until vested in the employee. Other companies did not repurchase the shares to be granted, but just issued them to employees, and then treated them as treasury shares in the group until vested. Still other companies issued the shares to a subsidiary or other intermediary who then held the shares on behalf of the employees until vesting (without treating the issued shares as treasury shares thereafter). In one company in the population (Pick n Pay Stores Limited), forfeitable shares were issued to employees at grant date and were then not treated as treasury shares (although unvested). When these shares (not seen as treasury shares) were then forfeited by employees during the vesting period, the shares were returned to the company. This return of shares decreased share capital but was not seen as a share repurchase as no consideration was paid by the company.

For forfeitable share plans, the initial repurchase of shares (to then re-issue such shares to employees under the forfeitable share plan) was seen as a share repurchase when collecting the share repurchase data (if such repurchase occurred under the specific forfeitable share plan). However, barring this element that occurred only in some forfeitable share plan transactions, none of the forfeitable share plans gave rise to share repurchases.

3.3.3.6 Share repurchases as a result of business combinations

Share repurchases that arose from a business combination (for example, where an acquired subsidiary owned shares in the acquirer before the acquisition date, and these shares become treasury shares on the acquisition date) were excluded from the study. The reason for the exclusion is that the increase in treasury shares as a result of the business combination does not constitute a repurchase as defined by the JSE Listing Requirements, and the rand value of the shares repurchased is not available separately as it is included in the consideration paid for the business combination. Only two such instances were noted. Shares acquired through a business combination did, however, form part of the treasury share balance and, if subsequently sold to the holding company, were treated as a repurchase of treasury shares by the holding company.

3.3.3.7 Share repurchases prior to listing

Some companies included in the study listed on the JSE during the 2002–2017 period. A number of these companies may have engaged in repurchasing shares during the financial year in which they first listed, but before they listed. Such share repurchases were included in Spreadsheet 1 reconciliations to ensure that all changes in the number of shares were accurately recorded, but were excluded from Spreadsheet 2 (as they occurred prior to listing and therefore were not repurchases as defined by the JSE Listing Requirements). Repurchases prior to listing need not be announced on SENS. As an example, Life Healthcare Group Holdings Limited listed in 2010 but, just before listing, repurchased the 321.5 million shares that it reissued in the initial public offering. The repurchase was not announced via SENS.

3.3.3.8 Adjustments to the data from the Wesson (2015) study

A limited number of adjustments were made to the share repurchase data collected during the Wesson (2015) study. For Truworths Limited, a SENS announcement was made in 2013 that covered the period 2009 to 2013, and caused some of the 2009 repurchases to move from unannounced to announced. For Invicta Limited, it subsequently became clear that the treasury shares repurchased in 2008 and 2009 were by a subsidiary and not a trust, as previously presumed by Wesson (2015). For Sun International Limited, in 2009, there was a share repurchase by the holding company, but the

shares were transferred to a subsidiary during 2010. The 2009 repurchase only became clear upon looking at the 2010 annual financial statement, and was therefore added to the 2009 year.

3.3.4 Transferring the data in Spreadsheet 2 to a flat file used for data analysis

The process detailed in Sections 3.3.1 to 3.3.3 was followed for the years 2010–2017 where the 2002–2009 data had already been covered by Wesson (2015), and for the years 2002–2017 otherwise. After a Spreadsheet 2 had been completed for each company (indicating both the number and rand value of shares repurchased per repurchasing entity and repurchase type, as well as whether announced or not), the data were extracted to an Excel flat file containing the data of all companies included in the population per company year.

For the companies included in the Wesson (2015) study that were also included in the population on the present study, the 2002–2009 share repurchase information was transferred from the flat file used by Wesson (2015) to the flat file of the present study. The flat file used in the Wesson study contained certain columns (categories), and the same categorisation was applied in the present study. This informed the headings of the columns (categories) employed in the flat file of the present study.

Thus, similar to Wesson (2015), the flat file of the present study contained the following categories for the number of shares repurchased and the rand value spent, separately:

1. Repurchasing entity: Holding company from third parties
2. Repurchasing entity: Holding company repurchasing treasury shares
3. Repurchasing entity: Subsidiaries
4. Repurchase type: General
5. Repurchase type: Specific – pro rata
6. Repurchase type: Specific – holding company repurchasing treasury shares
7. Repurchase type: Specific – other specific
8. SENS: Announced general
9. SENS: Announced specific – holding company repurchasing treasury shares
10. SENS: Announced specific – pro rata
11. SENS: Announced specific – other specific
12. SENS: Unannounced general
13. SENS: Unannounced specific

To ensure accuracy and completeness of the present study's flat file, a number of checks were built in to ensure efficient transferral from the various Spreadsheet 2's and the flat file used by Wesson (2015). Firstly, per company for the new data collected during the present study, the total number

and rand value of shares repurchased as per Spreadsheet 2 were compared to the total number and rand value contained in the flat file (after extraction). Secondly, it was checked that the total number of shares repurchased by all repurchasing entities (categories 1 to 3 above) was equal to the total number of shares repurchased as both specific and general repurchases (categories 4 to 7 above) and the total number of shares repurchased that was announced and unannounced (categories 8 to 13 above). This was also done for the rand value spent on share repurchases. Thirdly, to ensure that the number of shares and rand value were allocated consistently in the appropriate categories mentioned above, a formula was written to check that where a specific category contained a number of shares repurchased, the same category also contained a rand value spent. Discrepancies found in the checks above were noted and resolved.

3.3.5 Data analysis regarding share repurchases

The data collected in terms of the categories (numbered 1 to 13 above) were used to answer research sub-questions 1.3 to 1.5 (see Chapter 1). Total columns were then added for both the number of shares repurchased and the rand value spent. These totals included measures of both gross share repurchases (the total of share repurchases executed by all repurchasing entities – i.e. the total of categories 1 to 3 above) and net share repurchases (share repurchases excluding intragroup repurchases – i.e. the total of categories 1 and 3 only). The total columns were used to answer Research sub-question 1.2 (see Chapter 1). A final column was added to the flat file (database on share repurchases) which contained a binary response of '1' if the company had executed a share repurchase during the year, or '0' if the company had not. The binary response column was used to address Research sub-question 1.1.

To address research sub-questions 1.1 to 1.5 descriptive statistics were employed. Furthermore, trends over the 2002–2017 period were analysed. This can be seen in Chapter 4. In addition, Chapter 4 addresses Research sub-question 1.6, which entailed a comparison between the 2000–2009 period and the 2010–2017 period. Aspects compared were: the number of companies repurchasing (sub-question 1.1), the quantum of share repurchases (sub-question 1.2), the preferred repurchasing entity (sub-question 1.3), the preferred repurchase type (sub-question 1.4), and the percentage of share repurchases that was announced (sub-question 1.5). These aspects were compared by calculating the same type of descriptive statistics separately for the two periods and then comparing the descriptive statistics for the two periods. The key idea was to elucidate differences in share repurchase activity after the global financial crisis, and then compare these with the findings of Wesson (2015) on the 2000–2009 period, as well as with global share repurchase activity since the financial crisis.

3.4 RESEARCH QUESTION 2: CHARACTERISTICS OF SHARE-BASED REMUNERATION

To address Research question 2, the characteristics relating to the executive share-based remuneration of South African listed companies was investigated. In line with Massie et al. (2014, p. 7), both share-based awards in existence (to enable an understanding of the vesting conditions attached and the rewards offered) and share-based awards exercised (to measure the financial benefit that executives realised) were studied. Share-based remuneration is defined, for the purpose of this study, as any long-term incentive paid to executives of which the value depends on the share price (including, but not limited to, share options, SARs, and contingent shares). Research sub-questions were developed (see Chapter 1) and data correspondingly collected.

3.4.1 Data collection from IRESS

The data were primarily collected using the IRESS financial database (product: Director Search). The characteristics of executive share-based remuneration had to be downloaded from IRESS per executive per reporting period, which made the process quite time-consuming, while occasionally a bulk covering five years could be downloaded in one attempt.

To ensure that the data on share-based remuneration were downloaded for all executives of a certain company for all years that the person acted as executive, a specific process was followed. IRESS gathers data on both executives and non-executives but indicates whether a certain person is an executive or non-executive. As first step, IRESS was consulted (for each company, and for each financial year) to determine the list of executives in service for that particular year. This list then served as template, and it was checked that the share-based remuneration was collected for all executives in service for all financial years.

IRESS captures information regarding both the rand value of executive share-based remuneration (value-based data) and the number of instruments involved, for each scheme type employed (number-based data). The collection of both value-based and number-based data is discussed in Sections 3.4.1.1 and 3.4.1.2.

3.4.1.1 Value-based data extracted from IRESS

Figure 3.2 shows an example of the value-based data that IRESS captures per executive per reporting period (Figure 3.2 is an example of a case where five years of data can be exported in one attempt). The information shown in Figure 3.2 was copied to a flat file on executive share-based remuneration – containing the company name, year, and name of executive, with the value-based information adjacent. This process was repeated per executive per company year to produce a comprehensive

database on the value of executive remuneration, listed per executive, per company year (hereafter referred to as per-executive database on share-based remuneration).

DIRECTORS REMUNERATION REPORT

Basson JW (SHOPRITE HOLDINGS LTD)
Report Date: 20 Nov 2019 10:32:12 AM

Remuneration

Period Ending: 2008

Remuneration	2008	2007	2006	2005	2004
Currency	*ZAR*	*ZAR*	*ZAR*	*ZAR*	*ZAR*
Salary '000'	13 158	9 929	9 948	7 171	5 176
Retirement &/Or Medical '000'	3 162	2 381	784	601	509
Allowances & Benefits	0	328	167	0	0
Motor & Travel '000'	0	0	0	0	0
Fee/Levy Payment '000'	0	0	0	0	0
Guaranteed Total Cost To Company '000'	**16 320**	**12 638**	**10 899**	**7 772**	**5 685**
Bonus Paid In Current Year '000'	0	0	0	0	0
Performance Bonuses '000'	0	0	0	51 175	6 835
Other Benefits '000'	320	0	0	20	16
Once Off Payments	0	0	0	0	0
Total Annual Compensation	**16 640**	**12 638**	**10 899**	**58 967**	**12 536**
Gains On Shares '000'	0	0	0	0	0
Total Remuneration '000'	**16 640**	**12 638**	**10 899**	**58 967**	**12 536**

Figure 3.2. **An example of the value-based executive remuneration data available in IRESS**

From the pilot study, it was noted that all line items in the figure up to the 'total annual compensation' line item was relatively well-captured, with minimal errors (Steenkamp & Wesson, 2018a). However, the line item 'gains on shares' (see red arrow) was less reliable as data source. The line item was probably created in 2002 to capture the gain realised on the exercise of share options as required by the previous Companies Act read together with King II (Steenkamp & Wesson, 2018a). However, in later years, share-based schemes other than share options became popular and the current Companies Act was less clear on which value should be disclosed in terms of share-based remuneration (Dippenaar, 2018; Steenkamp & Wesson, 2018a). Some companies disclosed grant date fair value, others the IFRS 2 expense, and still others the gain realised on exercise or vesting date (Dippenaar & Steenkamp, 2017). During 2002–2017, uninformed data capturers (in trying to populate the line item 'gains on shares') were probably capturing whatever measure the company disclosed regarding its executive share-based remuneration, with some companies not disclosing any value for share-based remuneration in the section dealing with short-term remuneration. An indirect contribution of the present study could be training data capturers at IRESS (or other financial database operators) who capture details related to share-based remuneration, to improve quality control.

The following value-based information was thus collected from IRESS (per executive, per company year) and included in the 'per-executive database on share-based remuneration' of this study, in thousands of rands:

- Salary
- Other short-term remuneration (calculated as the difference between the amounts shown as Total Annual Compensation and Salary in Figure 3.2)
- Share-based remuneration ('gains on shares' in Figure 3.2)
- Total remuneration (the total of the three elements listed in the bullets above).

3.4.1.2 Number-based data from IRESS

IRESS also captures information regarding the share-based schemes employed by companies, on a per executive basis. An example of one scheme for a single executive is shown in Figure 3.3. This information was copied and added to the 'per-executive database on share-based remuneration', which was created as explained in Section 3.4.1.1. This process was repeated per scheme, per executive for every company year. The 'per-executive database on share-based remuneration' thus contained comprehensive information on both the value of executive share-based remuneration and the schemes employed (per executive, per company year). The 'per-executive database on share-based remuneration' had space for the details of each possible type of scheme (per executive), although not all executives were exposed to all types of scheme. The types of scheme on which data were collected were share options, SARs, restricted shares, performance shares, deferred bonus plans, share purchase plans, phantom shares and others.

Schemes

Schemes	2008	2007	2006	2005	2004
Currency	*ZAR*	*ZAR*	*ZAR*	*ZAR*	*ZAR*
Type Of Scheme	Share Option	Share Option	Share Option	Share Option	Share Option
Scheme Instrument	SHOPRITE HOLDINGS LTD	SHOPRITE HOLDINGS LTD	SHOPRITE HOLDINGS LTD	SHOPRITE HOLDINGS LTD	SHOPRITE HOLDINGS LTD
Nature Of Scheme					
Opening Balance	10 000 000	10 000 000	10 000 000	10 000 000	0
Allocated	0	0	0	0	0
Strike Price: (R)	6.51	6.51	6.51	6.51	
Exercised During Year	0	0	0	0	0
Lapsed During Year	0	0	0	0	0
Forfeited During Year	0	0	0	0	0
Balance Year End	**10 000 000**	**10 000 000**	**10 000 000**	**10 000 000**	**10 000 000**
Earliest Date Of Vesting					

Figure 3.3. **An example of the number-based per-scheme data available in IRESS**

The information presented in Figure 3.3 was available from 2002 onwards, although the early years (prior to 2005 or 2006) was often limited to the number of instruments held at year end. Figure 3.3

shows that the type of scheme is named. From either 2005 or 2006, depending on the individual company, IRESS has always provided a description of the scheme and the vesting conditions (which is available when hovering on the 'i' button). Sometimes this description was very short (one or two sentences with very little information), while some descriptions were extremely lengthy. The description is some sentence or paragraph copied directly from the annual financial statement, often being the IFRS 2 description of the scheme and its vesting conditions. An example of the wording of the 'i' button is as follows (2008 Shoprite from Figure 3.3):

> Share Option Scheme in terms of the rules of The Shoprite Holdings Ltd Share Incentive Trust, the trustees are authorised to acquire and allocate shares which in total may not exceed 20% of the issued ordinary share capital of the Company.* Options are forfeited when an option holder resigns prior to the vesting date of the options.** During the year under review, holders of 3,206,250 (2007: 3,881,250) options, out of a possible total of 5,368,750 (2007: 4,668,750), who could exercise their options from 20 to 24 December 2007 (2007: 20 to 24 December 2006), agreed to accept settlement of these options in cash. The fair value of the cancelled and settled options were accounted for as a deduction from equity, net of related tax (refer statement of changes in equity). All unpaid but exercisable rights of option holders who have elected cash settlement are included in the cash-settled share-based payment accrual (refer note 20). Options outstanding on 30 June 2008 are unconditional on the following dates or immediately in the case of a deceased estate (see Annual Report 2008 page 82 for details).

The information accessible via the 'i' button was read to ascertain the scheme type (since sometimes the IRESS name was misleading), the length of the vesting period and the accompanying performance conditions. When the scheme type heading in IRESS was contradicted by the information given via the 'i' button, the information (in Figure 3.3) was reclassified to be shown under the correct scheme type. For each scheme type, the vesting period and performance conditions employed were also added to the 'per-executive database on share-based remuneration', if mentioned in the 'i' button information. Some executives were exposed to multiple schemes and this process was repeated per scheme.

The following number-based information was extracted from IRESS (per scheme type for every executive), and collected in the 'per-executive database on share-based remuneration':

- the length of the vesting period
- the performance conditions attached
- the number of instruments held at the start of the period
- the number of instruments granted during the period

- the number of instruments exercised during the period
- the number of instruments that lapsed or were forfeited during the period
- the number of instruments held at the end of the period

3.4.2 Correction of discrepancies based on annual financial statements

Based on the evidence provided by the pilot study (Steenkamp & Wesson, 2018b), it was decided to update the data collected from IRESS where the data were incomplete (empty fields) or obviously inaccurate. Examples of inaccuracies included:

- Data were duplicated (details relating to a single executive were captured twice).
- The director was indicated as an 'executive director' by IRESS although the annual financial statement referred to the person as a non-executive director (non-executive directors were excluded from the present study).
- The scheme type was incorrectly classified by IRESS.
- Two scheme types (e.g. restricted shares and performance shares) were combined by IRESS although the annual financial statement showed them separately.
- For a specific scheme, the number of instruments held at the beginning of a year (for a specific scheme) did not agree with the number instruments held at the end of the prior year.
- For a specific scheme, the number of instruments held at the beginning of a year adjusted for changes (grants and exercises, etc.) that occurred during the year did not correspond to the number of instruments held at the end of the year.
- The performance conditions attached to a certain scheme were not available in IRESS, and as a result the annual financial statement had to be consulted to obtain this information.
- No information was captured by IRESS although the annual financial statement did contain information.

In the case of incomplete or inaccurate data from IRESS, the discrepancies in the 'per-executive database on share-based remuneration' were updated based on the information disclosed in annual financial statements. The sections of the financial statement consulted included the directors' report, the remuneration report, the related party note, the note regarding SBPs (IFRS 2) and the directors' remuneration note accompanying the income statement.

The pilot study (Steenkamp & Wesson, 2018b) found that the 'gain on shares' line significantly understated the value realised from share-based remuneration. Given the difficulty of accurately recalculating this amount, the inconsistent disclosures in the annual financial statement regarding this aspect (Steenkamp et al., 2019), and the fact that the value of executive share-based remuneration

would not be employed as independent variable in the present study, it was decided not to attempt a recalculation of all 'gains on shares' data items. As such, no corrections were made to the 'gains on shares' line – the data as extracted from IRESS were used unchanged. This remains an area for further study.

3.4.3 Data analysis regarding executive share-based remuneration

Sections 3.4.1 and 3.4.2 detailed the process followed to create a comprehensive per-executive database on executive share-based remuneration (called 'per-executive database on share-based remuneration'). This per-executive database contained 8 837 data line items. To address Research sub-question 2.1 (relating to the value of share-based remuneration in relation to total executive remuneration), it was decided to employ the per-executive database, as companies employ varying numbers of executives (thus, a per-company analysis would be less useful). The value-based information collected in the 'per-executive database on share-based remuneration' was employed to answer Research sub-question 2.1.

To answer the remaining research sub-questions relating to Research question 2, it was decided rather to employ (mainly) per-company data on share-based remuneration, as the companies' decisions regarding executive share-based remuneration (e.g. which scheme types to grant (sub-question 2.2), which vesting conditions to employ (sub-question 2.3), and the number of share-based instruments to employ (sub-question 2.4) had to be assessed. Thus, a 'per-company year database on share-based remuneration' had to be created. The share-based remuneration data of all executives employed by a certain company in a specific year was combined to create a data line item which captured the total executive share-based remuneration paid by that company in the specific year. These combined data line items were referred to as per 'company year' and 2 313 such line items were created. The database containing the 2 313 line items per company year was referred to as the 'per-executive database on share-based remuneration', and was later combined with the flat file on share repurchases (Section 3.3) to address Research question 3 (i.e. on the relationship between share repurchases and executive share-based remuneration).

3.5 RESEARCH QUESTION 3: RELATIONSHIP BETWEEN REPURCHASES AND SHARE-BASED REMUNERATION

The aim of the present study was to determine whether a statistical relationship exists between share repurchase and executive share-based remuneration variables in South Africa. Research question 3 specifically addressed this. Earlier studies undertaken in other countries have indicated that a positive relationship between share repurchases and executive share-based remuneration can be expected to exist (see Section 2.4). The hypotheses developed were thus:

- H_0: There is no relationship between share repurchases and executive share-based remuneration in South Africa.
- H_a: There is a positive relationship between share repurchases and executive share-based remuneration in South Africa.

The present study, similar to earlier research in other countries (Section 2.4), thus examined whether the existence of executive share-based remuneration is associated with increased share repurchases. Previous research identified share repurchases as the dependent variable, and executive share-based remuneration as the independent variable. However, other factors are also associated with increased share repurchases and should be employed as control variables (to determine, ceteris paribus, the effect of executive share-based remuneration on share repurchases). Given that multiple factors influence share repurchases, it was decided to employ a multiple regression model to examine the relationship between share repurchases and executive share-based remuneration.

Earlier studies undertaken in other countries (see Table 2.4) informed the measurement of the dependent and independent variables, the identification and measurement of control variables, the identification of appropriate econometric regression models, and the expected relationships in this study. Previous studies, and how they influenced the choice of variables and econometric models employed as well as the expected relationship between share repurchases and executive share-based remuneration, are discussed in Sections 3.5.1 to 3.5.3.

The unit of analysis was a specific company in a specific year (termed a company year). The data employed was obtained by combining (per company year) the flat file on share repurchases (created as described in Section 3.3) and the 'per-company year database on share-based remuneration' (created as described in Section 3.4). Checks of totals were done to ensure that all data were accurately transferred to the combined file containing details on both share repurchases and executive share-based remuneration. The flat file on share repurchases contained 2 392 company years, but data on executive share-based remuneration were only available for 2 313 of the 2 392 company years. The remaining 79 company years for which no executive share-based remuneration was available (see Section 5.2) were excluded from the regression analyses. Thus only 2 313 company years were included in the regressions executed. All econometric analysis was conducted using Stata 15.0.

3.5.1 Dependent and independent variables

Table 3.1 shows dependent (share repurchases) and independent (executive share-based remuneration) variables employed by the previous studies listed in Table 2.4. Geiler and Renneboog

(2016) studied the decision to repurchase (in relation to other payout methods) as well as the relationship between total payout and executive share-based remuneration. The decision to repurchase is included in Table 3.1, but the study of total payout is not included as share repurchase value was not separately studied by Geiler and Renneboog (2016).

Table 3.1

Measurement of dependent and independent variables for share repurchases and executive share-based remuneration, respectively, as employed in previous studies (Steenkamp & Wesson, 2020a)

Name of study	Measurement of dependent variable (share repurchases)	Measurement of independent variable (executive share-based remuneration)
Jolls (1998)	Decision between repurchases and other payout methods	Number of share options held (and granted) scaled by number of company shares outstanding; value of restricted shares granted
Fenn and Liang (2001)	Repurchase value scaled by market capitalisation	Number of share options held scaled by number of company shares outstanding
Kahle (2002)	Decision between repurchases and other payout methods; repurchase value scaled by market capitalisation	Number of share options held scaled by number of company shares outstanding
Weisbenner (2004)	Repurchase value scaled by market capitalisation	Number of share options held scaled by number of company shares outstanding
Aboody and Kasznik (2008)	Change in repurchase value scaled by market capitalisation	Change in the value of incentives granted scaled by market capitalisation
Lamba and Miranda (2010)	Number of shares repurchased scaled by number of company shares outstanding	Number (value) of share options held scaled by the number of company shares outstanding (market capitalisation)
Young and Yang (2011)	Binary variable (did company repurchase or not?); repurchase value scaled by assets	Binary variable indicating whether EPS-related conditions were present
Bhargava (2013)	Log of repurchase value	Log of value of share options granted and realised
De Cesari and Ozkan (2015)	Decision between repurchases and other payout methods; repurchase value scaled by market capitalisation	Number of instruments held scaled by number of company shares outstanding
Burns, McTier, and Minnick (2015)	Binary variable (did company repurchase or not?); repurchase value scaled by assets	Value of share-based remuneration scaled by total remuneration
Geiler and Renneboog (2016)	Decision between repurchases and other payout methods	Value of share-based remuneration scaled by assets
Edmans, Fang, and Huang (2018)	Binary variable (did company repurchase or not?); repurchase value scaled by market capitalisation	Value (share price sensitivity) of share-based remuneration vested
Moore (2018)	Binary variable (did company repurchase or not?); percentage of shares repurchased	Binary variable indicating whether or not share-based instruments vested; value of share-based instruments vested
Department for Business, Energy and Industrial Strategy (2019)	Binary variable (did company repurchase or not?); mean value of repurchases	Binary variable indicating whether EPS-related or TSR-related conditions were present
Gao and Kronlund (2020)	Log of repurchase value	Log of value of share options exercised (and granted)

3.5.1.1 Dependent variable

A total of 15 previous studies are listed in Table 3.1. Of these studies three studies (Department for Business Energy and Industrial Strategy, 2019; Moore, 2018; Young & Yang, 2011) employed only share repurchases as dependent variable. Most of the other studies considered share repurchases in relation to dividends (payout in general versus retention) as dependent variable. However, some studies also considered aspects of executive remuneration; abnormal returns earned subsequent to repurchase announcements; mergers and acquisitions; and earnings management as dependent variables, in conjunction with share repurchases (in separate regressions within the same paper).

A dependent variable often used in previous studies was the decision to repurchase (compared to either not repurchasing; increasing dividends; or retention). A 'decision to repurchase' indicator was used in nine of the previous 15 studies. As such, it was decided to include a binary dependent variable in the present study, taking the form of '1' when a company repurchased in a certain year, and '0' when a company did not repurchase.

Additionally, most previous studies (11 of the 15 studies) employed the value spent on repurchases as dependent variable. Most often this value was scaled by either market capitalisation (6 studies) or assets (2 studies). Thus, in the present study the rand value spent on share repurchases, scaled by market capitalisation, was identified as a second dependent variable (in addition to the binary 'decision to repurchase'). Given the unique South African regulatory environment, the following rand values spent on share repurchases were identified:

- Total (net) repurchases (excluding repurchases of treasury shares by the holding company, as such repurchases have no signalling value, are not expected to increase the share price of the company and do not represent a cash outflow from a group perspective)
- Repurchases by the holding company from third parties (excluding repurchases of treasury shares)
- Repurchases by subsidiaries
- General repurchases
- Other specific repurchases
- Announced general repurchases
- Unannounced general repurchases

Data on whether or not a company executed a share repurchase, and the rand values involved, were collected as explained in Section 3.3. The market capitalisation used to scale the rand values involved was the lagged market capitalisation, as collected from IRESS Expert (financial database).

3.5.1.2 Independent variables

In terms of independent variables, previous studies have either employed (i) the number of executive share-based instruments; (ii) the value of executive share-based instruments; or (iii) whether performance conditions based on EPS and/or TSR are employed. In South Africa, the value of share-based incentives is poorly disclosed in the annual financial statements of companies and is not available from commercial financial databases – as such, the value of share-based remuneration is not an appropriate independent variable in the South African context. Furthermore, if one uses the value of share repurchases as dependent variable and the value of share-based remuneration as independent variable – all measured in the same year, as Geiler and Renneboog (2016) did – then reverse causality could become a problem. The reason for the possible reverse causality is the fact that increased share repurchases usually increase the share price and thus increase the value of share-based remuneration, with the dependent variable thus influencing the independent variable (thus reverse causality).

With this as background, it was decided to include two ratio-scale independent variables (relating to executive share-based remuneration): the number of share-based instruments exercised and the number of share-based instruments held at year end (both scaled by the number of company shares outstanding). The number of share-based instruments exercised aims to capture the number of instruments from which the executives would have realised a benefit in a given year. For appreciation scheme instruments (such as share options, SARs, and share purchase plans) the benefit is only realised on exercise (and not on vesting). However, for full quantum schemes the vesting and exercise date are the same, as the benefit is fully realised on vesting (which is therefore also seen as the exercise date). Some of the more recent studies (Edmans et al., 2018; Moore, 2018) employed the value of vested instruments, but this could be argued to be an incomplete measurement, as the benefit from share appreciation scheme instruments are only received on exercise date.

In additional to the two ratio-scale variables, a third (binary) independent variable was added, to indicate whether the company employed performance conditions related to share price, TSR and/or EPS (or not). All share-based instruments (and not only share options) were included in the measurement of the independent variables, as full quantum schemes had become more prominent in the later years covered by the study (most of the more recent studies in Table 3.1 also included all instrument types). The share-based remuneration received by all executives were included in the present study, and not only those received by the CEO. Although the CEO is probably the most dominant executive, all executives would be involved in making the decision to repurchase and their financial interest should thus be considered (De Cesari & Ozkan, 2015, p. 75).

Some of the previous studies employed a lagged independent variable, while others measured the dependent and independent variables in the same period as the dependent variable. However, when the exercise or vesting of share-based instruments is identified as independent variable, it makes sense to measure the instruments exercised (or vested) in the same period as the share repurchase. This was done in all the studies that employed the vesting of share-based instruments as independent variable (Edmans et al., 2018; Gao & Kronlund, 2020; Moore, 2018) – although the studies mentioned employed value of share-based incentives rather than the number of instruments involved. As the present study employed the number of instruments exercised as an independent variable, it was decided to measure all the dependent and independent variables in the same time period (i.e. the dependent variables were not lagged).

The number of instruments involved, as well as whether performance conditions related to share price, TSR and/or EPS were employed, were collected as explained in Section 3.4. During the reconciliations done to identify the number of shares repurchased, the number of shares in issuance by both the holding company and the group was collected. It was decided to scale the number of share-based instruments exercised during the period and held at year end by the number of holding company shares outstanding (and not the group number of shares). This makes the research comparable to global research where a group number of shares does not exist, as subsidiaries are not allowed to repurchase. Additionally, using the holding company number of shares to scale the independent variable corresponds to the market capitalisation used to scale the dependent variable (market capitalisation is calculated as number of shares in issue by the holding company multiplied by the share price at a certain date). Moreover, employing the holding company number of shares corresponds to the JSE's disclosed number of shares and market capitalisation practices (therefore it represents the real-time publicly available data of the JSE on the number of shares and market capitalisation) (Bester et al., 2008).

3.5.1.3 Sub-questions for Research question 3

Based in the dependent and independent variables identified, a number of sub-questions were developed in respect of Research question 3. These were listed in Chapter 1. To summarise, the sub-questions considered whether (i) the decision to repurchase, and (ii) the value spent on share repurchases was related to any of the variables related to executive share-based remuneration (the number of instruments held by executives at year end; the number of share-based instruments exercised by executives during the reporting period; or employing performance conditions that are linked to share price, TSR and/or EPS).

3.5.2 Control variables

The control variables employed by previous studies (Table 3.1) were examined in depth, to decide whether these controls should also be included in the present study. Usually the previous studies employed lagged values for some or all of control variables employed (when it was reasoned that share repurchases in a current period were related to a control variable in the prior period). As a fall-back, it was decided that control variables should be lagged, unless an appropriate reason could be found not to do so. Previous research mostly employed scaled variables (usually scaled by assets).

The control factors employed by at least half of the previous studies (i.e. by at least 8 of the 15 studies shown in Table 3.1) are:

- company size (employed by all 15 studies);
- company performance (employed by 11 of the 15 studies);
- cash (employed by 11 of the 15 studies);
- leverage (employed by 14 of the 15 studies);
- company undervaluation (employed by all 15 studies); and
- share price performance in the prior period (employed by 9 of the 15 studies).

In the present study, it was decided to control for all the factors listed in the preceding paragraph. The measurement of each of the factors are addressed separately. All control variables were collected using the IRESS Expert (financial database).

Company size was usually measured by market capitalisation (in 7 previous studies) or assets (in 7 previous studies). In 12 of the 15 previous studies the logarithm of the chosen proxy was employed. In the present study it was decided to measure company size as the lagged value of the logarithm of market capitalisation. When looking at the findings of most of the previous studies, it was expected that larger companies would be more likely to engage in share repurchases (Burns et al., 2015; De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016) and to spend more resources on share repurchases (Burns et al., 2015; De Cesari & Ozkan, 2015; Edmans et al., 2018).

A company which is performing well, and generating profits, would be more inclined to execute share repurchases (De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016). In previous studies, company performance was mostly measured as some form of return on assets. Two previous studies employed both operating and non-operating performance (Edmans et al., 2018; Weisbenner, 2004), but the remainder only focused on operating performance. It can be argued that company performance in the current year (rather than in the prior year) would influence share repurchase behaviour in the current year – in line with Jolls (1998), who used the non-lagged company performance in her analysis, while

lagging all other controls. It was decided to employ non-lagged return on assets to measure company performance in the present study.

Companies with more excess cash, would be more likely to execute share repurchases (De Cesari & Ozkan, 2015). To estimate cash, six of the previous studies listed in Table 3.1 employed cash reserves (in the statement of financial position), while seven previous studies employed cash flow (from the statement of cash flows). When share repurchases are analysed, share repurchase value is often presented as a percentage of cash flow (Birstingl, 2016). Therefore, cash flow was used to measure the availability of cash in the present study: specifically cash available (cash from operating activities before payment of dividends), the nearest item to free cash flow as captured by IRESS Expert was employed. Cash available was not lagged, as it can be argued that a company which has excess cash in the current year, would be more inclined to engage in share repurchases in the current year (this idea was also mentioned in the 2009 annual financial statement of Woolworths Holdings Limited, as described in Section 4.4.1.3). The value of cash available was scaled by assets – in line with previous research.

Leverage was mostly measured by the debt-to-assets ratio (in 8 of the 15 previous studies). The lagged debt-to-assets ratio was employed to proxy for leverage in the present study. A company with a lower debt-to-assets ratio would be more likely to engage in share repurchases (Geiler & Renneboog, 2016).

Undervaluation is one of the major reasons that companies mention for engaging in share repurchases (Kahle, 2002). Previous studies (12 out of 15 studies) mostly used the market-to-book ratio to measure undervaluation. The lagged market-to-book ratio was employed in the present study.

A falling share price can lead to a company viewing itself as undervalued, and therefore engage in share repurchases (Edmans et al., 2018). Thus, most of the previous studies included some measure for prior-period share price performance as control. The majority of the studies that controlled for share price performance, employed the percentage of increase or decrease in the share price over the prior period (calculated as the share price at the end of the prior period divided by share price at beginning of the prior period, minus 1). This measurement was also employed in this study.

Dividends were included as an alternative dependent variable in eight of the 15 previous studies. Two of the three studies that employed only share repurchases as dependent variables controlled for dividends (using either a binary variable indicating whether the company had paid dividends, or the dividend yield) (Department for Business Energy and Industrial Strategy, 2019; Young & Yang, 2011). It was therefore decided to control for dividends, using the dividend yield as proxy. The dividend yield

in the current year was chosen to match the period in which the share repurchases occurred (as many studies employed dividends as an alternative dependent variable).

Institutional shareholding, or individual ownership as the inverse of institutional ownership, was used as control variable in seven of the 15 previous studies. Institutional ownership is associated with higher payout (Geiler & Renneboog, 2016), but its association with share repurchase has not been established, as most previous studies that controlled for institutional ownership failed to find a significant correlation between share repurchases and institutional ownership (De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016; Moore, 2019). Furthermore, institutional shareholding is not available on the IRESS Expert financial database, where all control variables were sourced. As a result, it was decided to not include institutional ownership as control variable in the present study. The possible omitted variable bias that arises is discussed in Chapter 6 and included as a limitation of the present study in Chapter 7.

Two of three studies that only used share repurchases as dependent variable controlled for the number of shares already held by executives (Department for Business Energy and Industrial Strategy, 2019; Moore, 2018). As the number of shares beneficially held by directors is available on IRESS Expert, it was decided to include the number of shares – scaled by the number of holding company shares outstanding – as control variable. As the other variables measured in number of shares (the independent variable measuring the number of share-based instruments exercised and held) were not lagged, it was decided not to lag the percentage of beneficial ownership by directors.

In previous studies it was initially heavily debated whether share repurchases were linked to specifically executive share-based instruments, or rather the share-based instruments issued to all employees. The majority of the studies published before 2012 (4 of the first 7 studies in Table 3.1) employed both the share-based instruments held by all employees and those held by executives as independent or control variables (with mixed results reported). However, only one of the more recent studies (i.e. 1 of the last 8 studies in Table 3.1) included the share-based instruments held by all employees as control variable. It would therefore not seem essential to include this as control variable (only 5 of the 15 previous studies did so, and mostly the initial ones). Furthermore, the number of instruments held by all employees is not always specifically reported in annual financial statements nor captured by financial databases – as such, the information is not readily available in the South African environment.

3.5.3 Types of multivariate techniques performed

The types of multivariate techniques employed in previous studies, to test the relationship between share repurchases and executive share-based remuneration, can be seen in Table 3.2. The term 'binary' is used to indicate tests employing binary (or discrete) dependent variables, and the term 'ratio' is used for ratio-scale dependent variables (like the number of shares repurchased or the rand value involved).

Jolls (1998) and Weisbenner (2004) employed cross-sectional data when testing share repurchases as dependent variable, while the remainder employed panel data. Weisbenner (2004) mentioned that a shortcoming in using cross-sectional data is the inability to control for company fixed effects (which are expected when studying the relationship between share repurchases and executive share-based remuneration). Owing to this shortcoming, Weisbenner (2004) supplemented the cross-sectional data he used to study share repurchases with panel data to study the change in shares outstanding (but did not study share repurchases using panel data).

Table 3.2

Statistical techniques and fixed effects adjustments employed in previous studies

Name of study	Technique employed	Company fixed effects	Year fixed effects	Industry
Jolls (1998)	Binary: Logistic regression model (logit)	No mention	No mention	Dummies
Fenn and Liang (2001)	Ratio: Tobit regression model (tobit)	No mention	No mention	Dummies
Kahle (2002)	Binary: Logit Ratio: Not indicated	No mention	No mention	Dummies
Weisbenner (2004)	Ratio: Tobit	No mention	No mention	Controlled for
Aboody and Kasznik (2008)	Ratio: Robust regression model (i.e. not influenced by outliers)	No mention	No mention	Dummies
Lamba and Miranda (2010)	Ratio: Tobit	No mention	Dummies	No mention
Young and Yang (2011)	Binary: Logit Ratio: Tobit	No mention	No mention	Controlled for
Bhargava (2013)	Ratio: Static and dynamic model	Random effects used	Dummies	Included as robustness check
De Cesari and Ozkan (2015)	Binary: Logit Ratio: Tobit	No mention	Dummies	Dummies
Burns, McTier, and Minnick (2015)	Binary: Probit regression model Ratio: Tobit	No mention	Controlled for	Controlled for
Geiler and Renneboog (2016)	Binary: Logit and probit regression model	No mention	No mention	Dummies
Edmans, Fang, and Huang (2018)	Binary: Probit regression model & linear probability model (LPM) Ratio: Ordinary least squares (OLS)	Controlled for	Controlled for	No mention
Moore (2018)	Binary: LPM Ratio: OLS	Controlled for	Controlled for	No mention
Department for Business, Energy and Industrial Strategy (2019)	Binary: Logit Ratio: OLS & quantile regressions	Random effects used	No mention	Controlled for
Gao and Kronlund (2020)	Ratio: OLS	Controlled for	Controlled for	Controlled for

3.5.3.1 Decision to repurchase

Considering the previous studies in Table 3.2, the use of a binary logistic regression model (logit) was the most common technique employed when the dependent variable was the decision to repurchase (a binary dependent variable), although some studies employed a probit regression model or a linear probability model (an ordinary least squares regression with a binary dependent variable). Employing the linear probability model (LPM) when the dependent variable is binary seems to have become more popular of late, if one considers Table 3.2.

Theoretically, the LPM model is not suited when the dependent variable being studied is binary, as the model would predict values for the dependent variable other than zero or one (and possibly below zero or in excess of one) (Agresti, 2007, p. 68). Furthermore, the LPM estimates a constant marginal effect (the coefficient) at all levels of the independent variable, while the real effect is likely to be non-linear (when the dependent variable is either zero or one) (Hair, Anderson, Tatham, & Black, 1998, p. 277; Wooldridge, 2002, pp. 243, 554). However, LPM coefficients are easy to interpret (Hellevik, 2009, p. 66). But, to determine the significance of the coefficients produced by the LPM, the residuals of the model need to be normally distributed. With a binary dependent variable, normality of the error is unlikely (Hair et al., 1998, p. 277), but asymptotic normality might be assumed in large samples (Wooldridge, 2002, p. 173). Heteroscedasticity is also likely to be a problem when employing a binary dependent variable, but this is easily compensated for by employing robust standard errors when using the LPM (Wooldridge, 2010, p. 562). Recently, there does indeed seem to be a move towards employing the LPM even while acknowledging its shortcomings, especially in large samples (Hellevik, 2009; Wooldridge, 2010, p. 563).

A logit model is probably better suited to the binary dependent variable being analysed. The logit model employs the maximum likelihood method, in contrast to the LPM which minimises the squared residual (Hair et al., 1998, p. 278) and will only predict values of zero or one (Wooldridge, 2010, p. 565). Using the non-linear logistic function is more likely to yield logical results, as the independent variable might have different effects on the dependent variable at different levels (Agresti, 2007, p. 100). However, the coefficients produced by the logit model have to be converted to a marginal effect (partial effect at the average) to enable a more intuitive understanding of the magnitude of the change in the dependent variable, as the independent variable increases by one unit (this is, however, easily computed by statistical packages) (Wooldridge, 2010, p. 565). Furthermore, the logit model does not require homoscedasticity and the errors need not be normally distributed (Long, 2008).

Given that the majority of previous studies employed the logit model and that the logit seems to be most appropriate from an econometric perspective, it was decided to employ the logit model to

evaluate the binary dependent variable 'decision to repurchase' in the present study. However, the results of the logit were compared with those produced by the LPM model (as robustness check). Although the linear coefficient provided by the LPM could not provide information on the magnitude of the real non-linear relationship, the direction of the LPM coefficients would provide additional evidence of the existence of a relationship between the decision to repurchase and executive share-based remuneration.

Moreover, in a South African study on the determinants of share repurchases and dividends (Wesson et al., 2018), a binary variable was used as dependent variable, and analysed using a logit model (which provides additional support for using the logit model as main econometric technique in the present study). Wesson et al. (2018) mentioned that they had wanted to add executive options as control variable in their study, but that this data had not been available in the South African context at the time of their study – emphasising the need for the present study to be done.

3.5.3.2 Value of share repurchases

Table 3.2 shows that previous studies examining the value spent on repurchases (a ratio-scale dependent variable) most commonly used a left-censored tobit regression model. The tobit regression model is a partly linear and partly non-linear model which censors observations of the dependent variable which fall below or above a certain threshold (Ramalho, Ramalho, & Murteira, 2011). However, studies after 2016 all employed ordinary least squares (OLS). Possible reasons for later studies employing OLS include:

- the tendency, mentioned in Section 3.5.3.1, to employ OLS in large samples, although not all OLS assumptions are met (this provides easily understandable coefficients if one is primarily interested in the direction of the relationship) (Hellevik, 2009)
- the fact that no fixed-effects version of the tobit model is available, while OLS does allow control for fixed effects
- the fact that tobit does not allow clustering of the standard errors per company, while this is easily done in an OLS model
- the fact that a tobit regression model might be inappropriate when a large number of observations of the dependent variable cluster at the boundary (zero, where the censoring occurs) (Wooldridge, 2010)

The dependent variable, the value of share repurchases as a percentage of market capitalisation, will always range between zero and one (i.e. it is a percentage or a fraction). Wooldridge (2010, p. 748) asserts that it is possible to employ a two-limit tobit (censored at zero and one) as econometric model when the dependent variable is a fraction; however, he cautions that this only provides reliable results

when a clustering occurs at both boundaries (i.e. at zero and one). Using a two-limit tobit is not appropriate when the dependent variable only clusters at the zero point (Wooldridge, 2010, p. 748). A large number of companies in South Africa do not execute share repurchases, and thus spend zero value on share repurchases (Wesson, 2015). It is therefore expected that the majority of the observations of the dependent variable would equal zero in the present study. Conversely, no company would be expected to repurchase all its shares (i.e. its entire market capitalisation). Thus, it is not expected that the dependent variable would take on the value of one. Given that clustering is expected at one boundary (zero) but not at the other (one), it would seem as if the use of the tobit model would be inappropriate.

It should be noted that the bounded nature of the dependent variable is natural, i.e. not produced by censoring. The tobit model was specifically developed for censored data, where data-points above or below the point of censoring could occur, but are censored to a certain point (Ramalho et al., 2011). Furthermore, the tobit model relies on strict assumptions regarding normality and homoscedasticity, which will probably not be met when the dependent variable is a fraction (Ramalho et al., 2011). The tobit model would therefore seem inappropriate to employ in the present study.

The OLS model also does not seem appropriate when studying a dependent variable which is naturally bounded between zero and one (Gallani, Krishnan, & Wooldridge, 2015, p. 3). The OLS model could predict values outside the natural range (i.e. below zero or more than one) (Ramalho et al., 2011) and provides a constant coefficient (i.e. it is a linear model) while the relationship between the dependent variable and independent variables is likely to be non-linear (Gallani et al., 2015, p. 4).

Wooldridge (2010, p. 751), however, proposes an alternative model when the dependent variable is naturally bounded between one and zero, with clustering at a single boundary: namely, the fractional regression model (FRM). The FRM is modelled using quasi-maximum likelihood estimation (Wooldridge, 2010, p.751). A further benefit of using the FRM, is that it relies on a logistic regression as backbone (i.e. it estimates a non-linear relationship) and always predicts values between zero and one (Papke & Wooldridge, 1996).

Papke and Wooldridge (1996) developed the FRM to study the employee participation rates in pension plans using cross-sectional data. Later, Papke and Wooldridge (2008) expanded on the initial cross-sectional model by showing that a Mundlak approach can be applied when dealing with panel data. Several papers have used the FRM to examine fractional responses, especially in the field of executive remuneration. Core, Guay and Larcker (2008) employed the FRM to examine the relationship between the percentage of press coverage that is negative and executive remuneration. Their dependent

variable had a large clustering at zero (median value of zero) (Core et al., 2008). Gallani et al. (2015) compared the usefulness of OLS and FRM models when examining the percentage of executive remuneration made up by each component (bonus, share-based remuneration, etc.). They found that the FRM produced marginal effects that were similar (in direction, size of coefficient, and significance) to those produced by the OLS, but that using FRM led to improved fit (r-squared) owing to its non-linear coefficient and the fact that it bounds the dependent variable between zero and one. Using the FRM also allows researchers to examine the nature of the relationship at different levels of the independent variable, as the effect of the independent variable on the dependent variable is not constant (Gallani et al., 2015). Kang and Nanda (2018) examined the disclosure quality of executive remuneration in the annual financial statements of Indian companies. They employed the FRM because the dependent variable was the percentage of compliance, or the percentage of items disclosed.

Although Gallani et al. (2015) mentioned that the FRM would be useful in studying share repurchase value as a percentage of payout, the FRM has not been used to study the fraction of market capitalisation repurchased. Two of the previous studies scaled share repurchase value by total assets (Burns et al., 2015; Young & Yang, 2011), rather than market capitalisation (this scaled value could theoretically exceed one, and thus technically does not qualify as a fraction). Furthermore, the FRM has only been available in statistical packages (in Stata, specifically) from 2015 onwards. Thus, earlier researchers might not have been aware of the regression model.

With the aforementioned reasoning as background, it was decided to employ the FRM as primary model to investigate the relationship between share repurchase value (as a percentage of market capitalisation) and executive share-based remuneration. However, since the tobit model was the most prominent technique employed by previous studies, it was decided to employ a tobit regression as a robustness check. Additionally, this will enable a comparison of the findings of the present study with those of previous studies (which mostly employed tobit).

3.5.3.3 Fixed effects and other adjustments

Table 3.2 reveals that earlier studies mostly ignored company and year fixed effects, but the later studies most often adjusted for fixed effects relating to year and company. In accounting studies that employ panel data, such as the present study, it is usually important to control for fixed effects (De Jager, 2008). Both share repurchase behaviour and the resources spent varied quite substantially over the period being studied (see Chapter 4), therefore it was decided also to include year fixed effects (dummies) in all regressions executed.

It was further expected that company fixed effects would be significant, as institutional factors (e.g. the strength of corporate governance) pertaining to a specific company could influence both share repurchases (dependent variable) and executive share-based remuneration (independent variable). If these company fixed effects are not controlled for, then this would lead to omitted variable bias, as the error term would contain these company-specific effects that are correlated with the independent variable. Therefore, it was decided to incorporate company fixed effects in the regression models.

However, both the tobit and the FRM do not provide an option to control for fixed effects (in Stata). Furthermore, the fixed effects model available for the logit model is a conditional one, which drops all companies for which no variance in the dependent variable occurs (i.e. when the company had no repurchases in the 2002–2017 period). Using the conditional (fixed effects), logit would severely decrease the data set used as many South African companies do not execute share repurchases at all, but these companies should not be excluded as they provide valuable information. Thus, the only regression model chosen that has appropriate fixed effects available is the LPM model, but the LPM is merely employed as a robustness check for the logit when examining the decision to repurchase in the present study. It was therefore decided to search for alternative ways to account for company fixed effects in the data.

Adding company dummies to eliminate fixed effects might be sub-optimal as it diminishes the degrees of freedom severely and might influence the model's overall effectiveness. Thus, the Mundlak approach was identified as an alternative approach to account for company fixed effects contained in the panel data. Under the Mundlak approach, an additional variable (the mean value per company) is calculated for every independent and control variable (Mundlak, 1978). These additional variables are then added to the regression model to control for fixed company effects (Mundlak, 1978). Papke and Wooldridge (2008), when controlling for fixed effects in the FRM, advocated using the Mundlak approach. It was decided to employ the Mundlak approach in all regressions executed, to enable comparisons between regressions.

Industry effects were mostly compensated for using dummy variables in previous studies (Table 3.2). The data set used in the present study contained companies from a wide range of industries. Some of the industries contained a small number of observations, while others contained more. The JSE employed a new industry classification system from 2006 onwards, which differed substantially from the previous system used during 2002–2005. Mans-Kemp and Viviers (2018, p. 162) noted that a large number of companies had to be reclassified in 2006, when transitioning from the old to the new classification system. Thus it was decided that the industry classification system in the 2002–2005 period and the 2006–2017 period were not comparable, and using different classification systems in

one study would lead to inconsistency (and possibly seemingly significant industry effects that actually result from reclassifications). Therefore, it was decided to only include industry dummies from 2006 onwards, based on the new industry classification system employed by the JSE from that date. However, the inclusion of industry dummies in the main regression would have led to a loss of information relating to the 2002–2005 period. It was therefore decided to obtain the main regression results without inserting industry dummies. However, at the end of each section, a separate test was done which included industry dummies, to examine whether industry fixed effects were significant (for the 2006–2017 period only).

Most of the more recent studies employed standard errors that were robust to heteroscedasticity and clustered at company level. These adjustments were also made in the present study, when available in the regression model being employed (in Stata the logit and tobit models did not allow for clustering by company).

3.6 RELIABILITY AND VALIDITY

Reliability refers to the rigour with which research is conducted (i.e. whether data collection methods and statistical analysis were sound). Reliability may be inferred if (1) the researcher describes the research procedures in sufficient detail to allow replication by another person; and if (2) replication by another researcher renders the same results (Saunders et al., 2012, p. 192). Another factor which ensures reliability is if the procedures allow consistent data-capturing and analysis (Burns & Burns, 2008, p. 411).

Hofstee (2006, p. 53) advocates that one of the primary ways to ensure reliability of the research methods is to complete a preliminary or pilot study. In the case of the present study, the procedures to capture data on share repurchases were well developed by Wesson (2015), but little was known regarding executive share-based remuneration prior to the pilot study. The pilot study which was conducted (see Section 3.2.1) refined the data collection procedures, and made them more reliable and consistent.

Threats to reliability include participant error or bias, and researcher error or bias (Saunders et al., 2012, p. 192). Researcher error can be minimised by documenting all choices and procedures in detail, so that they can be repeated should a similar situation arise. For examples of this, as applied in the present study, see Sections 3.3.3 (relating to share repurchases) and 3.4.2 (relating to executive share-based remuneration). The participants of the present study took the form of the companies studied, from which specifically disclosures regarding share repurchases and executive share-based remuneration were garnered. One of the major threats identified was the inconsistent disclosure of

executive share-based remuneration in annual financial statements (and subsequent capturing by IRESS). Errors, where identified, were compensated for by updating IRESS data to match the financial statement disclosures. However, inaccurate or inconsistent disclosure in annual financial statements remains a limitation in the present study, as in any research that relies on financial data presented by companies in their financial statements.

Validity differs from reliability in that it asks whether the research actually measures what it purports to measure (Hair et al., 1998, p. 9). Two types of validity exist, namely internal and external validity (Burns & Burns, 2008, pp. 426–427). In terms of the validity of the data items in the present study, there is little room for error, as most of them are straightforward numerical measures of financial data. Share repurchases are measured in the number of shares repurchased and rand value (Research question 1); executive share-based remuneration is primarily measured as the type of scheme granted, the performance conditions attached, and the number of instruments involved (Research question 2). These measures are easily understood to measure what they purport to measure.

Regarding Research question 3, the choice of dependent and independent variables employed in the regressions was guided by earlier studies addressing the same research question. Internal validity is achieved when all other factors (control variables that might explain the movement in the dependent variable) are controlled for (Burns & Burns, 2008, p. 427). In the present study, the control variables (that are often associated with increased or decreased share repurchases) identified in previous studies were used during the regressions conducted to reduce omitted variable bias. In addition, internal validity can be threatened (Burns & Burns, 2008, pp. 432–435):

- when small sample sizes are used (not the case in the present study); and
- when the assumptions of the statistical tests used are violated (the choice of regression models and their appropriateness were discussed in Section 3.5.3).

The final type of validity is external validity. This deals with the extent to which the results of the present study can be extrapolated to the population, or other groups and settings (Saunders et al., 2012, p. 194). Sampling bias would usually pose a problem for external validity in terms of generalising to the population (Burns & Burns, 2008, p. 431), but in the present study no sampling occurred and therefore no generalisation to the population is required. It would, however, not be appropriate to generalise the findings to the JSE industries that were not studied (i.e. Basic Materials and Financial industries) as the share repurchase activity in those industries seems more subdued. Furthermore, it would not be appropriate to generalise the findings to other countries or other time periods in South Africa, as other regulatory requirements would be in place.

3.7 ETHICAL CONSIDERATIONS AND COLLECTING PUBLIC DATA INTO A NEW DATABASE

As mentioned in Chapter 1, one of the proposed contributions of the present study is the creation of accurate and complete databases on share repurchases and executive share-based remuneration, that can be employed in future research endeavours. It was also necessary to obtain this data, to address the overall research aim of the present study effectively – namely to determine whether there is a relationship between share repurchases and executive share-based remuneration in South Africa. All the data employed in creating the databases were secondary data, obtained from the annual financial statements of the identified companies or the IRESS financial database, and in some cases from both. As such, potential ethical issues were considered to be minimal. Ethical clearance was obtained from Stellenbosch University's Research Ethics Committee.

However, executive remuneration is a sensitive issue, especially in South Africa given the high income-inequality existing here. If a positive relationship between share repurchases and executive share-based remuneration is found, the resultant possibility that executives might be abusing their power to extract rents from the companies they work for, could fuel debates relating to social justice and whether South African executives act ethically. As such, the researcher realises that the topic needs to be treated with sensitivity and caution, especially when the results of the present study are published.

As mentioned before, only publicly available data were employed in the present study. The question arises whether the publicly available data could not have been used 'as is' (namely, whether it was necessary to reorganise public data to create new databases on share repurchases and executive share-based remuneration) to address the research aim of the present study.

From a corporate governance perspective, the question is whether shareholders could employ the information that is publicly available in IRESS and annual financial statements 'as is' to monitor the companies they invest in. In respect of share repurchases, Wesson (2015) noted that IRESS does not provide an accurate record of share repurchase data. This was confirmed in the present study, as noted in Section 4.9. Furthermore, Wesson (2015) found the disclosures pertaining to share repurchases in annual financial statements to be inconsistent and stated that complex reconciliations, conducted by an IFRS specialist, are required to obtain a comprehensive record of share repurchase activity. Also, in respect of executive share-based remuneration data, the pilot study found that this data could be extracted from IRESS on a per-executive basis, but that the data had to be updated and interpreted based on the disclosures in the annual financial statements (Steenkamp & Wesson, 2018a). Again, specialised IFRS knowledge had to be applied to produce accurate information on executive share-based remuneration. Furthermore, the information that is publicly available, in either

in the annual financial statements or the IRESS financial database, is not reported in a per-company format as is required for the purpose of the present study. Therefore, based on the findings of previous research and the pilot study, it is argued that the information contained in IRESS and annual financial statements could not be used 'as is' to reach the research aim of the present study.

Although the present study was conducted from a corporate governance perspective, it might be appropriate to also address this question (relating to the necessity of recollecting public information into a new database) from the perspective of market efficiency. Fama (1970) noted that, in an efficient market, share prices will reflect all available information. However, it has been debated whether the JSE is even weak-form efficient (Grater & Struweg, 2015; Heymans & Santana, 2018). Furthermore, a more practical form of market efficiency takes into account the costs involved to make information public (Fama, 1991, p. 1575). Substantial time, effort and knowledge 'costs' had to be incurred by the researcher to produce a complete record of South African share repurchase activity, which differs substantially from that which is available from SENS announcements (see Section 4.7). Similarly, per-company information on executive share-based remuneration is not publicly available in annual financial statements. Therefore, it is argued that, pertaining to information on share repurchases and executive share-based remuneration, the JSE is not efficient – given that complete and accurate data on these variables are not publicly available.

CHAPTER 4: EXTENT OF SHARE REPURCHASE ACTIVITY

4.1 INTRODUCTION

Share repurchases can be used to distribute excess cash flow to shareholders, signal undervaluation to the market, extinguish the shareholding of specific shareholders, and increase the share price and EPS figure. Since the legalisation of share repurchases in 1999, South African listed companies have increasingly been employing this financial tool. However, the full extent of share repurchase activity is unknown, owing to the JSE's announcement rules relating to general repurchases: companies only need to announce their general share repurchases on the SENS once a three per cent threshold has been reached.

To address this knowledge gap, Research question 1 of the present study investigated the extent of share repurchase activity in South Africa during the 2002–2017 period. Most of the data relating to the 2002–2009 period had already been collected by Wesson (2015). The present study builds on the database created by Wesson (2015) by adding additional companies to the 2002–2009 period and collecting the data for the 2010–2017 period. Several research sub-questions were developed to investigate share repurchase activity (per company included in the population, annually for the 2002–2017 period):

- Sub-question 1.1: Which companies engaged in share repurchases?
- Sub-question 1.2: What was the total quantum (number and value) of shares repurchased?
- Sub-question 1.3: What percentage of share repurchases was associated with each of the repurchasing entities (i.e the holding company repurchasing from third parties; the holding company repurchasing treasury shares; and subsidiaries)?
- Sub-question 1.4: What percentage of share repurchases was associated with each of the repurchase types (i.e. general repurchases; pro rata specific repurchases; specific repurchases where the holding company repurchases treasury shares; and other specific repurchases)?
- Sub-question 1.5: What percentage of share repurchases was announced and not announced via the JSE's SENS (transparency)?

The term 'quantum' as employed in sub-question 1.2 entails both the number of shares repurchased and the rand value involved. Both aspects are discussed in Chapter 4, although the emphasis is placed on the rand value involved, as this is employed as dependent variable in Chapter 6. Further, in addressing sub-question 1.2, the rand value spent by South African companies (as a percentage of both profit and cash flow) is compared to trends from other countries.

A final research sub-question (sub-question 1.6) was added to the bulleted list above. Sub-question 1.6 asked whether there was a difference in the share repurchase activity (in respect of number of companies; quantum of shares repurchased; preferred repurchasing entity; preferred repurchase type; and percentage of repurchases that were announced) when one compares the 2000–2009 and 2010–2017 periods. This final sub-question is relevant, since Wesson (2015) largely illuminated pre-2010 share repurchase activity, but little is known regarding the post global financial crisis activity. Post-crisis share repurchase trends in South Africa are compared to the pre-2010 trends reported by Wesson (2015).

Knowledge of the extent of share repurchase activity during the 2002–2017 period (and especially the 2010–2017 period) is useful to shareholders in that it informs them about the resources invested in share repurchases by companies. Shareholders are then able to assess whether the resources were well spent or should rather have been invested internally, for example in innovation and human resources. In addition, the present study determines the percentage of share repurchases that were announced via SENS. Shareholders and the JSE are then able to assess whether the information lost because of unannounced share repurchases is material to decision-making. Improved regulations could be drafted by the JSE to ensure that stakeholders are made aware of all share repurchases executed by JSE-listed companies, in real time. Finally, future researchers could use the share repurchase database created by the present study to compare share repurchases to other aspects relating to a company's operations and corporate governance policies and practices.

This chapter starts with a short summary of the research methodology followed (Section 4.2), which will enable an understanding of the different categories of share repurchases referred to. The research sub-questions are then addressed one by one (Sections 4.3 to 4.8), after which the data on share repurchase value collected in the present study are compared to that available in IRESS (Section 4.9) and concluding remarks are provided (Section 4.10). Please note that rounding may cause differences of one or two shares or rands in the totals reported in Chapter 4.

4.2 SUMMARY OF RESEARCH METHODOLOGY

As explained in Chapter 3, data on the companies that engaged in share repurchases during the period 2002–2017, as well as the number of shares repurchased and rand value spent thereon, were hand-collected from annual financial statements. The share repurchase data were categorised based on the repurchasing entity, the repurchase type, and whether the repurchases were announced via SENS or not.

Repurchases by share trusts (consolidated or otherwise) were excluded from the share repurchase database. The reasons for this included the lack of reliable data as well as the fact that the JSE does not define these repurchases as share repurchases nor requires such repurchases to be announced on SENS. Accordingly, repurchases by the holding company from share trusts were classified as repurchases by the holding company from third parties.

It must be noted that this methodology was employed for all the companies forming part of the research population, from 2002 (or the first year of a company being listed, if later) to 2017 (or until the last year of a company being listed, if earlier). As Wesson (2015) had created a database containing the share repurchase activity of most JSE-listed companies for the 2000–2009 period, most of the data on the 2002–2009 period was extracted from the Wesson database. All data for the 2010–2017 period was hand-collected during the present study. Moreover, the present study added data on the entire 2002–2017 period for new entrants to the population, where applicable. Delisted companies were included in the population until the date of their delisting. During the target period, several companies delisted from the JSE.

4.3 RESEARCH SUB-QUESTION 1.1: NUMBER OF COMPANIES INVOLVED

The research population was described in Chapter 3 on methodology. All the companies that formed part of the population had primary listings on the JSE. Listed companies in the Basic Materials and Financial industries were however excluded. Delisted companies were included until the point of delisting, and new companies were included from their date of listing. Owing to companies delisting and new companies listing, the number of companies studied varied over the period 2002–2017.

A total of 220 companies were included in the final population, pertaining to the 2002–2017 period, and this resulted in 2 392 company years being studied. Of the 220 companies, 143 (65%) engaged in share repurchases at some point during the target period. Table 4.1 shows the number of companies studied in each of the years, as well as the number (and percentage) of these companies that engaged in share repurchases in each period.

Table 4.1

Number of companies studied, and the percentage that engaged in share repurchases

Year	Number of companies studied	Number of companies that engaged in share repurchases	Percentage of companies that engaged in share repurchases
2002	160	40	25%
2003	162	49	30%
2004	163	40	25%
2005	151	40	26%
2006	144	38	26%
2007	153	27	18%
2008	159	40	25%
2009	159	41	26%
2010	154	41	27%
2011	153	45	29%
2012	152	38	25%
2013	146	32	22%
2014	138	39	28%
2015	135	39	29%
2016	134	46	34%
2017	129	46	36%
Total number of company years	**2 392**	**641**	**27%**

On average, companies repurchased shares in 27 per cent of the company years studied. A relatively stable trend in the percentage of companies repurchasing was noticed over the period. Substantial deviations from the average (judged to occur when the annual percentage was five percentage points more or less than the average) only occurred in 2007, 2013 and 2016/2017. Figure 4.1 graphically confirms the trends regarding the number of repurchasers as a percentage of those studied.

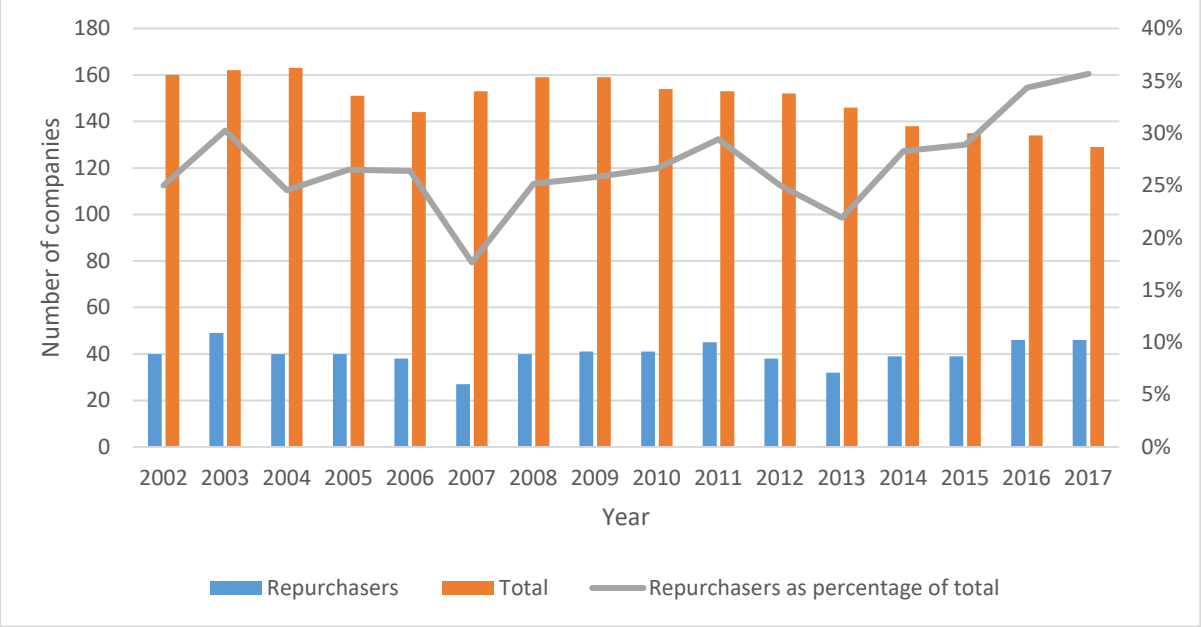

Figure 4.1. **Number of companies executing share repurchases as a percentage of the total number of companies in the sample**

During 2007, substantially fewer companies engaged in share repurchases than before. A reason for this decrease in share repurchasing activity could be the change in the STC regulations during this period. Before 1 October 2007, no STC was levied when a holding company repurchased treasury shares, but from 1 October 2007, STC was applicable. When tax changes occur, companies may be unsure as to the effect that the tax change will have and may refrain from acting until some clarity has been found (Nel & Wesson, 2019). Another possible explanation for the 2007 decrease in number of companies repurchasing could be the onset of the global financial crisis. But the crisis only started during 2007 and lasted until 2009. The number of companies repurchasing in 2008 and 2009 reflected only small deviations from the average for the period, so it does not seem as if the global financial crisis was the main contributing factor to the 2007 decrease.

The next major change in South African tax law relating to share repurchases occurred on 1 April 2012, when the STC regime was replaced by dividends tax. During the year 2013, following the tax change, substantially fewer companies engaged in share repurchases, probably because they were unsure as to the tax consequences after dividends tax became effective. During 2016/2017, substantially more companies engaged in share repurchases than previously. The reason for this phenomenon still needs to be ascertained and is discussed in the following sections.

4.4 RESEARCH SUB-QUESTION 1.2: SHARE REPURCHASE QUANTUM

In this section the quantum of share repurchases during the 2002–2017 period is examined and compared to the findings of earlier global research. Quantum is understood to be both the number of shares repurchased and the rand value involved. However, the discussion only briefly deals with the number of shares, and examines the rand value involved in greater depth. The rand value spent on share repurchases is discussed more thoroughly as this was employed as dependent variable to address Research question 3 (Chapter 6). Furthermore, the rand value spent provides a more accurate picture of the resources invested in share repurchases. However, it was still deemed important to ascertain the number of shares repurchased, as a comprehensive share repurchase database had been developed, and the first step in the research methodology involved extensive reconciliations to ensure that all shares repurchased had been identified.

Data on both gross share repurchases and net share repurchases were collected. Gross share repurchases included all repurchases executed (by any repurchasing entity), and thus included the holding company repurchasing treasury shares (from the subsidiary). On the other hand, net share repurchases were limited to where the subsidiary repurchased, or the holding company repurchased from third parties (i.e. excluding the holding company repurchasing treasury shares, which were deemed to be an intragroup transaction). Table 4.2 shows the gross and net number of shares repurchased, as well as the gross and net rand value spent on share repurchases, annually over the period 2002–2017. The trends shown in Table 4.2 will be discussed in Section 4.4.1.

Table 4.2

Number of shares repurchased and rand value spent on share repurchases: Net versus gross

	Number of shares repurchased		Rand value spent on share repurchases (R'000)	
Year	Net	Gross	Net	Gross
2002	582 371 995	625 068 720	3 091 097	3 140 960
2003	495 730 821	556 526 443	3 130 864	3 394 904
2004	344 774 540	393 574 515	2 896 904	2 911 890
2005	412 436 243	585 475 219	8 630 784	12 183 006
2006	316 907 334	531 052 918	7 884 070	15 899 464
2007	129 860 133	205 692 321	5 939 940	7 729 015
2008	369 651 917	402 824 619	13 098 372	13 374 994
2009	731 455 382	1 253 735 548	25 015 009	31 759 187
2010	317 151 190	375 246 118	2 931 689	4 922 846
2011	293 661 356	364 281 688	8 156 639	14 516 658
2012	304 114 389	352 601 590	5 286 578	6 315 414
2013	157 463 900	184 993 264	3 340 956	5 251 178
2014	239 238 577	407 718 603	6 756 486	14 437 598
2015	362 323 201	413 036 462	9 789 175	12 095 548
2016	215 942 340	240 292 359	6 301 004	6 370 388
2017	401 099 460	418 107 473	3 098 075	4 573 564
Total	**5 674 182 778**	**7 310 227 860**	**115 347 642**	**158 876 612**

4.4.1 Trends relating to the number of shares repurchased

In this section, the trends relating to the number of shares repurchased are discussed briefly. Both the net (Section 4.4.1.1) and gross (Section 4.4.1.2) number repurchased will be analysed. Since the number of shares involved is quite large, the trends are easier to comprehend when presented graphically (see Figure 4.2).

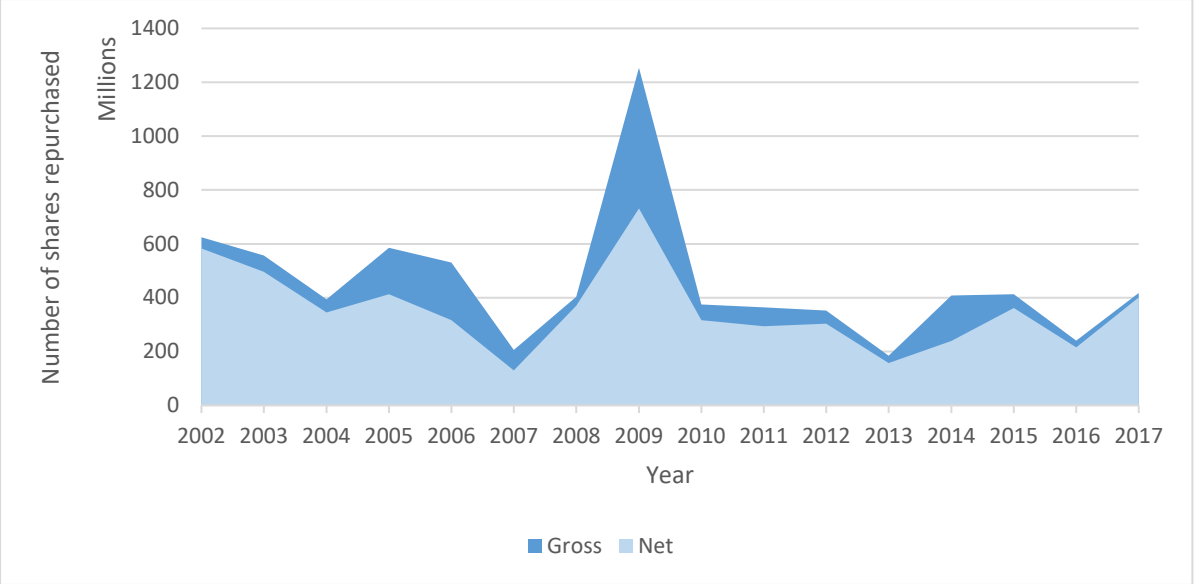

Figure 4.2. **Gross versus net number of shares repurchased**

Looking at the trends in Figure 4.2, one can see that a peak in share repurchase activity occurred during 2009. The reasons for this peak are discussed in Section 4.4.1.3.

4.4.1.1 Trends: Net number of shares

The average net number of shares repurchased per annum during 2002–2017 was approximately 355 million shares. Relatively high numbers of shares were repurchased in 2002 and 2003 (probably owing to the initial uptake of the share repurchases phenomenon subsequent to their legalisation), dropping closer to the average in the period 2004–2006. A sharp drop in 2007 was noticed, possibly caused by the change in STC regulations and the onset of the global financial crisis (2007 had the smallest number of shares repurchased in the target period). In 2008 the number of shares was close to the average of 355 million shares. During 2009 the highest number of net shares during the period were repurchased, being 731 million shares. In the following year (2010), the number decreased below the average of 355 million shares. From 2010 onwards, the annual number of shares repurchased was generally less than the average for the period 2002–2017 (only in 2 of the 8 years during 2010–2017 did it exceed 355 million shares) and the trend seemed to become more stable.

A structural break possibly occurred between 2009 and 2010 (after the global financial crisis), as a different trend was noticed during 2002–2009 (a generally upward trend) than during 2010–2017. From 2010 onwards a relatively stable (although oscillating) pattern was observed (oscillating between approximately 200 million and 400 million shares repurchased annually). In 2013, after dividends tax was implemented, the number of shares repurchased dropped slightly below 200 million. Annual repurchases averaged 423 million shares for the period 2002–2009, while the average

was 286 million for the period 2010–2017. The substantially lower average during 2010–2017 strengthens the argument that a structural break occurred between 2009 and 2010.

In any study spanning the time period of the global financial crisis, one must consider whether the crisis caused a structural break in the data set. The decreased share repurchase activity in 2007 might have been influenced by the onset of the global financial crisis. However, the crisis did not seem to dampen the 2009 share repurchase activity in South Africa, as the highest number of shares (both on a net and gross basis) were repurchased that year. It could be postulated that the global financial crisis had caused a decrease in share prices on the JSE, leading to some companies repurchasing large numbers of shares in an attempt to signal undervaluation and to strengthen the share price. This notion is evaluated further when analysing the causes for the large peak in share repurchases during 2009 (in Section 4.4.1.3). But, it does seem that the 2007–2009 period was characterised by extreme share repurchase behaviour, which stabilised from 2010 onwards. This supports the idea that a structural break occurred between 2009 and 2010.

The picture painted by the trend analysis is also one of an environment strongly influenced by changing tax legislation, and the uncertainty brought about by the changes. In 2007, the change in the STC regulations seems to have led to a decrease in the number of shares repurchased (possibly accelerated by the onset of the global financial crisis). In 2013, just after the introduction of dividends tax, another sharp decrease in the share repurchase activity was noticed.

4.4.1.2 Trends: Gross number of shares

The difference between the net number of shares repurchased and the gross number of shares repurchased is attributable to the holding company repurchasing treasury shares. This type of repurchase might be expected to exhibit an oscillating behaviour pattern, as companies would first repurchase shares through subsidiaries (with few repurchases of treasury shares by the holding company). Then (when the 10% threshold that subsidiaries are allowed to hold was reached) the holding company would buy large numbers of shares from subsidiaries, and cancel those shares. Owing to this, one would expect to see a wave-like pattern of fewer treasury share repurchases by the holding company, followed by large repurchases of treasury shares by the holding company, followed by fewer repurchases.

Considering the difference between gross number of shares repurchased and the net number in Figure 4.2, one can observe this wave-like pattern in the darker band (i.e. the difference between the gross and net number of shares repurchased). The band is narrower in 2002–2004, growing wider in 2005–2006 (just before the change in the STC regulation that would lead to this type of repurchase being

liable for STC) and again growing narrower in 2007–2008 (just after this type of repurchase became liable for STC). This makes sense from a tax avoidance or tax minimisation perspective, too. In the year 2009, a large difference between gross and net repurchases occurred, which is discussed in Section 4.4.1.3. From 2010 to 2017 the band (difference between gross and net repurchases) remained relatively small and relatively constant, except in 2014 when a slightly larger number of treasury share repurchases by the holding company were recorded.

4.4.1.3 What happened in 2009?

During 2009 a peak was observed in both the net number of shares repurchased and treasury share repurchases by the holding company. To ascertain the reason for this peak (which occurred in the time period affected by the global financial crisis), the per company share repurchase data for 2009 were scrutinised.

The largest number of shares repurchased by a single company in 2009 was repurchased by Netcare Limited (Netcare). During 2009, Netcare repurchased 95.9 million shares from share trusts and 340.4 million shares from subsidiaries – a total of 436.3 million shares. In 2006 Netcare had gained control of a company that already owned 340.4 million shares in Netcare. In 2009 Netcare decided to eliminate the cross-holdings that existed by repurchasing and cancelling the treasury shares held by share trusts and the subsidiary acquired in 2006. During the period 2010–2017, Netcare repurchased shares only once, in 2015, which was a specific repurchase executed by the holding company itself. It would seem as if the large repurchase in 2009 was indeed to eliminate treasury shares held by trusts and subsidiaries, since Netcare no longer had use for the treasury shares. The Netcare repurchase would largely explain the peak in treasury share repurchases by the holding company noticed in 2009.

The 2009 annual financial statement read: “Netcare repurchased 436 million of its own shares to remove cross-holding in the Group and thereby realise administrative and cost efficiencies. The timing of the buyback was critical to take advantage of the lower share price” (Netcare Limited, 2009, p. 25). This was an interesting comment to make, as the repurchase was intragroup, so the price at which the repurchase occurred would not affect the group (comprising subsidiaries, trusts and holding company as one unit). The low price at which the repurchase was made would benefit only the holding company (if seen in isolation).

The Netcare comment does make an important observation. It points out that low share prices on the JSE might have played a role in the large number of shares repurchased in South Africa during 2009. Figure 4.3 shows the movement in the All Share Index (ALSI) during the period 2002–2017.

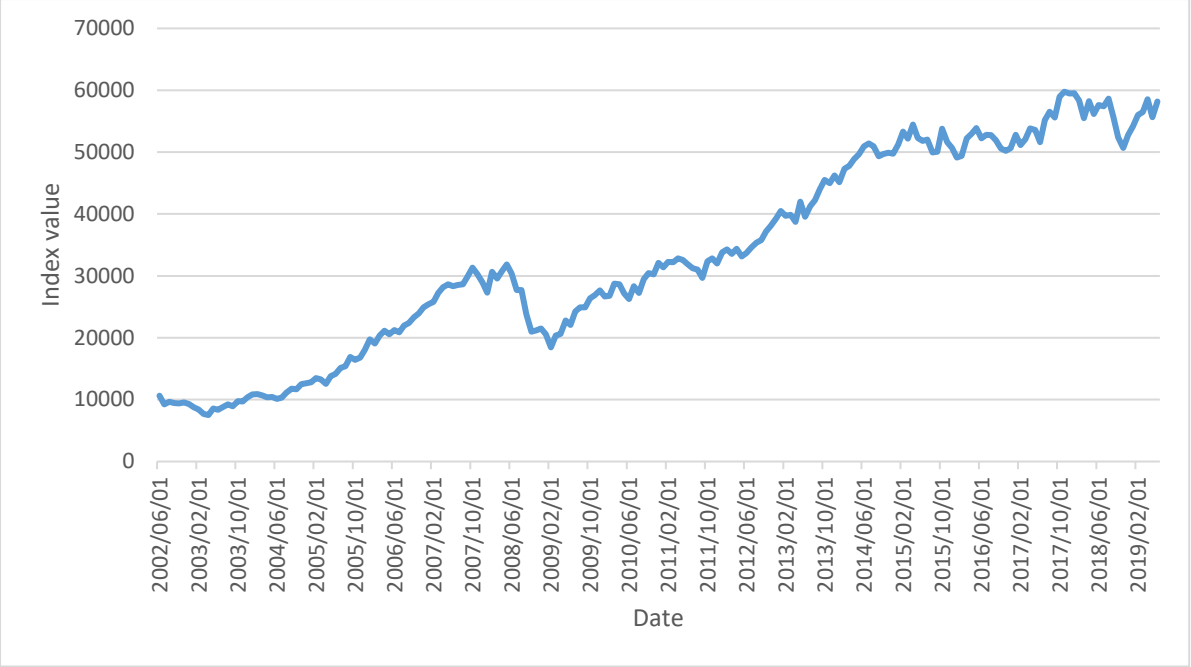

Figure 4.3. **Movement in the ALSI-index during 2002–2017 (Source: JSE, 2019)**

From 2002 to the middle of 2008, the ALSI grew steadily, with sharp increases between 2005 and the middle of 2008. From June 2008 to June 2009 the ALSI fell sharply, reaching a point equal to the 2005 values. Companies could have perceived this drop in share price to be a good opportunity to invest in themselves at a reasonable price, and, in line with the signalling theory, to signal undervaluation to the market. If the market reacted to this signal, the market would buy the company's shares, which would bolster the dropping share prices. The market started recovering a year later, equalling the 2008 level again by 2011. So, an inference can be made from the comment in Netcare's annual financial report that companies could have been increasing share repurchases in 2009, owing to the low share prices on the JSE. This makes sense when considering the theoretical perspectives pertaining to share repurchases (signalling or undervaluation theory).

It is important to note that the decreasing ALSI from middle 2008 to middle 2009 could also have led to other companies repurchasing shares during this period. Such repurchases could have been captured in the 2008 year, the 2009 year or the 2010 year, depending on the company's financial year end and the date of the repurchase.

The company which repurchased the second largest number of shares during 2009 was MTN Group Limited (MTN). MTN repurchased 243.5 million of its own shares and paid for this repurchase by issuing 213.9 million new shares. It repurchased at a discount owing to the seller not being able to find a buyer for such a large number of shares on the open market. The goal was restructuring (the shares

repurchased were owned, indirectly, by the Public Investment Corporation) and to initiate a BEE transaction. This was a once-off and unique repurchase, and only a net number of 11.6 million shares were actually repurchased (243.5 million minus 231.9 million). MTN had not repurchased shares before 2009, but between 2011 and 2017 engaged in large share repurchases (executed by both the holding company and subsidiaries). MTN's repurchase of 243.5 million shares would largely explain the 2009 peak in net repurchases (net repurchases already excludes the intragroup repurchases executed by Netcare).

The company with the third largest number of share repurchases during 2009 was Woolworths Holdings Limited (Woolworths). In its 2009 annual financial statement, Woolworths explained that the company sold its controlling interest in Woolworths Financial Services, and therefore had excess free cash flow, which it then distributed to shareholders through a large special dividend (R750 million) and by repurchasing shares on the open market (113.1 million shares for R317 million). Woolworths is an active repurchaser: it repurchased shares in all the financial years ending between 2002 and 2017, excluding 2004. The largest number of shares were repurchased during 2005, and the 2009 repurchase was the second largest annual repurchase by Woolworths. As such, the 2009 Woolworths repurchase was not an isolated occurrence and cannot be considered unusual in terms of Woolworths' accustomed repurchase activity.

To summarise, the 2009 peak in South African share repurchases can largely be explained by three repurchases: 436.3 million intragroup repurchases by Netcare, 243.5 million specific repurchases by MTN, and 113.1 million general repurchases by Woolworths. These repurchases seem to confirm the theoretical perspectives on share repurchases noted in Chapter 2. Share repurchases were executed as a result of the falling share prices on the JSE (undervaluation), a desire to restructure a company's shareholding and the availability of excess free cash flow.

4.4.2 Trends relating to the rand value spent on share repurchases

In this section, the trends relating to the rand value spent on share repurchases is discussed. Since the rand values involved are large, the trends relating to share repurchase value are easier to comprehend when presented graphically (see Figure 4.3). The average gross share repurchases over the 2002–2017 period amounted to almost R10 000 million per annum (more than R7 000 million on a net basis).

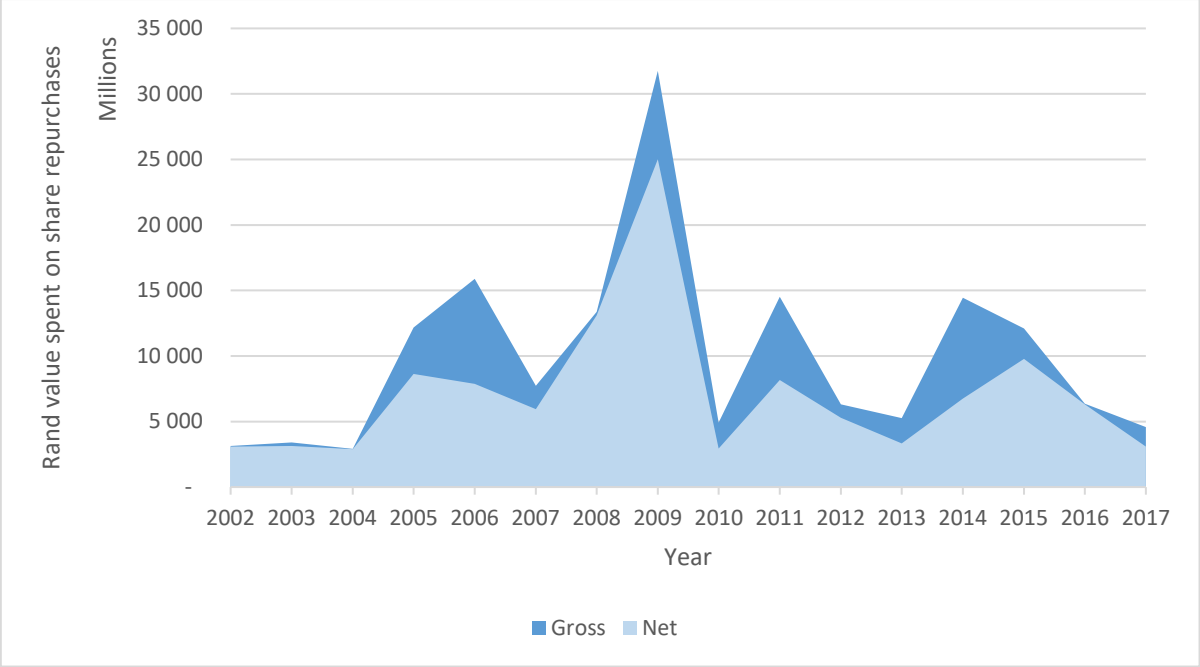

Figure 4.4. **Gross versus net rand value spent on share repurchases**

The trend observed in Figure 4.4 is mostly similar to the one in Figure 4.2 (number of shares repurchased), except in 2002–2004, 2010 and 2017. In those periods the number of shares repurchased were relatively high, while the rand values spent were relatively low. This can be visually represented by the annual rand value spent per share repurchased, as seen in Figure 4.5. The annual rand value spent per share repurchased was calculated by dividing the total rand value spent on repurchases (during a specific year) by the total number of shares repurchased during the year.

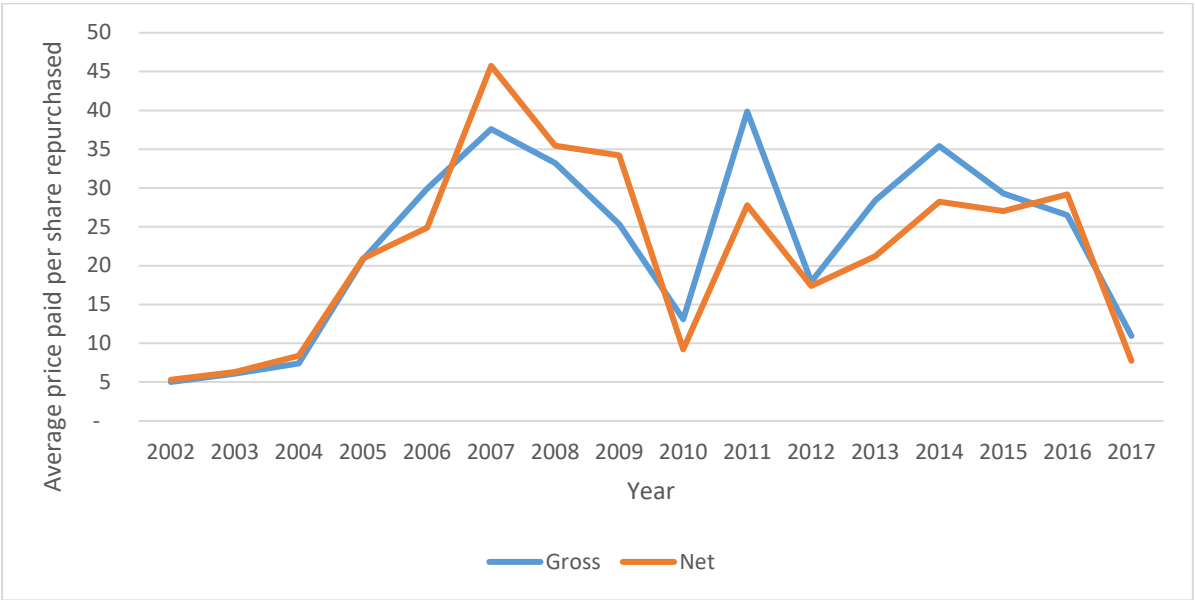

Figure 4.5. **Average price paid per share repurchased: Gross versus net**

In 2002–2004, 2010 and 2017 the net average price paid per share repurchased was less than R10 per share (which was substantially lower than in the rest of the target period). This means that the companies that did repurchase, repurchased at a relatively lower price than in other periods. This could either coincide with a low point in the overall JSE share prices (ALSI) or point to the fact that companies with a relatively lower share price repurchased during this period.

When considering the 2002–2017 period, the ALSI was at its lowest point between 2002 and 2004 (Figure 4.3). This would explain the fact that large numbers of companies repurchased shares to try out the new financial tool (as seen in Figure 4.1); large numbers of shares were repurchased (as seen in Figure 4.2); but the rand values spent were relatively low (as seen in Figure 4.4).

From approximately June 2008 to June 2009 the ALSI dropped sharply (Figure 4.3) as a consequence of the global financial crisis. The falling share prices on the JSE could lead to a company perceiving its shares to be undervalued at this time, leading to increased share repurchases at this lower price. As previously explained, the increased share repurchases from June 2008 to June 2009 (coinciding with the lower ALSI share prices) could either be recorded in a company's 2008, 2009 or 2010 financial year. From Figure 4.5 it seems that the lower-priced repurchases were mostly realised in 2010, although 2009 also showed a lower repurchase price per share than 2008 (Figure 4.5).

However, during 2017, an exceptionally low price per share was paid for the shares repurchased (even though the ALSI was increasing). Figure 4.1 shows that the absolute number of companies engaging in share repurchases increased substantially in the 2016–2017 period, as did the percentage of listed companies which engaged in share repurchases. Considering the rising share prices on the JSE over this period (see Figure 4.3), one would not expect to see large share repurchases occurring in the period 2016–2017. Even though the absolute number of companies engaging in share repurchases increased during the 2016–2017 period, the annual number of shares repurchased remained relatively constant over the period 2010–2017 (see Figure 4.2). It would seem that share repurchases, as a financial management tool, had become an accepted practice in South Africa and more widespread, but the number of shares involved (per company) decreased as the incentive to do so (undervaluation) lessened. It may be that the companies which executed share repurchases for the first time during 2017 were smaller companies, with lower share prices. This notion is further evaluated in Section 4.8.2.2, which deals with the post global financial crisis period for companies of different sizes.

4.4.3 Comparison to previous research

In this section, the South African share repurchase trends noted during the 2002–2017 period (as described in Sections 4.4.1. and 4.4.2) are summarised and then compared to findings from previous

research (Section 4.4.3.1.). To further compare the value spent on share repurchases in South Africa and that spent in other countries, share repurchase value as a percentage of both profit (Section 4.4.3.2) and cash flow (Section 4.4.3.3) are discussed. It is prudent to be aware of the trends of share repurchases in relation to both profit and cash flow, as excessive share repurchasing (share repurchases that are high in relation to profit or cash flow) can be damaging to a company's financial health and long-term prospects. For listed companies in the US, share repurchases as a percentage of profit and available cash flow have been increasing (Birstingl, 2016). However, no South African study has yet considered these ratios.

4.4.3.1 Share repurchase trends

In South Africa, share repurchases were legalised in 1999. Initially, there was a slow uptake in share repurchases. Although relatively large numbers of shares were repurchased during 2002 and 2003, share prices on the ALSI were relatively low, and thus the rand value involved was small over the 2002–2004 period. From 2005 to 2009, a generally increasing trend was noticed in the rand value spent on share repurchases (with only a slight dip in 2007 when a change in tax rules occurred). During the global financial crisis of 2008–2009 large amounts were spent on share repurchases, possibly because companies wanted to provide price support when share prices on the JSE started to fall. After the financial crisis, share repurchase activity was more subdued than during the crisis. A relatively stable, though oscillating, trend occurred from 2010 to 2017.

The only South African study that has identified comprehensive share repurchase trends (considering announced and unannounced share repurchases for a large number of companies) was Wesson (2015). The Wesson study considered the 2000–2009 period in South Africa. As the present study used most of the data of the Wesson study for the 2002–2009 period, it is to be expected that the findings of the present study (for the 2002–2009 period at least) would in most part agree with the findings of Wesson (2015) for that same period. In Section 4.8, the findings of the present study for the 2010–2017 period are compared to the findings of Wesson (2015) relating to the 2000–2009 period, to establish whether changes in share repurchase activity occurred in the post global financial crisis period.

The share repurchase trends noted in South Africa during the 2002–2017 period can, however, be compared to those noted in earlier studies (undertaken in other countries). As reported in Section 2.2.1, share repurchases in the US and Western Europe grew substantially during 2005–2007 (Sakinç, 2017) – which is similar to the increasing trend noticed in South Africa over this period, although share repurchases in South Africa dipped in 2007 owing to changing tax rules. During the global financial crisis, share repurchases in the US and Western Europe decreased substantially (Sakinç, 2017),

whereas South African share repurchase activity increased considerably. However, an increase in share repurchase activity during the financial crisis was also noted in Japan, and makes sense from a price support perspective as share prices were lower during the crisis (Franks et al., 2018, pp. 10–11). After the financial crisis, US share repurchases showed an increasing trend, while share repurchases in both Western Europe and South Africa did not show an increasing trend. A relatively stable, though oscillating, pattern was noted by Sakinç (2017) in Western Europe, as was also noted in the present study relating to South Africa. As such, the share repurchase trends in South Africa seemed to emulate those of Japan during the financial crisis, and those of Western Europe before and after the crisis.

4.4.3.2 Share repurchase value in relation to profit

Previous studies have found profitability to be a contributing factor in companies executing a share repurchase and thus used it as control variable (Fenn & Liang, 2001; Geiler & Renneboog, 2016; Jolls, 1998; Liljeblom & Pasternack, 2006). To test this theoretical link and to understand the profits that South African companies invest in share repurchases, share repurchases will be expressed as a percentage of profit over the 2002–2017 period. The net share repurchase value was used as numerator as this represents the outflow of resources from the group. Earlier studies (Birstingl, 2016; Sakinç, 2017) seem to have used profit after tax (i.e. before deducting non-controlling interest) as denominator to calculate the ratio of share repurchase value to profit. It could, however, be argued that profit attributable to the holding company is more appropriate, as the numerator in the ratio is the rand value spent on repurchases of the holding company's ordinary shares. As the numerator focuses solely on repurchases of holding company shares, profit attributable to the holding company would be more appropriate as denominator. However, it was decided to calculate the percentage on both profit after tax (to be comparable with earlier studies) and profit attributable to the holding company (to provide a more precise indication of the ratio).

The profit after tax and profit attributable to the holding company figures were extracted from the IRESS Expert financial database (per company and per financial year). The notes in IRESS Expert indicate that profit attributable to the holding company is calculated as profit after tax, plus profits from discontinued operations, minus profits attributed to the non-controlling interest in subsidiaries. The figures were exported and added to the database containing the share repurchase data (per company and per financial year). For a limited number of entries (33 company years), the profit figures were not available (mostly for the earlier years 2002–2005). Since the profit figures were not available, these company years were excluded from the descriptive analysis to follow in Section 4.4.3.2. For this reason, the total net repurchases (for the period 2002–2017) used in the calculations to follow was

R114.4 billion, which differs slightly from that reported earlier in Table 4.2. The annual percentages (and data used to calculate this) can be seen in Table 4.3.

Table 4.3

Net share repurchases, profit figures and net share repurchases as a percentage of profit

	Net repurchases (R'000)	Profit after tax (R'000)	Profit attributable to the holding company (R'000)	Net repurchases as percentage of … Profit after tax	Net repurchases as percentage of … Profit attributable to the holding company
2002	2 300 925	27 077 035	24 219 302	8.5%	9.5%
2003	3 130 479	36 231 571	33 811 384	8.6%	9.3%
2004	2 892 104	41 655 318	38 503 485	6.9%	7.5%
2005	8 627 084	69 187 308	65 513 983	12.5%	13.2%
2006	7 835 201	74 185 225	71 336 535	10.6%	11.0%
2007	5 931 940	84 099 886	81 383 335	7.1%	7.3%
2008	13 088 472	93 233 031	89 041 725	14.0%	14.7%
2009	25 010 409	75 013 688	113 696 120	33.3%	22.0%
2010	2 918 189	117 407 789	109 969 590	2.5%	2.7%
2011	8 126 439	101 729 723	92 669 573	8.0%	8.8%
2012	5 274 578	98 926 083	96 591 450	5.3%	5.5%
2013	3 340 886	114 568 460	106 107 523	2.9%	3.1%
2014	6 756 157	138 542 634	127 149 158	4.9%	5.3%
2015	9 789 175	134 123 002	129 156 923	7.3%	7.6%
2016	6 301 004	99 788 844	175 903 655	6.3%	3.6%
2017	3 063 570	125 454 763	125 622 644	2.4%	2.4%
Total	**114 386 612**	**1 431 224 360**	**1 480 676 385**	**8.0%**	**7.7%**

Overall, net share repurchases were equal to 8.0 per cent of profit after tax and 7.7 per cent of profit attributable to the holding company. This was calculated using the data for all the companies in the population, and not only for the companies that repurchased, to be comparable to previous studies in the US and Europe (although these studies included mostly larger companies that were more likely

to execute share repurchases). If the percentage were calculated only for those companies that repurchased during a specific year, the net repurchases would equal 20 per cent of profit after tax and 19 per cent of profit attributable to holding company (a much higher percentage).

In the US, share repurchase value increased from 40 per cent of net income (similar to profit after tax) in 2005 to 140 per cent of net income in 2009 (Birstingl, 2016, p. 8). In 2010 the US percentage fell to just less than 30 per cent (its lowest point during the 2005–2016 period), increasing to almost 70 per cent again by 2016 (Birstingl, 2016, p. 8). If one compares the US percentage to that in South Africa, one can see that South African repurchases (as a percentage of profit) are much less than those of the US. In Western Europe, however, share repurchases only averaged 19 per cent of net income over the 2002–2015 period (ranging from 1% of net income in Portugal and 7% in Italy to 24% of net income in the UK and 31% in Switzerland) (Sakinç, 2017). It would therefore appear that share repurchases in South Africa are more similar in quantum to those of Western Europe.

The percentage based on profit after tax and the percentage based on profit attributable to the holding company followed approximately the same trend over the 2002–2017 period. Only during 2009 a substantial difference was noted – owing to profit attributable to the holding company being substantially larger in that year. This increase in profit attributable to the holding company could be ascribed to losses in subsidiaries with a high non-controlling interest percentage, or large profit-making discontinued operations. As the trends of share repurchases to profit after tax and to profit attributable to the holding company follow relatively similar trends, further discussion will concentrate only on profit after tax as net income (which is similar to profit after tax) was employed by earlier studies.

In Figure 4.6 the trends in net share repurchases and profit after tax are noted as vertical bars. The percentage of net repurchases to profit after tax is shown as an unbroken line on the graph.

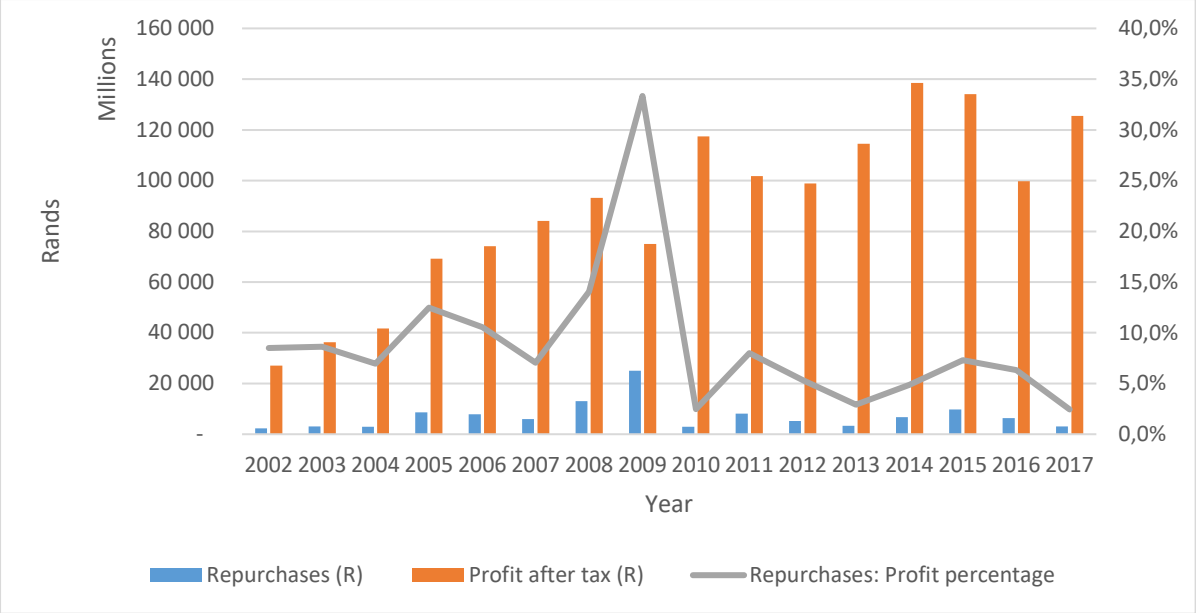

Figure 4.6. **Repurchase value in relation to profit after tax**

The compound annual growth rate (CAGR) of both net repurchases and profit after tax was calculated for each of the following periods: 2002–2017, 2002–2009 and 2010–2017. Firstly, the CAGR was calculated by dividing the value (of a certain variable) at the end of the period by the value at the start of a period. Secondly, this result was raised to an exponent equal to one divided by the number of years from the start of the period to the end of the period. Finally, a value of one was deducted from the result of the second step.

Profit after tax generally had an increasing trend over the 2002–2017 period. The CAGR of profit after tax was 11 per cent over the period 2002–2017 (and 16% over the 2002–2009 period). From this, it could be seen that profit after tax increased by more than inflation (the CAGR of the consumer price index – CPI, or inflation – was only 5% over both the 2002–2009 and 2002–2017 period, calculated on the CPI indexes received from the Bureau for Economic Research, Stellenbosch). Over the 2002–2009 period, net repurchases also increased. However, the CAGR of net repurchases was 41 per cent over the period 2002–2009, a much higher rate than that of profit after tax (and inflation). The share repurchase activity in 2009 might be considered abnormally high, but the increase from 2002 to 2008 was still 34 per cent (confirming that, during the 2002–2008 period, net repurchases increased at a higher rate than profit after tax).

The fact that net repurchases increased at a higher rate than profit after tax during 2002–2009 led to a growth in the percentage of net repurchases to profit after tax from almost nine per cent in 2002 to 33 per cent in 2009 (14% in 2008). From 2010 onwards net repurchases decreased and seemed to

stabilise at a new level. Profit after tax was increasing only slightly over this period, and this led to a relatively stable percentage of net repurchases to profit after tax over the 2010–2017 period (ranging between 2% and 8%). There was a definite shift to a lower rate of share repurchases to profits during 2010–2017 (when compared to 2002–2009).

4.4.3.3 Share repurchase value in relation to cash flow

Share repurchases have been linked to companies having excess cash resources available (the free cash flow hypothesis, as explained in Section 2.2.3.2). To test whether this theoretical link between share repurchases and available cash flow also exists in South Africa and, to gain an improved understanding of the cash resources invested in share repurchases, net share repurchases were expressed as a percentage of cash flow. As in Section 4.4.3.2, the net share repurchase value was used as numerator as this represented the outflow of cash from the group.

Birstingl (2016) used free cash flow as denominator to calculate a similar ratio, but IRESS Expert does not have a free cash flow line item available. The closest cash flow element available on IRESS Expert is 'cash available' – which is calculated as cash from investing activities before payment of dividends. Owing to the lack of a free cash flow line item, cash available was extracted from IRESS Expert and used as denominator in the calculations to follow. For a limited number of company years (30), the line item 'cash available' was missing on IRESS Expert. These company years were excluded from the analysis done in Section 4.4.3.3, and therefore a net repurchase value of only R114.4 billion was employed in Table 4.4 (which is slightly less than the figure reported in Table 4.2). A summary of the data employed can be found in Table 4.4.

Table 4.4

Net share repurchases, cash available and net share repurchases as a percentage of cash available

	Net repurchases (R'000)	Cash available (R'000)	Net repurchases as percentage of cash available
2002	2 300 925	37 788 238	6%
2003	3 130 479	53 222 453	6%
2004	2 892 104	68 581 843	4%
2005	8 627 084	85 869 556	10%
2006	7 835 201	92 490 876	8%
2007	5 931 940	101 139 036	6%
2008	13 088 472	125 494 737	10%
2009	25 010 409	131 184 895	19%
2010	2 918 189	147 300 687	2%
2011	8 126 439	136 386 621	6%
2012	5 274 578	157 973 454	3%
2013	3 340 886	176 649 972	2%
2014	6 756 157	183 015 418	4%
2015	9 789 175	176 609 894	6%
2016	6 301 004	176 696 147	4%
2017	3 063 570	181 185 022	2%
Total	**114 386 612**	**2 031 588 849**	**6%**

Overall, net share repurchases amounted to six per cent of cash available. This was determined using the data for all the companies in the population, and not only for the companies that repurchased, to be comparable to previous studies. If the percentage were calculated only for those companies that repurchased during a specific year, the net repurchases would equal 12 per cent of cash available.

In the US, share repurchases as a percentage of free cash flow increased from 30 per cent in 2005 to more than 150 per cent in 2007 (Birstingl, 2016, p. 9). During and just after the global financial crisis lower percentages were noted (falling to less than 20%), but the percentage had increased to more than 50 per cent by 2016 (Birstingl, 2016, p. 9). Again, one can see that share repurchase activity in South Africa was substantially less than that of the US. No Western European study could be identified that considered share repurchases as a percentage of cash flow; however, it was expected that South

African share repurchase activity would be more similar to that experienced in Western European countries.

Figure 4.7 shows net share repurchases and cash available as vertical bars. The percentage of share repurchases in relation to cash available is shown as an unbroken line on the graph.

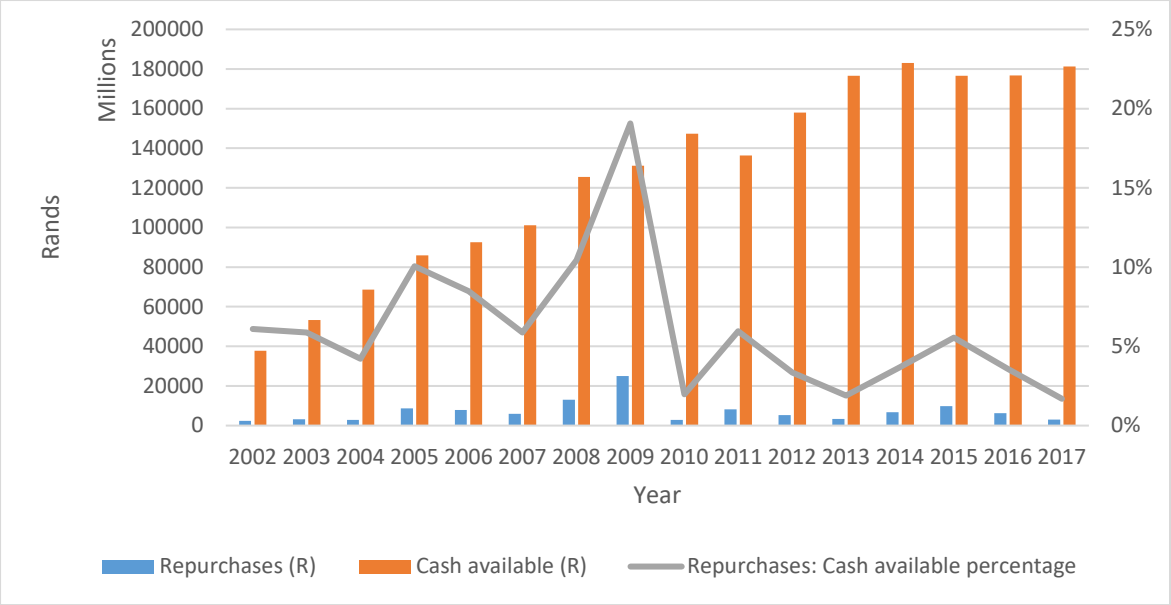

Figure 4.7. **Repurchase value in relation to cash available**

Cash available showed a substantial increasing trend over the 2002–2009 period. The CAGR (see definition in Section 4.4.3.2, just below Figure 4.6) of cash available was 19% over the 2002–2009 period, which was larger than inflation increases (which was 5% on average, per year over the same period). However, cash available only increased very slightly during the 2010–2017 period (a CAGR of only 1% increase was noted). As previously mentioned, share repurchases increased at a rate higher than inflation during the 2002–2009 period, but settled at a lower, and more constant, rate from 2010 onwards. Correspondingly, the percentage of share repurchases to cash available exhibited an upward trend during 2002–2009 (CAGR of 41%). During 2002–2006, if one excludes the period of the global financial crisis, the CAGR was still 28 per cent. From 2010 onwards, however, the percentage of share repurchase value to cash flow dropped to a lower point, exhibiting relative stationarity around this lower average (a CAGR of only 3% over the 2010–2017 period).

4.4.4 Conclusion

After its legalisation in 1999, the quantum of share repurchases in South Africa exhibited an increasing trend during 2002–2007 (especially during the 2005–2007 period). An increasing trend during 2005–2007 (just prior to the global financial crisis) was also noted in the US and Western European countries.

During the financial crisis, however, share repurchases in the US and Western Europe decreased, while those in South Africa increased. Japan also experienced an increase in share repurchase activity during the crisis, and connected it to price support during a time when share prices on the stock exchange were falling.

After the global financial crisis, share repurchase activity in the US again showed an increasing trend, while Western European countries maintained a more stable share repurchase level during the 2010–2015 period (with no discernible increase). In South Africa, share repurchase levels also stabilised after the financial crisis. It would seem that the South African share repurchase quantum is more similar to that of Western European countries than that of the US. However, in the financial crisis, South African share repurchases followed the Japanese pattern.

South African share repurchase value as a percentage of both profit and cash flow is small in comparison to that observed in the US; however South African share repurchase value (in comparison to profit) seems more comparable to that of Western European countries. Although the percentages are small, they are still substantial enough to warrant shareholder scrutiny of the matter – to ensure that directors who execute share repurchases are doing so in the best interests of the company.

During the period 2002–2009, share repurchases as a percentage of both profit and available cash flow, increased. Subsequent to the global financial crisis, share repurchases decreased to a lower percentage of profit and available cash. The percentage was relatively constant from 2010–2017, which emphasises the fact that the share repurchases quantum seemed to have stabilised at a new norm. One of the factors that could have influenced share repurchase behaviour during the post financial crisis period was the implementation of dividends tax, which shifted the tax burden relating to share repurchases from the companies executing share repurchases to the beneficial owner of the share. This shift might have increased shareholders' preference for dividends (Nel, 2018), thereby stabilising the demand for share repurchases.

4.5 RESEARCH SUB-QUESTION 1.3: REPURCHASING ENTITIES

Share repurchases can be categorised based on the repurchasing entity that executed the repurchase. The repurchasing entities are: the holding company repurchasing from third parties, the holding company repurchasing treasury shares, and subsidiaries. The annual rand value spent on share repurchases by each of the repurchasing entities is shown in Table 4.5 and Figure 4.8. The fourth column in Table 4.5 corresponds to the net share repurchase value in Table 4.2, whereas the final column in Table 4.5 corresponds to the gross share repurchase value in Table 4.2.

Table 4.5

Share repurchase value per repurchasing entity (in rands)

	Holding company repurchasing from third parties	Subsidiaries	Net share repurchases	Holding company repurchasing treasury shares	Gross share repurchases
2002	666 161 201	2 424 936 244	3 091 097 445	49 863 000	3 140 960 445
2003	566 791 472	2 564 072 391	3 130 863 863	264 040 207	3 394 904 071
2004	684 676 509	2 212 227 471	2 896 903 980	14 986 001	2 911 889 981
2005	296 709 673	8 334 074 518	8 630 784 191	3 552 221 919	12 183 006 110
2006	3 667 400 001	4 216 670 192	7 884 070 193	8 015 393 600	15 899 463 793
2007	1 833 652 808	4 106 287 511	5 939 940 319	1 789 074 448	7 729 014 767
2008	7 757 567 041	5 340 805 378	13 098 372 418	276 621 667	13 374 994 085
2009	22 776 029 906	2 238 979 008	25 015 008 914	6 744 178 260	31 759 187 173
2010	58 626 764	2 873 061 911	2 931 688 676	1 991 157 000	4 922 845 676
2011	1 612 350 871	6 544 287 860	8 156 638 731	6 360 019 110	14 516 657 841
2012	2 020 624 077	3 265 953 487	5 286 577 563	1 028 836 000	6 315 413 563
2013	1 304 625 524	2 036 329 976	3 340 955 500	1 910 222 000	5 251 177 500
2014	2 153 655 053	4 602 830 933	6 756 485 986	7 681 111 514	14 437 597 500
2015	8 628 378 267	1 160 797 219	9 789 175 486	2 306 373 000	12 095 548 486
2016	4 088 784 406	2 212 219 581	6 301 003 987	69 383 639	6 370 387 626
2017	1 633 728 560	1 464 346 422	3 098 074 982	1 475 488 777	4 573 563 759
Total	**59 749 762 132**	**55 597 880 101**	**115 347 642 234**	**43 528 970 142**	**158 876 612 376**
Percentage of net repurchases	**52%**	**48%**	**100%**	**n/a**	**n/a**
Percentage of gross repurchases	**38%**	**35%**	**73%**	**27%**	**100%**

From Table 4.5 one can see that the holding company repurchasing from third parties was the preferred repurchasing entity over the 2002–2017 period for the companies included in the research population of the present study. This preference was mainly attributable to the large spike in the holding company repurchasing from third parties in 2009 (Figure 4.8). Furthermore, the holding company repurchasing from third parties only exceeded subsidiary repurchases by a very small margin. Figure 4.8 graphically represents the rand value spent on share repurchases by each of the three possible repurchasing entities over the 2002–2017 period.

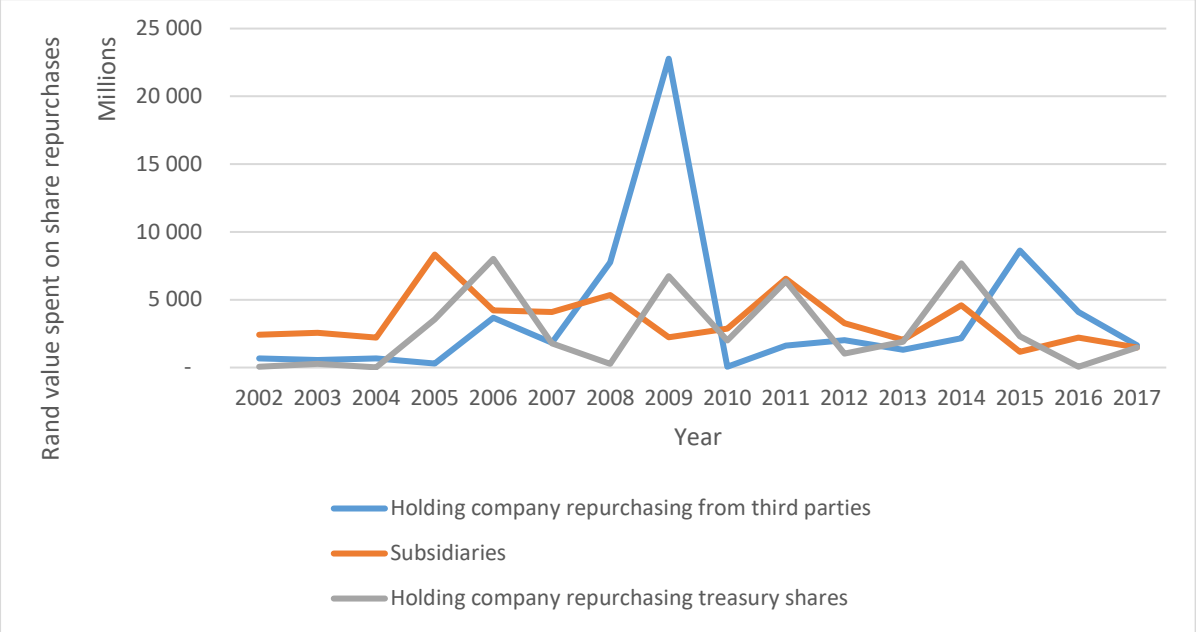

Figure 4.8. **Rand value spent on share repurchases by each of the repurchasing entities**

The wave-like pattern exhibited by the holding company repurchasing treasury shares has been discussed in Section 4.4. The remainder of this section concentrates on the holding company repurchasing from third parties versus subsidiaries as repurchasing entity. Before 2008, subsidiaries were the preferred repurchasing entity (if one considers the composition of net repurchases). Reasons for this include the fact that no STC (or other taxes) was payable when subsidiaries repurchased shares of the holding company, and that the subsequent resale to the holding company was also exempt from STC until 1 October 2007. Additionally, repurchases done by subsidiaries allowed the group more flexibility: such shares were not cancelled and could be resold or used to effect business combinations or settle share-based incentives to employees. In comparison, when the holding company itself repurchased shares, the transactions attracted STC and the shares were cancelled. As such, prior to 2008, fewer shares were repurchased by the holding company than by subsidiaries.

After the change of the STC legislation (in 2007), subsidiary repurchases were still exempt from STC, but the subsequent resale to the holding company attracted STC, rendering subsidiary repurchases less attractive than previously. The effect of this was immediate – in 2008 the holding company became the preferred repurchasing entity for the first time during the target period. The holding company (repurchasing from third parties) was the preferred repurchasing entity during 2008 and 2009, and much of the 2009 spike was attributable to the holding company (see Section 4.4.1.3 for a discussion of the 2009 spike) repurchasing from third parties.

From 2008 onwards, repurchases by subsidiaries generally showed a decreasing trend (except for a spike in 2011). After holding company repurchases spiked in 2008–2009, they dropped to almost zero in 2010. From 2010 onwards, a generally increasing trend was noticed, with holding company repurchases consistently exceeding those executed by subsidiaries from 2015 onwards. It therefore seemed that holding company repurchases generally became more popular from 2008 onwards, while subsidiary repurchases were employed less often from 2008 onwards.

4.6 RESEARCH SUB-QUESTION 1.4: REPURCHASE TYPES

Share repurchases can be divided between those occurring under specific authority (specific repurchases) or under general authority (general repurchases). Specific repurchases are transacted with specified counterparties at predetermined dates and predetermined prices, and shareholders have to authorise the repurchase specifically before it can occur. Specific repurchases can be further subdivided between the holding company repurchasing treasury shares, pro rata repurchases, and other specific repurchases. General repurchases, on the other hand, occur on the open market at the ruling market price and the counterparty is not known to the company (and the counterparty does not know that the shares are being repurchased by the company itself). Annually at the AGM, shareholders provide the directors with general approval to execute general repurchases limited to a certain percentage of issued shares. However, the number of shares actually repurchased is normally less than that authorised.

Table 4.6 shows the rand value spent on share repurchases executed under both specific and general authority. The fifth column in Table 4.6 corresponds with the net share repurchase value in Table 4.2, whereas the final column in Table 4.6 corresponds with the gross share repurchase value in Table 4.2.

Table 4.6

Share repurchase value per repurchase type (in rands)

	General repurchases	Pro rata specific repurchases	Other specific repurchases	Net repurchases	Specific: Holding company repurchasing treasury shares	Gross repurchases
2002	2 220 137 321	283 628 000	587 332 124	3 091 097 445	49 863 000	3 140 960 445
2003	2 888 858 345	64 381 708	177 623 810	3 130 863 863	264 040 207	3 394 904 071
2004	2 190 690 272	490 551 789	215 661 919	2 896 903 980	14 986 001	2 911 889 981
2005	5 569 791 279	2 461 287 721	599 705 191	8 630 784 191	3 552 221 919	12 183 006 110
2006	7 720 243 121	39 677 909	124 149 163	7 884 070 193	8 015 393 600	15 899 463 793
2007	4 474 295 319	-	1 465 645 000	5 939 940 319	1 789 074 448	7 729 014 767
2008	6 551 063 904	6 423 296 941	124 011 574	13 098 372 418	276 621 667	13 374 994 085
2009	2 998 737 118	-	22 016 271 795	25 015 008 914	6 744 178 260	31 759 187 173
2010	1 831 310 154	-	1 100 378 522	2 931 688 676	1 991 157 000	4 922 845 676
2011	5 533 554 146	60 000 001	2 563 084 584	8 156 638 731	6 360 019 110	14 516 657 841
2012	3 995 177 053	-	1 291 400 511	5 286 577 563	1 028 836 000	6 315 413 563
2013	3 249 012 500	-	91 943 000	3 340 955 500	1 910 222 000	5 251 177 500
2014	5 987 414 248	200 200 000	568 871 738	6 756 485 986	7 681 111 514	14 437 597 500
2015	1 297 538 910	-	8 491 636 576	9 789 175 486	2 306 373 000	12 095 548 486
2016	2 307 646 867	251 643 000	3 741 714 121	6 301 003 987	69 383 639	6 370 387 626
2017	1 926 154 186	-	1 171 920 796	3 098 074 982	1 475 488 777	4 573 563 759
Total	**60 741 624 741**	**10 274 667 070**	**44 331 350 422**	**115 347 624 234**	**43 528 970 142**	**158 876 612 376**
Percentage of net repurchases	**53%**	**9%**	**38%**	**100%**	**n/a**	**n/a**
Percentage of gross repurchases	**38%**	**6%**	**28%**	**73%**	**27%**	**100%**

Considering the totals in Table 4.6, it can be seen that general repurchases only constituted 38 per cent of gross repurchase value for the 2002–2017 period (53% of net repurchase value). While, in South Africa, total specific repurchases exceed general repurchases, the norm in many other countries (for example, in the US and Western Europe) is that the majority of share repurchases occur on the open market. Figure 4.9 graphically represents the repurchases executed using each type of repurchase in Table 4.6 (excluding specific repurchases where the holding company repurchases treasury shares, which has already been discussed in Section 4.4).

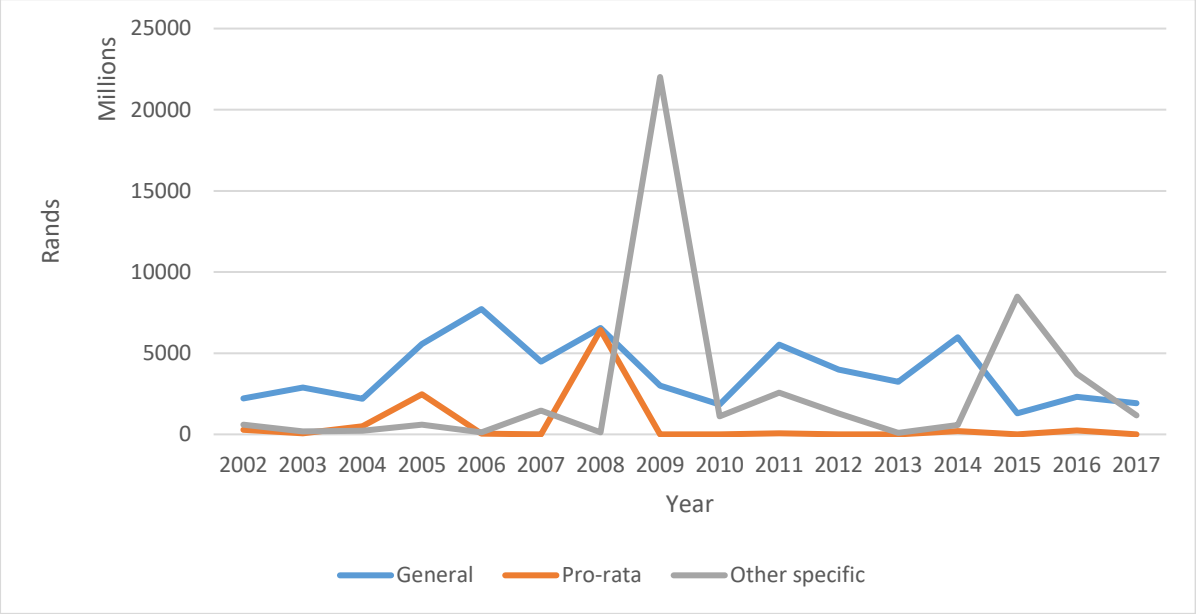

Figure 4.9. **Rand value spent on share repurchases per repurchase type**

If one looks at Figure 4.9, one can easily see that pro rata specific repurchases were the least prominent type of repurchase and were used only intermittently. Moderate pro rata repurchase activity was noted during the early 2000s, but from 2009–2017 few pro rata share repurchases occurred. The remaining two repurchase types (general repurchases and other specific repurchases) are discussed in Sections 4.6.1 and 4.6.2.

4.6.1 General repurchases

General repurchases increased from 2002 to 2006. From 2007 onwards, a decreasing trend in general repurchases occurred. It is important to note that general repurchases did not increase during the overall peak in 2009 (the 2009 peak was mainly attributable to specific repurchases by Netcare and MTN). General repurchases averaged R3 266 million per annum between 2010 and 2017, whereas the average was R4 327 million between 2002 and 2009. The smaller average figure during the 2010–2017

period would support the notion of a decreasing trend in general share repurchases, especially after the global financial crisis.

Subsidiary repurchases also decreased after the financial crisis (Section 4.5). In fact, the trend exhibited by general repurchases seems very similar to that of subsidiary repurchases. Figure 4.10 compares rand value spent on share repurchases by subsidiaries and the rand value spent on share repurchases under general authority.

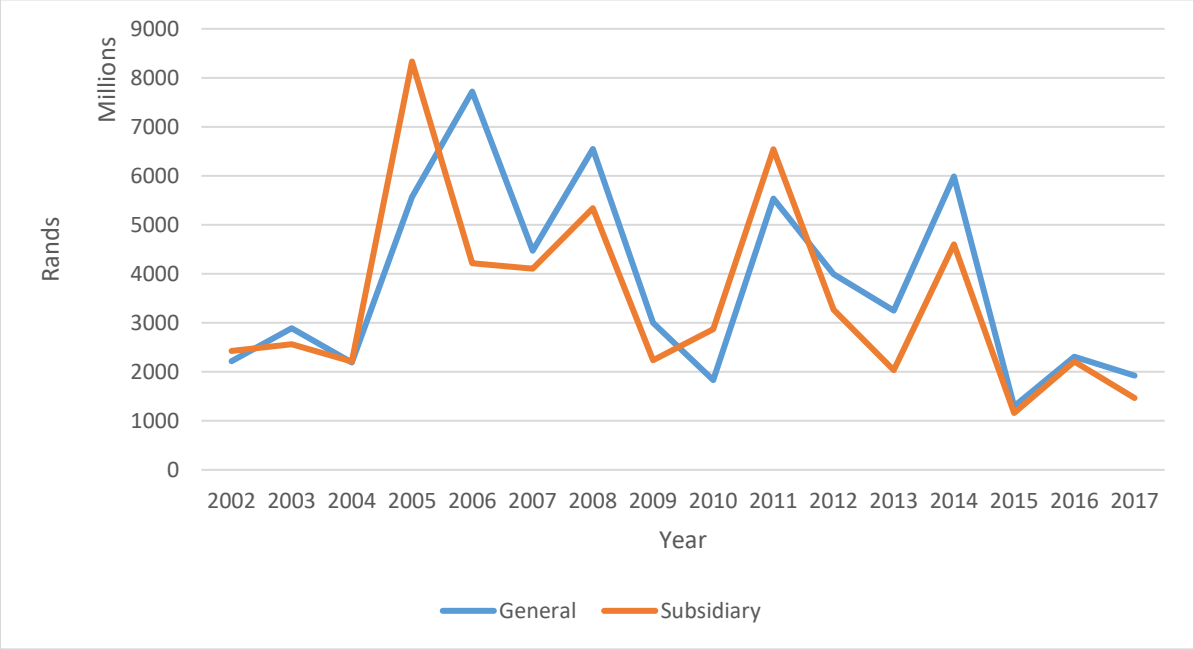

Figure 4.10. **Rand value spent on share repurchases: A comparison of general and subsidiary repurchases**

During most of the target period the trends displayed by subsidiary repurchases and general repurchases were very similar. It would seem that general repurchases were mainly executed by subsidiaries.

4.6.2 Other specific repurchases

Other specific repurchases (specific repurchases which exclude pro rata repurchases and treasury shares repurchased by the holding company) showed very little activity during the period 2002–2008 (when general repurchases by subsidiaries were occurring quite extensively and more pro rata specific share repurchases occurred). In 2009 other specific repurchases peaked, mainly owing to the MTN repurchase described in Section 4.4.1.3. After the 2009 peak, from 2010 to 2017, other specific repurchases oscillated around a higher average value (R2 378 million per annum) than before the peak. During 2002–2008 the average value of other specific repurchases was R471 million per annum.

It seems that after the 2009 peak in other specific repurchases, such share repurchases generally occurred at a higher rate. Since general repurchases by subsidiaries were less frequent during 2010–2017, it would seem that other specific repurchases were replacing a portion of the general repurchases over this period.

Since general repurchases and subsidiary repurchases seem linked, it also needs to be ascertained whether other specific repurchases and the holding company repurchasing from third parties follow similar trends. Figure 4.11 compares the rand value spent on share repurchases by the holding company (from third parties) and the rand value spent on other specific repurchases.

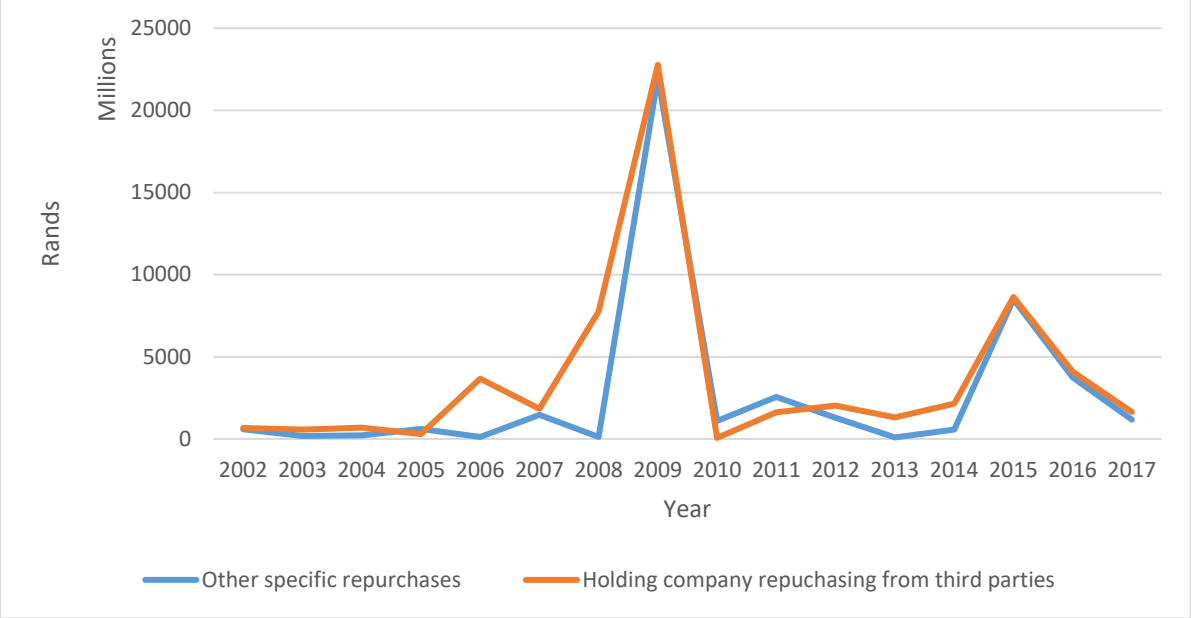

Figure 4.11. **Rand value spent on share repurchases: A comparison of other specific and holding company repurchases**

The trends relating to other specific repurchases and the holding company repurchasing from third parties are highly similar. The similarity in trends supports the notion that specific repurchases are mostly executed by the holding company. This would make sense from a theoretical perspective, as some of the reasons mentioned for companies engaging in share repurchases are to buy out the interest of dissenting shareholders and to protect the company against a takeover. Specific repurchases are aimed at targeted shareholders whose shares the company wants to repurchase for a specific reason (these shareholders could be a minority interest group that does not agree with the company's business plans). As shares repurchased by the holding company are cancelled, it makes logical sense that specific repurchases are usually executed by the holding company. The cancellation of the specific shares repurchased would achieve the goal of eliminating the specific shareholders.

4.7 RESEARCH SUB-QUESTION 1.5: TRANSPARENCY

Perhaps the most important issue, from a South African perspective, is how much of the share repurchase activity is announced on SENS (also referred to as the transparency of share repurchases). Share repurchases that are announced via SENS are seen as transparent, as this information is available to stakeholders when seeking a basis for their economic decisions.

Table 4.7 shows the proportion of share repurchase value that was announced and unannounced per annum. The final column in Table 4.7 corresponds with the gross share repurchase value in Table 4.2. The announced share repurchases are divided between (i) general share repurchases; (ii) the holding company repurchasing treasury shares; and (iii) pro rata and other specific repurchases. Pro rata share repurchases were combined with other specific repurchases, as pro rata share repurchases only occurred intermittently (many years showed a zero rand value spent on pro rata share repurchases). Furthermore, pro rata share repurchases and other specific repurchases had similar rules pertaining to SENS announcements (they should both be announced before they occur) and both types had high announcement rates (and therefore were highly transparent).

Table 4.7
Share repurchase value: Announced versus unannounced repurchases (in rands)

	Announced			Unannounced		Gross repurchases
	General	Holding company repurchasing treasury shares	Pro rata and other specific repurchases	General	Specific	
2002	1 919 103 818	37 099 932	807 584 124	301 033 504	76 139 068	3 140 960 446
2003	1 200 235 412	192 730 860	238 005 519	1 688 622 933	75 309 347	3 394 904 071
2004	1 074 200 050	11 396 001	705 363 708	1 116 490 222	4 440 000	2 911 889 981
2005	3 295 673 735	1 540 808 919	3 060 992 912	2 274 117 544	2 011 413 000	12 183 006 110
2006	3 783 765 734	7 979 257 600	163 827 072	3 936 477 388	36 136 000	15 899 463 793
2007	2 736 007 841	1 677 024 448	1 465 645 000	1 738 287 478	112 050 000	7 729 014 767
2008	3 770 981 870	29 797 000	6 524 885 941	2 780 082 034	269 247 241	13 374 994 085
2009	541 549 692	3 732 405 763	21 985 227 795	2 457 187 426	3 042 816 497	31 759 187 173
2010	857 399 415	1 748 557 000	129 270 534	973 910 738	1 213 707 988	4 922 845 676
2011	2 091 987 884	2 893 069 000	2 323 357 585	3 441 566 262	3 766 677 110	14 516 657 842
2012	319 486 402	-	419 523 800	3 675 690 651	1 900 712 711	6 315 413 563
2013	550 853 598	1 432 320 000	943 000	2 698 158 902	568 902 000	5 251 177 500
2014	915 767 472	6 379 525 514	270 675 218	5 071 646 776	1 799 982 519	14 437 597 500
2015	85 096 889	2 247 990 000	8 030 625 865	1 212 442 021	519 393 711	12 095 548 486
2016	188 194 292	34 953 574	3 865 859 121	2 119 452 574	161 928 065	6 370 387 626
2017	364 319 378	1 474 257 777	1 099 845 798	1 561 834 808	73 305 998	4 573 563 759
Total	**23 694 623 483**	**31 411 193 388**	**51 091 632 992**	**37 047 001 261**	**15 632 161 255**	**158 876 612 378**
Percentage of gross repurchases	**15%**	**20%**	**32%**	**23%**	**10%**	**100%**
Percentage of specific repurchases	**n/a**	**32%**	**52%**	**n/a**	**16%**	**n/a**
Percentage of general repurchases	**39%**	**n/a**	**n/a**	**61%**	**n/a**	**n/a**

Of the gross share repurchases executed over the 2002–2017 period, only 67 per cent were announced. This means that shareholders had no information regarding the timing of 33 per cent of the share repurchases conducted. Shareholders would only learn about these share repurchases in the annual financial statement (depending on how the information was presented in the statement) – which is usually published many months after the actual share repurchase has occurred and is therefore not useful information for decision-making.

When considering the specific repurchases that were not announced, these mainly related to the holding company repurchasing treasury shares. Of the R43 529 million spent by holding companies when repurchasing treasury shares, only R31 411 million (72%) of expenditure was announced. The unannounced portion of the expenditure of holding companies on repurchasing treasury shares (R12 118 million) constituted 78 percent of the total unannounced specific repurchases worth R15 632 million.

However, from Table 4.7 it can be ascertained that the non-announcement of share repurchases mostly resulted from general repurchases, which only need to be announced once three per cent of the outstanding shares have been repurchased. If one considers general repurchases in isolation, then only 39 per cent of the total general repurchases were announced, while 61 per cent were not announced. The three per cent announcement rule of the JSE leads to shareholders being uninformed about more than half of the general repurchases executed by JSE-listed companies. From 2002 to 2017 the percentages of unannounced general share repurchases showed a sharply increasing trend, ranging from 14 per cent in 2002 to above 80 per cent from 2012 onwards. This increasing trend might result from sponsors of JSE-listed companies advising their clients to interpret the three per cent rule as an annual threshold, rather than as a cumulative one (this interpretation has become more prevalent in recent periods) (Wesson, 2015, p. 191). The trend relating to unannounced general repurchases as a percentage of general repurchases is graphically displayed in Figure 4.12.

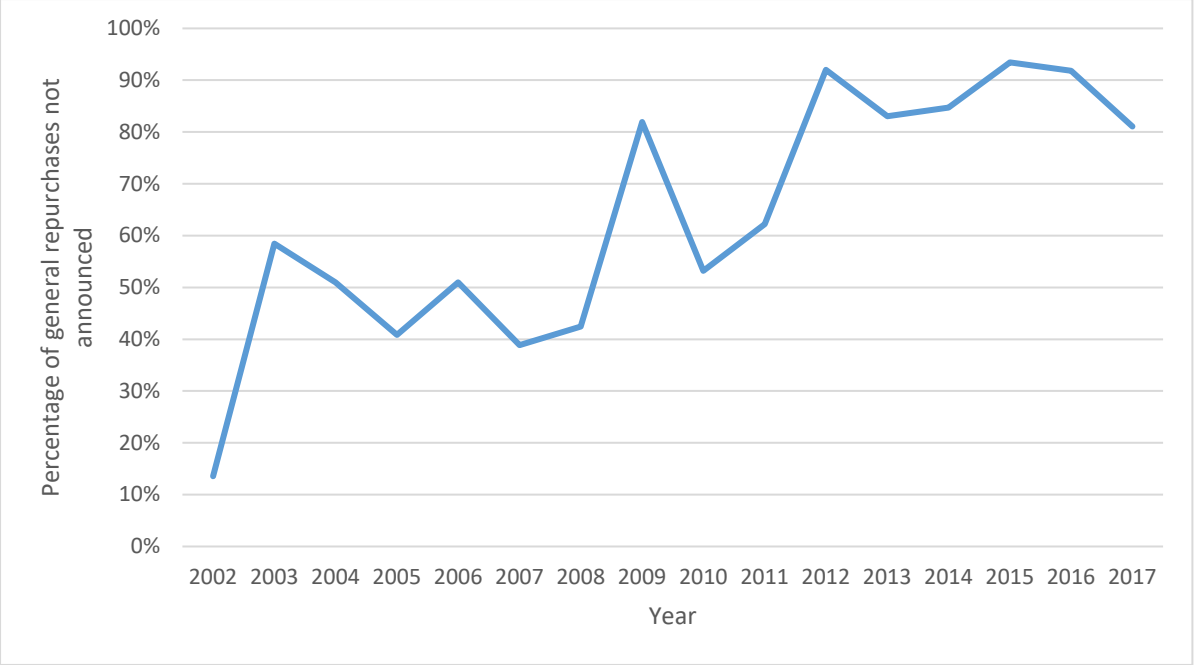

Figure 4.12. **Unannounced general repurchase value as a percentage of total general repurchase value**

One remaining question that beckons answering is whether the unannounced general share repurchases are material in the sense that they would influence the decisions of shareholders and JSE investors. Over the 2002–2017 period, net share repurchase value (which amounted to R114.4 billion for those companies for which profit figures were available) was eight per cent of profit after tax (see Section 4.4.3.2) However, this percentage was calculated with reference to all companies in the population and not only those who repurchased. If one only considered the companies that repurchased shares, then this percentage increased to almost 20 per cent of profit after tax over the 2002–2017 period. Of the R114.4 billion net repurchase value, approximately R37.0 billion related to unannounced general repurchases, thus the unannounced general repurchases equated to more than six per cent of profit for those companies who did repurchase. Depending on how one calculates materiality (from an auditing perspective it is usually calculated as between 5 and 10% of profit), this percentage would be material throughout the period, for those companies who did repurchase.

4.8 RESEARCH SUB-QUESTION 1.6: COMPARING THE POST CRISIS PERIOD TO 2000–2009

4.8.1 Introduction

Wesson (2015) previously reported on the South African share repurchase activity during 2000–2009. The present study investigated share repurchase activity in the 2002–2017 period. Thus, the present study included the 2010–2017 period – regarding which comprehensive data on share repurchases

had not been available before. The findings of the present study on the 2010–2017 period can be compared to the findings of Wesson (2015) on the 2000–2009 period, to identify possible changes in share repurchase behaviour between the two periods. The findings of the present study (pertaining to the 2010–2017 period only) are compared to those of Wesson (2015) in answering research sub-questions 1.1 to 1.5. The rand value spent on share repurchases was employed to compare the 2000–2009 and 2010–2017 periods (as the rand value was also employed in Sections 4.5 to 4.7).

It should be noted that results on the 2002–2009 period, as reported in the present study, differ slightly from results from the 2002–2009 period as reported by Wesson (2015), since the companies making up the research population of the present study differed from the population employed by Wesson (2015). Reasons for these differences were threefold. Firstly, companies moving from the AltX to the Main Board between 2010 and 2017 were included in the present study for the entire period that they were listed on the JSE (AltX or Main Board) between 2002 and 2017, although they were not included by Wesson (2015). Secondly, companies which amended their listed industry to the Basic Materials or Financial industries, or switched to a secondary listing on the JSE (previously having had a primary listing) during the period 2010–2017 were excluded from the present study, whereas they were included by Wesson (2015). Thirdly, new JSE listings during 2008 and 2009 were excluded from the Wesson study owing to the lack of the availability of three consecutive annual reports, but were included in the present study.

For the analysis per company size employed in Sections 4.8.2.2 and 4.8.3.2, companies were classified as either Top40 (J200 index as per JSE), MidCap (J201 index as per JSE), Small (J202 index as per JSE) or Fledgling (J204 index as per JSE). The constituents of the mentioned indexes were requested from the JSE as at 31 December of each of the years covered by the study, and were used to classify the companies based on their size. However, not every company included in the study could be classified as either Top40, MidCap, Small or Fledgling in every company year. The non-classification was due to some of the companies not forming part of any of the indexes in a specific year. Companies that transferred their listing to the Main Board at a later stage were not indexed if they were still listed on the AltX of the JSE at that stage, or if they did not meet the JSE's index inclusion criteria (which stipulated minimum free float and liquidity requirements).

If one only considers the 2010–2017 period, the data set included 1 141 company years. Of these 1 141 company years, only 1 029 (90%) could be classified based on size. In the 1 029 company years, only nine per cent of the companies were classified as Top40, as many of the Top40 constituents were dual-listed (with a secondary listing on the JSE) or listed in the Basic Materials and Financial industries. Because of the limited number of Top40 companies, it was decided to merge the Top40 and the

MidCap groups. Thus, only three size groups were identified (percentages were based on those company years that could be classified according to company size): Top40 and MidCap (hereafter Top40/MidCap) (32%), Small (24%) and Fledgling (44%).

4.8.2 Number of companies engaging in share repurchases (sub-question 1.1)

A total of 172 companies were included in the population during the period 2010–2017, and a total of 102 (59%) of these companies executed one or more share repurchases during the period. During the 2000–2009 period, Wesson (2015, p. 88) found that 51 per cent of the 227 companies studied executed share repurchases at some point. It would therefore seem as if more companies engaged in share repurchases after the global financial crisis than during 2000–2009.

During the 2000–2009 period the most active repurchasers executed share repurchases in eight of the 10 years studied (in 80% of the years) (Wesson, 2015, p. 91). Only four such companies were identified: Bidvest Group Limited, Grindrod Limited, Sasol Limited, and Truworths International Limited (Wesson, 2015, p. 91). During the 2010–2017 period, the most active repurchasers repurchased shares in all the years being studied (i.e. in 100% of the years), and eight such companies were identified (Afrimat Limited, Blue Label Telecoms Limited, Caxton and CTP Publishers and Printers Limited, Clicks Group Limited, Sun International Limited, Truworths International Limited, Vodacom Group Limited, and Woolworths Holdings Limited). It therefore seems that, post 2010, share repurchase activity was becoming more ingrained in the financial management activities of certain companies, as some companies employed it annually.

4.8.2.1 Number of companies: Regular versus irregular repurchasers

Companies that did execute share repurchases were divided into three groups. These three groups were: those that only repurchased in one of the years in which they were listed (‘repurchased once’); those that repurchased in more than one year but less than 50 per cent of the years they were listed (‘repurchased irregularly’); and those that repurchased in 50 per cent or more of the years they were listed (‘repurchased regularly’). Figure 4.13 shows the proportion of companies that fell into each of the categories mentioned.

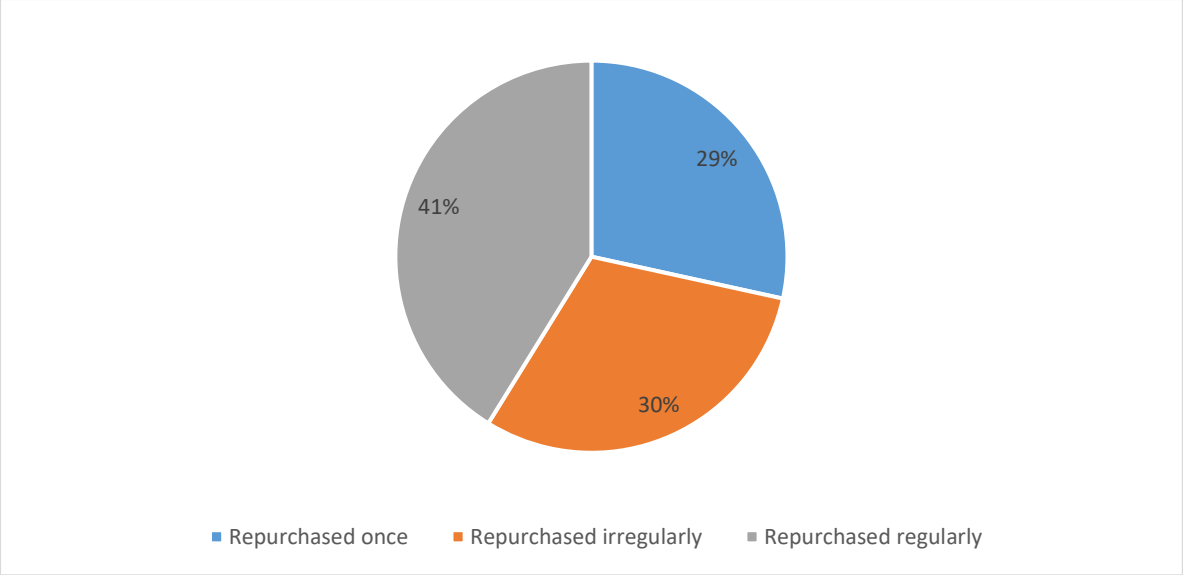

Figure 4.13. **Percentage of repurchasing companies who repurchased once, irregularly and regularly, 2010–2017**

Looking at the 2000–2009 period, Wesson (2015, p. 91) showed that 27 per cent of the companies repurchased once, 41 per cent repurchased irregularly and 32 per cent repurchased regularly. When comparing this to Figure 4.13, it can be seen that the percentage of companies that repurchased once remained approximately the same (27% as compared to 29%). However, the percentage of irregular repurchasers decreased (41% of the companies decreased to 30%), while the percentage of regular repurchasers increased (32% of the companies increased to 41%). This coincides with the view expressed in the first paragraph of Section 4.8.2 namely that companies had become more active repurchasers from 2010 onwards. It seems that the repurchasing of shares has become an established practice in South Africa, and companies have started executing share repurchases more regularly since 2010.

4.8.2.2 Number of companies: Companies of different sizes

Of the 326 company years (during the 2010–2017 period) in which share repurchases occurred, only 296 (91%) could be classified as either Top40/MidCap, Small or Fledgling. Based on the number of repurchasing company years that could be classified based on size, 107 (36%) of the repurchase years related to Top40/MidCap companies, 74 (25%) related to Small companies, and 115 (39%) related to Fledgling companies. The time trends relating to the percentage of companies in each size group which engaged in repurchases may be seen in Figure 4.14.

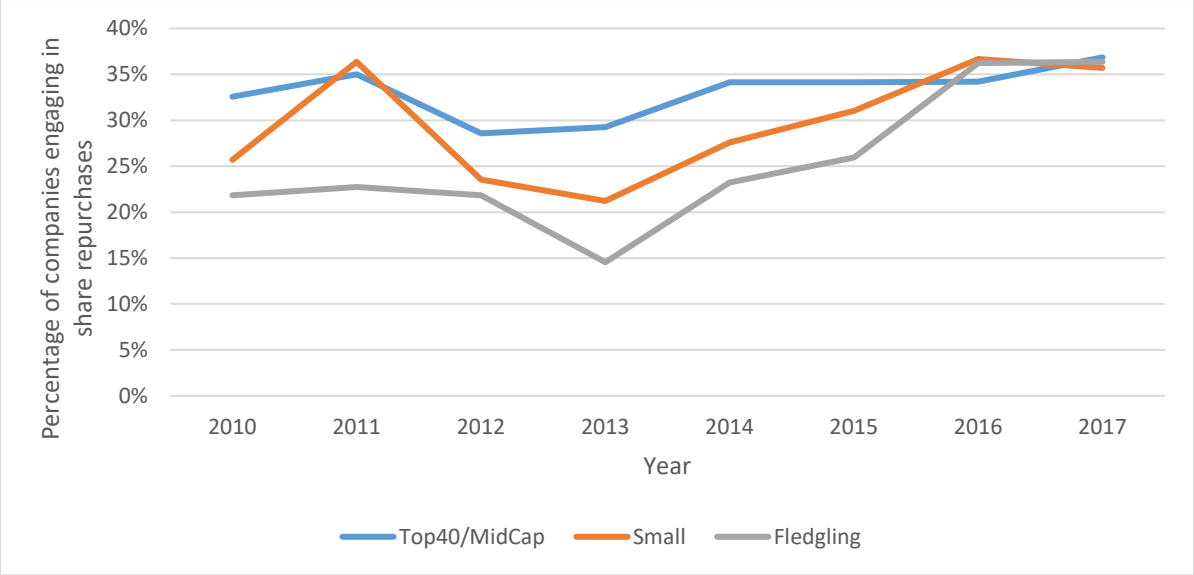

Figure 4.14. **Percentage of companies in each size group that repurchased shares, 2010–2017**

Considering the time trends shown in Figure 4.14, it can be ascertained that the Top40/MidCap companies were the most active repurchasers – for most years during 2010–2017 the Top40/MidCap group had the highest percentage of repurchasers of all the groups. The percentage of Top40/MidCap companies repurchasing was relatively stable (mostly ranging between 30% and 35%). However, the gap between the repurchasing percentage of Top40/MidCap companies and other companies grew smaller in later years. From 2013, especially, the percentage of Small and Fledgling companies engaging in share repurchases increased – to the point of exceeding the percentage of Top40/MidCap companies engaging in share repurchases in 2016 and equalling the percentage of Top40/MidCap companies in 2017. It seems that Small and Fledgling companies were responsible for the increased number of companies engaging in share repurchases noticed in Figure 4.1. This trend, of share repurchases becoming more prevalent under Small and Fledgling companies during 2016 and 2017, might be a result of share repurchases (as financial tool) becoming more widely accepted and employed (initially, share repurchases were predominantly executed by larger companies).

Wesson (2015, p. 93) reported that, on considering repurchasing appetite during the 2000–2009 period, smaller companies were more likely to execute a repurchase. This finding of small companies being the most active repurchasers did not hold true for the majority of the 2010–2015 period, but was again found during 2016 and 2017.

4.8.3 Quantum of share repurchases (sub-question 1.2)

During the period 2010–2017, the companies in the research population repurchased 2 759 million shares (an average of 345 million shares per annum) with a rand value of R68 483 million (an average

of R8 560 million per annum), calculated on the figures in Table 4.2. According to Wesson (2015, p. 89), a total of 5 658 million shares were repurchased during 2000–2009 (an average of 607 million per annum) with a rand value of R136 887 million (an average of R13 689 million per annum). The quantum of share repurchases in South Africa thus decreased substantially after 2009, with the activity of the 2010–2017 period being almost half that of the period 2000–2009.

The four companies which spent the most on share repurchases (measured at a gross level) during 2010–2017 were:

- Bidvest Group Limited (R5.1 billion; 7.4% of total repurchase value; repurchased in 2 years);
- Clicks Group Limited (R6.2 billion; 9.0% of total repurchase value; repurchased in 8 years);
- Imperial Holdings Limited (R6.4 billion; 9.4% of total repurchase value; repurchased in 7 years); and
- MTN (R11.6 billion; 17.0% of total repurchase value; repurchased in 4 years).

No other companies spent more than R5 billion on gross share repurchases during the 2010–2017 period. The four companies mentioned in the previous paragraph accounted for almost 43 per cent of the share repurchase value on a gross basis. Wesson (2015, p. 92) found that the four companies which spent the most on share repurchases during 2000–2009 contributed in excess of 50 per cent of the share repurchase value during that period. This is an indication that, although more companies were engaging in share repurchases and more regularly, the rand value invested in such activities per company had decreased during 2010–2017.

4.8.3.1 Quantum: Regular versus irregular repurchasers

Three groups were employed to divide companies based on the regularity with which they repurchased shares. The groups were: ‘repurchased once’ (those companies that repurchased in only one of the years in which they were listed); ‘repurchased irregularly’ (those companies that repurchased in more than one year, but fewer than half the years they were listed); and ‘repurchased regularly’ (those that repurchased in half or more of the years they were listed). Considering the rand value spent on share repurchases pre-2010, Wesson (2015, p. 92) found that regular repurchasers contributed to the largest share repurchase value (66%), while irregular repurchasers and once-off repurchasers contributed 18 per cent and 17 per cent, respectively. Figure 4.15 shows the share repurchase value (2010–2017) attached to each of the groups which repurchased shares (calculated on gross repurchases).

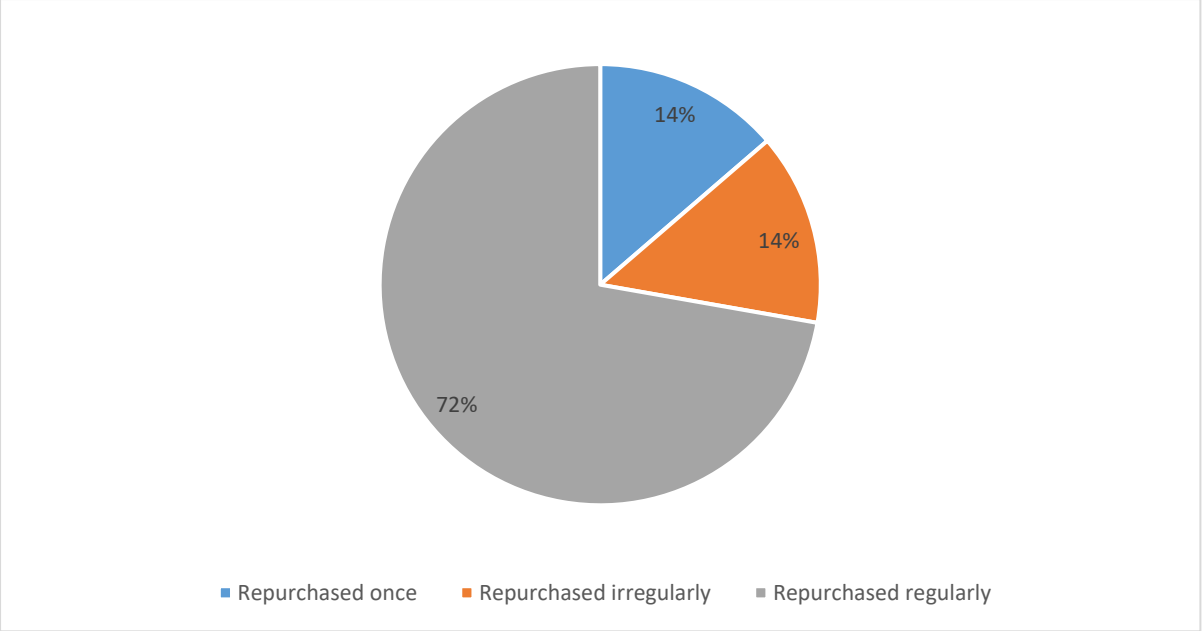

Figure 4.15. **Percentage of share repurchase value attributable to companies who repurchased once, irregularly and regularly, 2010–2017**

As was the case prior to 2010, those companies repurchasing regularly contributed most of the rand value during the 2010–2017 period. And, as the number of companies repurchasing regularly increased (see Section 4.8.2.1), so did the rand value spent by them on share repurchases (in comparison to the other groups of repurchasers). During 2010–2017, 72 per cent of the share repurchase value was spent by companies who repurchased regularly (up from 66% pre-2010), while each of the other groups contributed 14 per cent of the value of repurchases.

The majority of the rand value spent on share repurchases originated from companies which repurchased regularly. Given that the regular repurchasers repurchased in at least half the years they were listed (i.e. in 4 of the 8 years if listed during the entire 2010–2017 period), one would have expected the rand value attributable to this group to be quite large. Interestingly, the rand value spent by companies which repurchased regularly (i.e. in at least 4 of the 8 years if listed throughout 2010–2017) was exactly four times as large as the rand value spent by companies which repurchased only once. This emphasises that the rand value spent by once-off repurchasers could still be quite large. The irregular repurchasers repurchased in two or three years, and spent an amount equal to that of the once-off repurchasers. Thus the irregular repurchasers spent the smallest amounts per repurchase.

4.8.3.2 Quantum: Companies of different sizes

Gross repurchases to the value of R67 615 million (99%) could be classified as executed by either a Top40/MidCap, Small or Fledgling company during the 2010–2017 period. Of the repurchases that could be classified, almost 89 per cent were attributable to Top40/MidCap companies, while seven per cent were attributable to Small companies and only four per cent to Fledgling companies. Wesson (2015, p. 92) also found that the largest companies contributed the bulk of the share repurchase value during the 2000–2009 period. One of the reasons why the majority of gross repurchase value was attributable to Top40/MidCap companies is that these companies had a large market capitalisation, which would lead them to spending more cash to repurchase the same percentage of their outstanding share capital than a smaller company.

4.8.4 Repurchasing entities (sub-question 1.3)

Wesson (2015) found that subsidiaries were the preferred repurchasing entity during the 2000–2009 period (40% of gross repurchase value was attributable to subsidiaries). Holding companies repurchasing treasury shares made up 31 per cent of gross repurchase value, while the remainder (almost 29%) was attributable to the holding company repurchasing from third parties (Wesson, 2015).

In the present study, considering the 2010–2017 period, it was found that subsidiaries were still the preferred repurchasing entity – making up 35% of gross repurchase value (calculated on the 2010–2017 figures presented in Table 4.5). Given that the percentage attributable to subsidiaries decreased, the percentage attributable to both the holding company repurchasing treasury shares (now 33%) and the holding company repurchasing from third parties (now 31%) increased.

The decreased preference for subsidiary repurchases in the post global financial crisis period could possibly be associated with amendments to the tax definition of a dividend during 2011 and the introduction of dividends tax during 2012. Before these amendments, subsidiaries were the only repurchasing entity that was exempt from tax on share repurchases executed. Subsequent to the introduction of dividends tax, the preference for subsidiaries owing to tax exemption would have fallen away, as none of the repurchasing entities would be liable for tax when executing share repurchases (the person selling the share would possibly be liable for tax).

In Section 4.5 it was noted that the holding company repurchasing from third parties was the preferred repurchasing entity for the entire 2002–2017 period for the population of the present study. This is noteworthy as Wesson (2015, p. 96) found that subsidiaries were the preferred repurchasing entity during 2000–2009, and the present study found subsidiaries still to be the preferred repurchasing

entity during 2010–2017. Two reasons can, however, be found for this discrepancy. Firstly, the present study excluded the 2000–2001 period, while the Wesson study included this period, which would have altered the proportions attributable to each repurchasing entity (as 2000–2001 saw mostly subsidiary repurchases being executed) (Wesson, 2015, p. 96).

Secondly, the populations employed by the Wesson study and the present study were slightly different (see Section 4.8.1 for the reasons for this). Specifically, Sasol Limited was included in the population employed by Wesson (2015) and not in the present study's population owing to the fact that, by 2017, the listing of Sasol Limited had transferred to the Basic Materials Industry of the JSE. Sasol Limited was responsible for the highest rand value expenditure on repurchases during the 2000–2009 period (i.e. repurchases of R38 billion, which equalled almost 28% of the gross repurchase value expended by all companies in Wesson's population) (Wesson, 2015, pp. 91–92). The repurchases of Sasol Limited were exclusively executed by subsidiaries and the holding company repurchasing treasury shares. The exclusion of Sasol Limited from the population of the present study would have altered the proportions attributable to each repurchasing entity substantially.

4.8.5 Repurchase types (sub-question 1.4)

In the present study it was found (based on the 2010–2017 figures as reported in Table 4.6) that general repurchases made up 38 per cent of gross repurchase value. Specific repurchases were thus the preferred type of repurchase during 2010 to 2017. Specific repurchases (making up 62% of the gross repurchase value) consisted of: holding company repurchasing treasury shares (54% of specific repurchases), pro rata repurchases (1% of specific repurchases) and other specific repurchases (45% of specific repurchases).

Regarding the 2000–2009 period, Wesson (2015) also found that specific repurchases were the most popular repurchase type. The constituents of specific repurchases, however, were different in 2000–2009 than they were after the global financial crisis. During 2000–2009, 13 per cent of the value of specific repurchases was made up of pro rata repurchases, while only 33 per cent was made up of other specific repurchases (repurchasing of treasury shares by the holding company constituted the remainder of 55%). It would seem that after the global financial crisis, pro rata repurchases decreased in prominence as other specific repurchases increased.

4.8.6 Transparency (sub-question 1.5)

Rating the transparency of share repurchases is done by considering the percentage of share repurchases that were announced via SENS. Wesson (2015) found that 78 per cent of gross repurchase value was announced via SENS, during 2000 to 2009. The non-announcement was mostly attributable

to general repurchases (under the 3% threshold) – only 59 per cent of general repurchases were announced in the 2000–2009 period.

After the global financial crisis, fewer share repurchases were announced than during 2000–2009. During the 2010–2017 period only 55 per cent of share repurchase value (21% of general repurchases) was announced on SENS (calculated on the 2010–2017 values as provided in Table 4.7). One can also see this decreasing trend of announcements in Figure 4.12. Thus, the transparency around share repurchases has decreased severely in the post financial crisis period, which hampers proper monitoring of share repurchases (and of their possible effect of increasing the value of executive share-based remuneration and thereby decreasing internal investment by companies).

4.9 COMPARISON BETWEEN SHARE REPURCHASE VALUE OF THE PRESENT STUDY AND IRESS

To reach the research aim of the present study, it was necessary to have complete information regarding share repurchase value in South Africa. This information was collected through a complex process of reconciliations based on annual financial statement information (as detailed in Section 3.3) and the data were then included in a share repurchase database (one of the contributions of the present study). In this section the share repurchase value as contained in this database is compared to the share repurchase value as contained in the IRESS financial database, as confirmation that the research method employed by the present study was warranted to obtain complete data on share repurchase value, to be utilised in Chapter 6.

IRESS collects financial information based on the disclosures in annual financial statements. Line items dealing with share repurchases are found in two sections in IRESS, namely the statement of changes in equity and the supplementary information to the statement of financial position. The following line items were available in the statement of changes in equity section: line 911 labelled ‘Treasury Shares/Issued Capital and Share Premium’, line 913 labelled ‘Cancelling of Shares/Issued Capital and Share Premium’, and line 952 labelled ‘Treasury Shares/Non-distrib Reserve’. In the supplementary information to the statement of financial position, the following line items related to share repurchases: line 232 labelled ‘Treasury Shares (Number ‘000)’, line 232 labelled ‘Treasury Shares (Value R’000)’, line 274 labelled ‘Share Buyback (Number 000)’, and line 275 labelled ‘Share Buyback (Value R’000)’.

As IRESS was not clear on the exact demarcation for each of the line items, the data for all line items were downloaded from IRESS. The share repurchase value information contained in the statement of changes in equity section was compared to that contained in the statement of financial position section. Line 232 ‘Treasury shares’ seemed to be the cumulative value of shares held as treasury while

Line 275 'Share Buyback' seemed to capture the value of shares repurchased during the specific period (it sometimes corresponded to Line 913 'Cancelling of Shares'). Overall, it seemed as if the statement of changes in equity data were substantially more comprehensive than that available in the statement of financial position section. Therefore, it was decided to compare the share repurchase value in the share repurchase database of the present study to the cumulative total of all three statement of changes in equity line items available in IRESS (lines 911, 913 and 952). It was decided to combine the three statement of changes in equity line items in IRESS to obtain the most comprehensive picture of share repurchases from IRESS and because certain companies had data in one of the line items, while other companies had data in other line items.

The total of line items 911, 913 and 952 was R62.9 billion for the companies included in the present study during the 2002–2017 period, while it was R30.3 billion for the 2010–2017 period. The share repurchase value according to IRESS thus only equated to 55 per cent of the net repurchases of R114.9 billion and 40 per cent of the gross repurchases of R158.4 billion reported in present study for the 2002–2017 period (66% of the net repurchases of R45.7 billion and 44% of the gross repurchases of R68.5 billion for the 2010–2017 period). These percentages confirm that the IRESS financial database could not have been employed in the present study to obtain complete data on share repurchase value in South Africa, and that the data had to be collected by performing time-consuming reconciliations based on annual financial statement information and SENS announcements.

4.10 CONCLUSION

Research question 1 considered the extent of share repurchase activity in South Africa during the 2002–2017 period. Several sub-questions were designed to address Research question 1 comprehensively. The answers to the sub-questions were reported in this chapter.

Before the present study, little was known regarding share repurchase activity during the 2010–2017 period. Knowledge of comprehensive share repurchase activity can be useful to stakeholders in assessing the relationship between share repurchases and other aspects important to a company's financial health (e.g. internal investment). For instance, the present study determines the relationship between share repurchases and executive share-based remuneration – to assess whether share repurchases are related to rent extraction by executives using share-based remuneration. The testing of this relationship would not be possible if comprehensive share repurchase data were not available.

Sub-question 1.1 related to the number of companies that engaged in share repurchases. During 2007 and 2013, when changes in the tax regime relating to share repurchases occurred, a smaller percentage of companies engaged in share repurchases. However, during 2016/2017 a substantially

higher percentage of companies engaged in share repurchases – mainly attributable to Small and Fledgling companies. Overall, a higher percentage of companies engaged in share repurchases after the global financial crisis than pre-2010. It appears that share repurchase activity became more widespread after the financial crisis. Furthermore, companies started repurchasing more regularly after the crisis.

Sub-question 1.2 centered on the quantum of share repurchases. A generally upward trend was noticed from 2002 to 2009 in both the number of shares repurchases and the rand value spent on repurchases. From 2010 onwards share repurchases seem to have stabilised at a lower quantum – similar to the trend noticed in Western Europe. Share repurchase value as a percentage of both profit and cash flow was less than that of the US, but comparable to that of many Western European countries.

During the 2010–2017 period, the preference for subsidiary repurchases decreased when compared to the 2000–2009 period, possibly owing to changed tax regulations (sub-question 1.3). After the global financial crisis, the preferred repurchase type was still specific repurchases (sub-question 1.4). During 2010–2017 fewer share repurchases were announced via SENS than during 2000–2009, which indicates that the transparency of share repurchases decreased after the global financial crisis (only 55% of share repurchase value was announced after the crisis). The lack of transparency relating to share repurchases could hamper effective monitoring of share repurchases by stakeholders, and could lead to the abuse of share repurchases by executives in order to manipulate the share price and EPS, and enhance the value of their own share-based remuneration. It is recommended that improved regulations be drafted by the JSE to ensure that stakeholders are aware of all share repurchases executed by JSE-listed companies, in real time.

CHAPTER 5: CHARACTERISTICS OF EXECUTIVE SHARE-BASED REMUNERATION

5.1 INTRODUCTION

Share-based incentives are used increasingly to remunerate executives of listed companies – both globally and in South Africa. Share-based remuneration originated from agency theory, and is an attempt to align the interests of executives and shareholders. However, nowadays more and more people are concerned – in line with the managerial power theory – that executives might be unduly enriching themselves through share-based remuneration. Chapter 6 addresses the relationship between share repurchases and share-based remuneration from a South African context (Research question 3). But, in order to effectively assess the relationship between share repurchases and share-based remuneration, the characteristics of South African executive share-based remuneration need to be known (Research question 2).

Institutional theory proposes that the characteristics of share-based remuneration might vary between different countries. No in depth, longitudinal study has yet been performed on the characteristics of South African executive share-based remuneration. This chapter seeks to address this knowledge gap. Thus, to address Research question 2, four research sub-questions were developed:

- Sub-question 2.1: What value was attached to executive share-based remuneration in relation to the value of other executive remuneration?
- Sub-question 2.2: What trends were noted over the 2002–2017 period in terms of the type of schemes being granted to executives?
- Sub-question 2.3: What vesting conditions were attached to executive share-based remuneration?
- Sub-question 2.4: How many share-based instruments were associated with executive share-based remuneration?

Before the research questions are addressed, this chapter describes the number of companies in the population for which information on executive share-based remuneration was available (Section 5.2). Then, the research sub-questions, bulleted in the previous paragraph, are addressed (Sections 5.3 to 5.6). The answers to the first two sub-questions provide context to the issue of executive share-based remuneration and enable the development of a comprehensive database on executive share-based remuneration. The answers to the last two sub-questions complete the database on executive share-based remuneration and are employed as independent variables to address Research question 3. To better understand the share-based remuneration variables to be employed as independent variables

in Chapter 6, Section 5.7 investigates whether these variables differ between companies of various sizes. Finally, Section 5.8 concludes the chapter.

5.2 THE NUMBER OF COMPANIES INVOLVED

The final population of the present study included 220 companies – and their share repurchase behaviour was reported in Chapter 4. For all 220 companies in the population, it was attempted to extract details regarding executive share-based remuneration from the IRESS financial database for the 2002–2017 period (or for the period that the company was listed, if shorter). For certain years for some companies, IRESS had no information available, as no per-director disclosures were made in the annual financial statement or the company did not have executive directors during that specific company year. These company years were therefore excluded from further analysis in Chapters 5 and 6. The affected companies (and company years) were:

- African Media Entertainment Limited (2005 to 2007 and 2009 to 2010)
- Afrocentric Investment Corporation Limited (2006 to 2011)
- Awethu Breweries Limited (2002 to 2013)
- Business Connection Group Limited (2002)
- Capevin Holdings Limited (2012 to 2017)
- Capevin Investment Limited (2002 to 2011)
- Datacentrix Holdings Limited (2017)
- ElementOne Limited (2009)
- Intertrading Limited (2002)
- LA Group Limited (2006)
- Mobile Industries Limited (2004 to 2012)
- Nictus Limited (2002 to 2003)
- Pals Holdings Limited (2002)
- Pick n Pay Holdings Limited (2002 to 2016)
- Sephaku Holdings Limited (2009)
- Sovereign Food Investment Limited (2002 to 2003)
- The Spar Group Limited (2004)
- Tiger Wheels Limited (2007)
- United Service Technologies Limited (2002 to 2004)
- Verimark Holdings Limited (2004 to 2005)

Although the share repurchase activity of 220 companies was described in Chapter 4, five of these companies had to be wholly excluded from Chapters 5 and 6, as no data on executive share-based

remuneration was available in any year that the companies were listed. These were: Awethu Breweries Limited, Capevin Holdings Limited, Capevin Investment Limited, Pick n Pay Holdings Limited, and United Service Technologies Limited. Chapter 5 reports only on the share-based remuneration behaviour of the remaining 215 companies. A total of 8 837 lines of data were captured in the 'per-executive database on share-based remuneration' described in Section 3.4: each line dealing with the share-based remuneration data of a specific executive of one of the 215 companies, during a specific year.

The number of companies included in the research population (that had both share repurchase and executive share-based remuneration data available) differed in each year, as companies listed and delisted throughout the target period of the present study. Moreover, the companies had a varying number of executives in the years studied. The number of companies and number of executives included in the population may be viewed in Table 5.1.

Table 5.1

Number of companies and executives included in population

Year	Number of companies	Number of executives	Average number of executives per company
2002	151	706	4.7
2003	156	691	4.4
2004	156	672	4.3
2005	145	605	4.2
2006	137	582	4.2
2007	146	578	4.0
2008	154	586	3.8
2009	151	592	3.9
2010	148	554	3.7
2011	149	544	3.7
2012	148	526	3.6
2013	143	490	3.4
2014	136	460	3.4
2015	133	430	3.2
2016	132	421	3.2
2017	127	400	3.1
Total for 2002–2017 period	**2 312**	**8 837**	**3.8**

The number of companies was relatively constant over the period, with only 2006 and the period 2014–2017 showing slightly lower numbers of companies being studied (following a spate of delistings before these dates). However, the number of executives employed showed an obvious decreasing trend over the period (the average number of executives per company decreased from 4.7 per company in 2002 to 3.1 per company in 2017).

Given that the fact that share-based remuneration was compared to share repurchases, captured per company year in Chapter 6, Chapter 5 mostly discusses the share-based remuneration paid by a specific company (and not the share-based remuneration received by individual executives). Thus, the discussion concentrates on the share-based remuneration of the 2 312 company years, referred to as the 'per-company year database on share-based remuneration' in Section 3.4. However, in certain cases the reporting in Chapter 5 reverts to the remuneration received per executive (i.e. it focuses on

the 8 837 'per-executive' data lines). Reverting to the 'per-executive' data is done when discussing the value of share-based remuneration per executive in Section 5.3 as well as the detailed vesting conditions employed per executive in Sections 5.5.1 and 5.5.2.

5.3 RESEARCH SUB-QUESTION 2.1: VALUE OF EXECUTIVE SHARE-BASED REMUNERATION

To enable a comparison between the value of share-based remuneration and the value of other remuneration received by executives, the salary and other short-term benefits received by executives were collected from the IRESS financial database. The trends relating to each component of the total remuneration (salary, other short-term remuneration, and share-based remuneration) are discussed (Section 5.3.1) and then compared to the trends noted in previous research (Section 5.3.2). The value of executive share-based remuneration, discussed in Section 5.3, was not employed as independent variable in Chapter 6, owing to possible measurement problems relating to the disclosure of executive share-based remuneration in the South African regulatory environment. However, the value attached to share-based remuneration does provide some context to Research question 2.

5.3.1 Findings of the present study

It was decided to discuss the value of components of executive remuneration based on the per-executive figures (8 837 data line items) rather than the per-company year figures (2 312 data line items). This enabled an understanding of the average remuneration received per executive, rather than the average remuneration paid per company. As companies employed differing numbers of executives, and the number of executives employed per company seemed to decrease over time (Table 5.1), the per-executive figure would be more easily understood.

Figure 5.1 shows the salary, other short-term remuneration and share-based remuneration received by the average executive in the population during each of the respective years. The value attached to salary, other short-term remuneration, and share-based remuneration was collected from the IRESS financial database, as described in Section 3.4. Other short-term remuneration consisted of company contributions to pension and medical aid funds, and bonuses and other once-off payments. Share-based remuneration was the 'gain on shares' line reported by the IRESS financial database (see Sections 3.2.1 and 3.4.1.1). As described in Section 3.2.1, the 'gain on shares' line in IRESS did not comprehensively capture share-based remuneration. Furthermore, IRESS captured different values (grant date fair value, IFRS 2 expense, or gain realised on exercise), depending on which value was disclosed in a company's annual financial statement. Thus, the value of share-based remuneration reported in the present study might not be accurate or complete; however, it does provide an indication of the minimum value of executive share-based remuneration.

For a limited number of executives (116 of 8 837 line items), the values (e.g. salary) were denominated in a currency other than South African rands. This usually occurred when a company employed foreign executives, and still remunerated them in their home currency (while remunerating the local executives in South African rands). These 116 line items were excluded from the analysis in Section 5.3, as South African rands and other foreign currencies were not comparable when focusing on values (as in Section 5.3). From Section 5.4 onwards, when considering the scheme types, performance conditions and number of instruments involved, the 116 line items were again included, as the measurement of these variables was not affected by the value of the salary or other components of remuneration being denominated in a foreign currency.

As remuneration is usually heavily dependent on inflation, the rand values collected were deflated to equal the June 2002 equivalents base (using the CPI indexes received from the Bureau for Economic Research) before inclusion in Figure 5.1. The index as at 30 June in every year was used, as the companies' year ends varied over the calendar year and 30 June was seen as the middle of the calendar year.

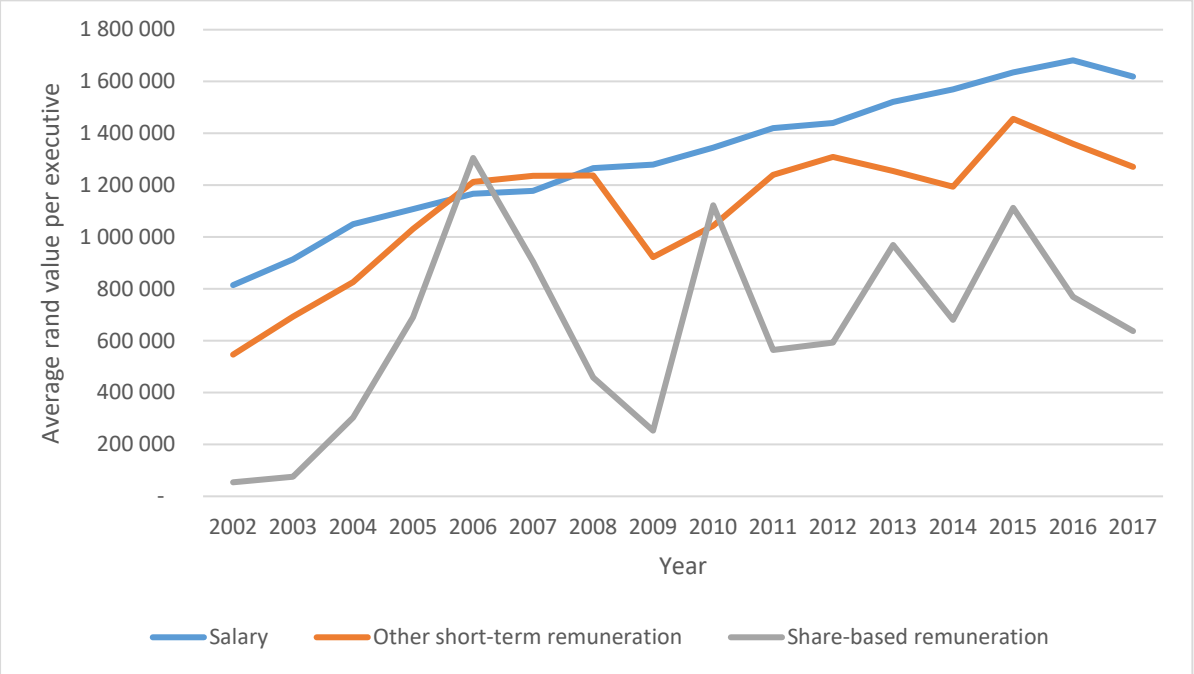

Figure 5.1. **Average rand value that an executive earned from salary, other short-term remuneration and share-based remuneration**

Even after the salary figure was adjusted for inflation, an increasing trend was still noticed over the 2002–2017 period. This means that, on average, executives received salary increases that were higher than inflation. Although the per-executive salary figure increased over the period, the total salaries

paid per company might not have increased by as large a margin, as the average number of executives employed by companies decreased over the period (Table 5.1).

Although salaries showed a relatively smooth (above inflation) increase over the period, other short-term remuneration was more volatile. This volatility was probably attributable to bonuses – which are (in essence) variable as they are based on executive and company performance. In periods of economic downturn, bonuses are expected to fall. During the 2002–2006 period the other short-term remuneration figure increased at a higher rate than salaries. The 2002–2006 period saw relatively high gross domestic product (GDP) growth in South Africa (with GDP growth rates of up to 7%). Share prices on the JSE were also rising (Figure 4.3). These factors probably culminated in large bonuses being paid.

During 2007–2008, other short-term remuneration was relatively stable – only growing with inflation. The large increase in bonuses experienced during 2002–2006 was probably halted by the uncertainty brought about by the onset of the global financial crisis. However, during 2009 other short-term remuneration visibly dipped to a lower value. One would expect lower bonuses to be paid during 2009 owing to the decrease in share prices on the JSE over this time. South Africa's GDP also showed negative growth rates during 2009 – probably causing companies to reduce bonus payments as company performance sagged.

During 2010–2012 other short-term remuneration showed a higher rate of growth than salaries, probably owing to increased bonuses as the economy recovered after the global financial crisis (positive GDP growth was experienced over the period). The inflation-adjusted value of other short-term remuneration decreased during 2013 and 2014; a large increase was observed in 2015; and the value decreased again in 2016 and 2017. Short-term remuneration is volatile owing to bonuses being dependant on company performance, which is strongly influenced by economic patterns.

The value of share-based remuneration is even more volatile than other short-term remuneration. In the initial years covered by the present study, the value of share-based remuneration reported by IRESS probably captured the gain realised from the exercise of share options (as required by the Companies Act 61 of 1973 and King II, from 2002 onwards) (Steenkamp & Wesson, 2018b). Low levels of share-based remuneration were observed in 2002 and 2003, but this might be due to companies not yet complying with the newly promulgated per-executive disclosures of King II (and therefore underreporting share option gains).

Share-based remuneration value increased sharply over the 2002–2006 period. In 2006, the value of share-based remuneration exceeded the value of both salaries and other short-term remuneration. Three reasons might explain this increase: the prevalence of share options, rising share prices on the

JSE, and improved annual financial statement disclosure. During the 2002–2006 period, share options were the predominant type of share-based incentive employed (Steenkamp & Wesson, 2018a) and realised large gains owing to rising share prices on the JSE (Figure 4.3). Furthermore, as the requirement to disclose individual executives' gains on exercising share options became well-established, more companies would be likely to provide this disclosure (for inclusion in IRESS 'gain on shares' line item).

During the global financial crisis, the value realised from share-based remuneration decreased (relative to the year 2006). Several factors might have played a role in this decrease:

- From June 2008 to June 2009 the share prices on the JSE decreased, leading to smaller gains on those share options and SARs that were exercised (Figure 4.3).
- Owing to the global financial crisis and the resultant decrease in share prices, executives might have been less apt to exercise options. Furthermore, they might have felt it inappropriate to exercise options during a period of uncertainty for the companies they worked for.
- After the effective date of IFRS 2 (30 December 2005), companies were less likely to grant share options, and more likely to grant SARs (Steenkamp & Wesson, 2018a). While the Companies Act 61 of 1973 explicitly required the disclosure of the gain realised from the exercise of share options, the gain realised from the exercise of SARs was not explicitly required (the Companies Act 61 of 1973 was still effective until 2011). This might mean that the gains on exercise reported in the annual financial statements would not include the gains realised from SARs and other incentives (Steenkamp & Wesson, 2018b). The effect of this would be that the share-based remuneration value captured by IRESS underreported the actual gains realised from all share-based incentives.

In 2010, after the global financial crisis, the value of share-based remuneration returned to a higher level. This was to be expected as share prices on the JSE started to recover at this time (Figure 4.3). From 2010 onwards, share-based remuneration value oscillated around a relatively stable mean. However, over the 2010–2017 period full quantum schemes had become more prominent, and it is doubted whether companies' financial statements accurately and completely disclosed the value of all types of share incentives (Steenkamp & Wesson, 2018b). From 2011 onwards, the Companies Act 71 of 2008 and King III explicitly required the value of all share-based remuneration to be disclosed in annual financial statements. However, the interpretation of how and when this value should be measured differed between companies (Steenkamp et al., 2019). As such, a possible measurement problem existed during the 2010–2017 period. With this as background, the actual value of executive share-based remuneration (disclosed in financial statements and captured by the IRESS financial database) during 2010–2017 might be greater than depicted in Figure 5.1.

5.3.2 Comparison of findings with previous research

Figure 5.2 provides the percentage of total remuneration that is share-based (based on the values extracted from the IRESS database and then deflated to the June 2002 equivalents base) during the 2002–2017 period in South Africa, as found by the present study. The percentage was calculated by dividing (annually) the average share-based remuneration value (as depicted in Figure 5.1) by the total of all three elements depicted in Figure 5.1 (i.e. dividing by average total remuneration).

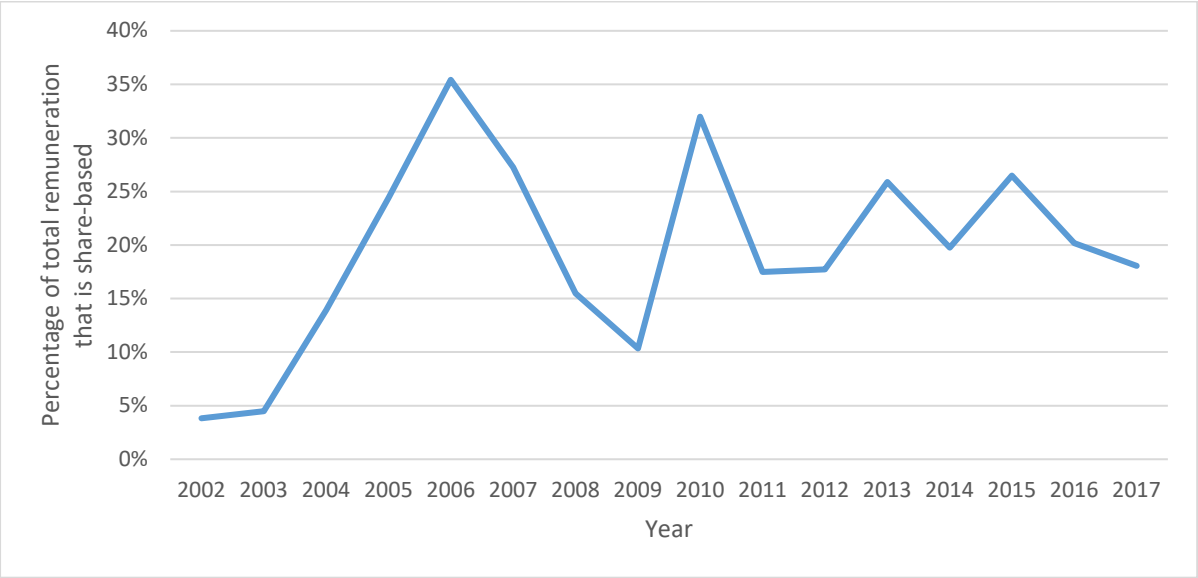

Figure 5.2. **Share-based remuneration as a percentage of total executive remuneration**

The trend in Figure 5.2 can be compared to global trends. Share-based remuneration constituted more than 40 per cent of total executive remuneration value in the US and the UK by 2006, around 50 per cent by 2010, and more than 60 per cent by 2014/2015 (Hopkins & Lazonick, 2016; Kotnik et al., 2018; Pepper & Gore, 2014). However, other developed countries at that time did not rely as heavily on share-based remuneration as the US and the UK (in 2015 Germany's share-based remuneration value equated to 29% of total, while Italy's figure came to only 14%) (Kotnik et al., 2018).

The present study found that the percentage of share-based remuneration to total executive remuneration value grew from a low percentage in 2002 to 35 per cent in 2006. This 35 per cent in 2006 was less than the 40 per cent of the UK and the 45 per cent of the US at the same point in time, but still relatively large. During 2007–2009 a decrease in percentage was experienced in South Africa, but it resurged to 32 per cent in 2010 (Figure 5.2). The 32 per cent reported in the present study in 2010 is substantially smaller than the almost 50 per cent experienced in the UK and US in 2010. From 2010 onwards, the present study found that the percentage oscillated between 17 per cent and 26

per cent – substantially lower than percentages experienced in the UK and US, but comparable to that of Germany and Italy.

However, the South African percentage could be understated because not all the value of share-based incentives was disclosed in annual financial statements and captured in IRESS. Specifically, Steenkamp and Wesson (2018b) found that IRESS underreported the value of share-based remuneration to a greater extent from 2011 onwards (the actual value available per annual financial statement was double or triple the value reported by IRESS between 2011 and 2015). If the values reported by IRESS (as collected during the present study) between 2011 and 2017 were doubled, then the percentage of share-based remuneration to total remuneration value would range between 30 per cent and 42 per cent over the 2011–2017 period.

Furthermore, the trends in Figure 5.2 can be compared to the South African results reported by Steyn and Cairney (2016), who found that 38 per cent of total remuneration was share-based during the 2011–2013 period (they used hand-collected values for share-based remuneration, using the grant date fair value). The present study found that only 20 per cent of total remuneration was share-based over the same period, when collecting the share-based remuneration values from IRESS. The most plausible explanation for the smaller percentage identified during this study, is that IRESS underreports the value of share-based remuneration (ignoring the complexity of when and how the value of executive share-based remuneration should be measured).

From 1 April 2017 onwards (i.e. for year ends from 30 March 2018 onwards), King IV has required the grant date fair value of share-based remuneration as well as the value realised upon exercise to be disclosed per executive. It has not yet been established whether companies fully comply with this requirement (no study has been done since the publication of King IV). However, it is in the interest of shareholders (and the general public) that the full extent of the value realised from share-based remuneration be disclosed in annual financial statements, and captured accurately in financial databases (including IRESS).

5.4 RESEARCH SUB-QUESTION 2.2: SCHEME TYPES GRANTED

The discussion now moves away from the value of the different components of executive remuneration and focuses on the type of share-based remuneration scheme that was provided by companies (share options, SARs, contingent shares, etc). Many share-based incentives have long vesting (and exercise) periods. With this as background, it is more appropriate to evaluate the scheme types being granted – rather than those in use – when seeking to understand the trends regarding the type of share-based remuneration provided by companies. This section therefore discusses the types

of scheme granted by companies over the 2002–2017 period. The 'per-company year database on share-based remuneration' of 2 312 company years was employed to concentrate on the granting behaviour of individual companies. In addition, the findings of the present study are compared to previous research on this matter.

The scheme types granted, discussed in Section 5.4, are not employed as independent variables in Chapter 6, but provide a background to the variables that are employed (discussed in Sections 5.5 and 5.6). Additionally, knowledge on the dominant scheme types is important when comparing the results of the present study (in Chapter 6) to earlier studies that were conducted during certain time periods (when certain scheme types were dominant).

5.4.1 Findings of the present study

As described in Section 3.4, data were gathered on whether a specific company granted each of the following types of incentive in a specific year: share options, SARs, share purchase plan shares, restricted shares, performance shares, phantom shares, and deferred bonus scheme shares. Grants that could not be classified into the listed scheme types were placed in a category labelled 'other schemes'.

As multiple scheme types make trends more difficult to understand, it was decided to combine scheme types that were similar in substance. As a share purchase plan is essentially a modified version of the share option scheme, these two schemes were combined (the combination was labelled 'share options'). Restricted shares and performance shares were combined as they are both full quantum schemes, and are sometimes presented as a single scheme by companies (the combination was labelled 'contingent shares'). Deferred bonus plans were added to 'other' schemes as fewer companies employed such schemes and deferred bonus plans were usually an auxiliary scheme in addition to SARs or contingent shares (the combination of other schemes and deferred bonus schemes was labelled 'other schemes'). Only one company employed a phantom share scheme and consequently this was also included in 'other schemes'.

In this way, for each company year studied, it was recorded whether a company granted share options, SARs, contingent shares or other schemes (attaching a binary variable of '1' if the company did grant the specific type of incentive or '0' if the company did not). Company years during which no share-based remuneration was granted was also labelled as such (during 727 of the 2 312 company years no grants were made). The number of companies which did not grant any share-based instruments in a specific year was excluded from the total number of companies forming part of the population in that year when calculating the number of companies which granted incentives under one or multiple

schemes ('granting companies'). Table 5.2 shows, per annum, the percentage of granting companies which granted a certain type of scheme. As granting companies might grant incentives using multiple schemes, the total column does not add to 100 per cent. However, the total column does provide an indication of how popular the granting of incentives using multiple schemes were (the higher the percentage of the total column, the more companies granted incentives using multiple schemes).

Table 5.2

Percentage of granting companies who granted a certain scheme type

	Share options	SARs	Contingent shares	Other schemes	Total
2002	100%	0%	0%	1%	101%
2003	100%	1%	0%	1%	102%
2004	100%	1%	0%	1%	102%
2005	100%	4%	2%	2%	108%
2006	99%	14%	6%	1%	120%
2007	97%	27%	10%	4%	138%
2008	95%	33%	11%	7%	146%
2009	87%	39%	17%	10%	153%
2010	81%	40%	23%	16%	160%
2011	75%	44%	24%	15%	158%
2012	74%	47%	26%	17%	164%
2013	70%	47%	32%	16%	165%
2014	63%	46%	39%	16%	164%
2015	52%	46%	46%	20%	164%
2016	44%	49%	52%	20%	165%
2017	42%	46%	57%	15%	160%
Average for 2002–2017 period	**79%**	**31%**	**22%**	**10%**	**142%**

Looking at the bottom row in Table 5.2, one can see that share options were the most commonly granted type of scheme in the entire 2002–2017 period (granted during 79% of the company years that instruments were granted), followed by SARs and contingent shares. During the early years (2002–2004), before the effective date of IFRS 2, all granting companies were employing share option schemes. Only MTN and Shoprite Holdings Limited were utilising another type of scheme in addition

to share options during 2002–2004. From the literature review, it was expected that the effective date of IFRS 2 (31 December 2005 year ends and onwards) would cause a shift in the type of incentives being granted. A few companies in the population had 31 December year ends and would already have applied IFRS 2 in their 2005 annual financial statements. However, the majority of the companies would only have applied IFRS 2 from 2006 onwards. As such, a minor change in trend was expected in 2005, while a more explicit change was expected in 2006.

During both 2005 and 2006 the percentage of granting companies granting share options decreased, while the percentage of granting companies using SARs and contingent shares increased. In the year 2005, three new companies granting SARs and contingent shares were noticed for the first time (two companies granted contingent shares). Three of the five companies granting the new SARs and contingent shares had 31 December 2005 year ends, which seems to confirm that the slight change in trend (away from share options towards SARs and full quantum schemes) was caused by the implementation of IFRS 2. The trend was confirmed in 2006 – when an additional 10 companies granted SARs and an additional four companies granted contingent shares. It seems that the implementation of IFRS 2 caused a decrease in share option grants and an increase in SARs and contingent shares (although most companies seemed to have switched to SARs).

An ongoing decrease in the percentage of companies that granted share options, seemingly sparked by the implementation of IFRS 2, was noted throughout the 2005–2017 period. However, although share option grants decreased, share options remained more popular than SARs and contingent shares until relatively recently – only falling behind both SARs and contingent share grants by 2016.

During the period 2005–2009 a steep increase in the percentage of SARs grants was noticed. The increase in SARs grants during 2005–2009 was probably related to the implementation of IFRS 2. From 2009 to 2012 a slight increasing trend in SARs occurred, after which the percentage of companies granting SARs schemes stayed relatively constant.

Contingent shares showed a slight increase in grants between 2005 and 2008, after the effective date of IFRS 2 (although SARs increased at a much faster rate during this period). In 2009 and 2010 a relatively large increase in the percentage of granting companies which granted contingent shares became apparent. The accelerated granting of contingent shares during the 2009–2010 period might have been triggered by the falling share prices on the JSE from June 2008 to June 2009, which decreased the incentive provided by appreciation schemes.

From 2011 onwards, the percentage of granting companies choosing contingent shares increased annually. Full quantum schemes were touted as more efficient in aligning the interests of shareholders

and executives, and thus corporate governance improvements advocated by King III (effective from year ends on or after 28 February 2011) might have played a role in the increased usage of contingent shares.

The other schemes (including deferred bonus schemes) were rarely used prior to 2007. From 2007 to 2010 a relatively sharp increase in the percentage of companies granting other schemes were noticed, after which the percentage was relatively stable (except during the 2015–2016 period when a slightly higher percentage of companies granted other schemes).

The final total column in Table 5.2 is the numerical total of the columns preceding it. The higher the percentage, the more likely it was for companies to grant incentives under multiple schemes. The total percentage was essentially equal to 100 per cent in 2002–2004, indicating that companies were primarily only granting one type of incentive (share options) during this period. The percentage rose sharply between 2005 and 2010, as companies became more likely to grant incentives under multiple schemes. From 2010 onwards, the percentage seemed to stabilise.

5.4.2 Comparison of findings to previous research

In the US, share option grants decreased after the effective date of FAS123R (US version of IFRS 2), while the granting of contingent shares increased (Murphy, 2013). SARs were less popular in the US (PwC, 2006) than elsewhere in the world. In Europe, contingent shares were more popular than share options by 2015 (Kotnik et al., 2018). Avallone et al. (2014) studied Italian companies and found that share option usage decreased during the global financial crisis (rather than after the effective date of IFRS 2). In general, a global trend away from appreciation schemes towards full quantum schemes occurred.

The trends reported in the present study, relating to the type of scheme granted, were mostly similar to the global picture. Share options were the dominant scheme type before the implementation of IFRS 2 (in South Africa and globally). Share option grants seemed to decrease after the effective date of IFRS 2 – similar to the US findings of Murphy (2013) – and during the global financial crisis (similar to the Italian findings of Avallone et al. (2014)). What is unique regarding the South African picture is the increased usage of SARs after the effective date of IFRS 2. SARs were not as popular elsewhere in the world. The widespread usage of SARs might have delayed the onset of full quantum schemes (full quantum schemes became popular earlier in other jurisdictions). Only in 2009 did the use of full quantum schemes substantially increase in South Africa, probably initiated by the falling share prices on the JSE. It would, however, seem that South Africa is moving away from appreciation schemes and increasingly employs full quantum schemes – similar to the global trend.

The findings of previous South African research will now be compared to the findings of the present study. Pretorius and De Villiers (2013) previously proposed than the effective date of IFRS 2 (31 December 2005) would lead to changes in the type of share-based incentives being offered (reducing the prominence of share options). Steenkamp and Wesson (2018a), based on a limited sample of companies, pinpointed the effective date of IFRS 2 as the point in time when share option grants started to decrease, while SARs grants started to increase. The results of the present study seem to corroborate the findings of previous research, as share option grants started to decrease from 2005 onwards, while SARs (and a limited number of contingent share grants) were noticed for the first time in 2005 and increased substantially in 2006.

By 2012, Mavrodinov (2012) reported that share options were less popular than SARs and contingent shares in terms of number of companies granting them. On the contrary, the present study found that a higher percentage of companies still granted share options than SARs and contingent shares until 2015. Only from 2016 onwards were share option grants surpassed by SARs and contingent share grants, according to the findings of this study. Mavrodinov (2012) only studied the JSE-listed companies categorised as Top40 and another 10 MidCap companies. It might be that Top40 and MidCap companies were more likely to employ SARs and contingent shares than smaller companies were likely to do. This would explain the difference in findings between Mavrodinov (2012) and the present study (which included Top40, MidCap, Small and Fledgling companies). This idea was explored further in Section 5.7.1 – dealing with the share-based remuneration trends of companies of various sizes.

5.5 RESEARCH SUB-QUESTION 2.3: VESTING CONDITIONS

Different types of scheme (discussed in Section 5.4) tend to have different vesting conditions attached to them. Longer vesting periods incentivise executives to concentrate on the long-term success of the company – improving the alignment between the interests of executives and shareholders. Corporate governance regulations, such as King III and King IV, advise that the minimum vesting period applied should be three years. Furthermore, the use of appropriate performance conditions, which focus the attention of executives on the long-term health of the company and include non-financial metrics, are also encouraged by King III and IV. However, previous studies have noted that performance conditions in South Africa are often based on EPS, TSR and share price (Steenkamp & Wesson, 2018b). This prevalence indicates the absence of importance attached to non-financial metrics. Furthermore, EPS, TSR and the share price could be artificially enhanced by share repurchases – a fact not often considered in the design of share-based remuneration.

Section 5.5 examines the service and performance conditions attached to each of the scheme types. In addition, the time trends relating to the use of performance conditions are examined – firstly in general, and secondly by considering specifically those conditions that are based on metrics easily enhanced by share repurchases (share price, TSR and/or EPS). In Section 5.5 all schemes in operation are considered, and not only those granted during specific years. For Sections 5.5.1 and 5.5.2, the per-executive data (8 837 line items) were employed to provide additional depth and accuracy, while the per-company year data (2 312 company years) were employed in Section 5.5.3 to prepare the data to be employed as independent variable in Chapter 6, and to examine the way that companies employ performance conditions.

5.5.1 Service vesting conditions of the various types of scheme

It is important to evaluate whether the service vesting conditions (also referred to as vesting period or service period) attached to executive share-based remuneration provided evidence of alignment between the interests of shareholders and executives. King III required that a vesting period of at least three years be attached to executive share-based remuneration for it to function effectively as a long-term incentive. The longer the vesting period, the greater is the alignment between the interests of shareholders and executives (Catuogno, Saggese, & Sarto, 2016).

The service vesting conditions of the different scheme types in operation can be viewed in Table 5.3. These were calculated by considering the 8 837 line items (per executive, per company year), to provide the maximum level of detail regarding the service vesting conditions of each scheme type. Additionally, different executives might be awarded vesting periods of differing length and, as such, the usage of the per-executive data were more appropriate. Schemes where the vesting period was unknown were excluded from Table 5.3. It was found that the vesting period was unknown for almost 10% of share option plans and approximately 26% of share purchase plans (which were the schemes commonly employed prior to the effective date of IFRS 2, when disclosures on the schemes were limited), while the percentage was negligible for the other types of scheme.

Table 5.3

Service vesting period of the different types of schemes (2002–2017)

Scheme type	Service vesting period		
	Range	Mean	Median
Share options	0 to 10 years	4.76 years	5 years
Share purchase plans	0 to 6 years	4.15 years	5 years
SARs	0 to 6 years	4.05 years	5 years
Restricted shares	0 to 7 years	4.05 years	5 years
Performance shares	2 to 6 years	3.39 years	3 years
Deferred bonus plans	3 to 7 years	3.04 years	3 years

Looking at the mean, share options had a longer vesting period than the other scheme types, while performance shares and deferred bonus plans had shorter vesting periods. However, the median service vesting periods were either three or five years. When looking at both the mean and median vesting periods applied by the companies in the population, it seems that the average South African company was complying with the service period requirement contained in the King Reports – that share-based remuneration should have a long-term vesting period (i.e. 3 years or more). However, individual companies did apply shorter vesting periods (if one considers the minimum values of 0 and 2 years shown in Table 5.3 for some scheme types).

5.5.2 Performance conditions of the various types of scheme

The performance conditions applied to the share options, SARs, performance shares, and deferred bonus plans in operation are shown in Table 5.4. Similar to the service vesting conditions in Section 5.5.1, the percentages attached to those vesting conditions were calculated on the per-executive data (8 837 data line items). As companies sometimes employed multiple schemes and also differing performance conditions for different scheme types and executives, it was deemed more appropriate to not combine the data per company as yet, but rather to discuss the per-executive data. The percentages below refer to the percentage of times that a specific performance condition was used, given that the specific scheme type was in operation.

Profit metrics included revenue, profit, earnings, earnings before interest and tax, gross margin, and metrics measuring the return on (net) assets, return on equity, return on invested capital and return on capital employed. When ‘and other conditions’ are added to a specific category in Table 5.4, the

conditions included profit metrics, conditions related to cash flow, net asset value per share, debtors' quality, the gearing ratio, and non-financial conditions, but did not include share price, TSR and EPS as these were always indicated separately in Table 5.4.

Table 5.4

Percentage of times that a certain performance condition was attached to each of the different types of schemes (2002–2017)

	Share options	SARs	Deferred bonus	Performance shares
None	92%	42%	96%	1%
Unknown	1%	10%	0%	20%
Profit metrics	1%	3%	0%	11%
Share price or TSR	4%	1%	0%	14%
Share price or TSR, and other conditions	0%	0%	0%	15%
EPS	1%	32%	4%	8%
EPS and other conditions	0%	9%	0%	3%
EPS and share price or TSR	1%	3%	0%	15%
EPS, share price or TSR, and other conditions	0%	0%	0%	13%
Total	**100%**	**100%**	**100%**	**100%**

Share options usually did not have performance conditions attached (92% of the time). Most SARs, however, did have performance conditions attached – most commonly based on EPS. Performance conditions were usually not employed for deferred bonus plans (96% of the time).

In contrast, performance share plans almost always had performance conditions attached (hence the name of the type of scheme). Only in two companies, Aveng Limited and RCL Foods Limited, did the early years of a specific full quantum scheme have no performance conditions, whereas the latter years had unspecified performance conditions. However, the number of shares relating to the scheme without performance conditions could not be split from those having performance conditions. In these two cases, the combined scheme (initial years without performance conditions and later years with performance conditions) was classified as a performance share scheme. As such, a limited number of performance share entries (1%) had no performance conditions, but this was not the norm. The conditions attached to performance shares were quite varied, although both TSR and EPS were

commonly employed. The conditions of a substantial portion (20%) of performance share plans were not disclosed – leading to insufficient shareholder information.

5.5.3 Trends relating to performance conditions

Globally, performance conditions are increasingly attached to share-based remuneration. The time trends relating to the usage of performance conditions by South African listed companies, and specifically those based on share price, TSR and/or EPS, are examined in this section. Firstly, an examination was done of whether the percentage of companies that employ performance conditions had increased over time. Secondly, the percentage of companies using share price, TSR and/or EPS as performance conditions were calculated (as these metrics were at increased risk of being artificially enhanced by share repurchases).

To enable an effective time trends analysis examining company behaviour, the per-company year data (2 312 company years) was employed. This also enabled the inclusion of this variable as an independent variable in Chapter 6 (where the relationship between share repurchases and executive share-based remuneration was studied per company year).

It was decided to classify a company into one of four categories in a specific year: (1) having no scheme; (2) employing a scheme without performance conditions; (3) using a scheme with share price, TSR and/or EPS conditions; and (4) using a scheme with other performance conditions. This classification was based on all schemes in operation and not just those granted in a specific year. When some executives of a company had no scheme in a certain year, but others had a scheme, then the company was categorised as having a scheme (as some executives did have a scheme). If some executives had no performance conditions attached to their scheme, while others had performance conditions, then the company was judged to have performance conditions. If some executives had share price, TSR and/or EPS related performance conditions, while others did not, then the company was classified as having share price, TSR and/or EPS related conditions.

In Table 5.5 the trends relating to the percentage of companies falling into each category are shown. The percentages in Table 5.5 are rounded, and therefore the total might add to 99, or 101 per cent in some cases.

Table 5.5

Percentage of companies employing no scheme, schemes without performance conditions or schemes with specific performance conditions

	No scheme (1)	Scheme without performance conditions (2)	Scheme with share price, TSR and/or EPS performance conditions (3)	Scheme with other performance conditions (4)
2002	36%	63%	1%	0%
2003	31%	68%	1%	0%
2004	30%	68%	1%	1%
2005	28%	69%	2%	1%
2006	27%	64%	8%	1%
2007	37%	51%	10%	3%
2008	32%	48%	14%	6%
2009	27%	48%	17%	7%
2010	24%	48%	18%	10%
2011	25%	46%	19%	11%
2012	26%	45%	21%	9%
2013	27%	42%	22%	10%
2014	27%	38%	24%	12%
2015	23%	36%	30%	11%
2016	23%	34%	33%	10%
2017	22%	31%	35%	12%
Average for 2002–2017 period	**28%**	**50%**	**15%**	**6%**

Over the entire 2002–2017 period, it was common to employ a scheme without performance conditions. This probably relates back to the finding that share option schemes were the most common type of scheme in the entire target period (Section 5.4), as share options mostly did not have performance conditions attached (Table 5.4).

During the 2002–2004 period (just prior to the effective date of IFRS 2), the percentage of companies employing no scheme decreased, while the percentage of companies employing a scheme without performance conditions increased (the increase and decrease were an approximate match). The

movement was probably due to companies starting to implement share option plans without performance conditions during this period. During the 2002–2004 period, the percentage of companies which had schemes with performance conditions was negligible.

From 31 December 2005 year ends onwards, IFRS 2 was effective. In 2006, the year subsequent to the effective date of IFRS 2, the percentage of companies which employed schemes without performance conditions decreased, while the percentage of companies with schemes hinging on share price, TSR and/or EPS increased. Thus, after the effective date of IFRS 2, companies were more likely to employ additional schemes with performance conditions. The schemes added were probably SARs and contingent share plans. In addition, more than 10 million instruments lapsed or were forfeited during 2006, while the comparative figure for 2005 was 226 126 instruments. This is an indication of companies cancelling their existing schemes without performance conditions (probably share option schemes) during the 2006 year to ensure that the incentives did not have to be accounted for under IFRS 2.

In 2007, at the start of the global financial crisis and the second year after the effective date of IFRS 2, the percentage of companies employing no scheme increased drastically, probably because companies which had cancelled their schemes (without performance conditions) during 2006 did not replace them. The percentage of companies employing schemes without performance conditions decreased further in 2007, and more than 3.6 million instruments lapsed or were forfeited. The percentage of companies employing schemes with performance conditions (share price, TSR and/or EPS conditions, and other conditions) increased during this period. It seems that, after the effective date of IFRS 2, one group of companies terminated their existing schemes (without performance conditions) and did not replace them with any other share-based remuneration, while another group of companies added schemes with performance conditions to their remuneration strategy.

During the 2008–2010 period there was a steady decrease in the percentage of companies which had no scheme, while the percentage of companies which employed performance conditions (both those based on share price, TSR and/or EPS and those based on other metrics) increased. It seems that the implementation IFRS 2 halted the granting of share-based remuneration for some companies, but by 2008–2010 more companies were again settling into a rhythm of granting share-based remuneration (now with performance conditions).

From 2011 to 2017 the percentage of companies with no scheme remained relatively constant, as did the percentage of companies which employed schemes with performance conditions other than share price, TSR and/or EPS. However, over the 2011–2017 period the percentage of companies employing

schemes without performance conditions decreased as the percentage of companies employing schemes with share price, TSR and/or EPS conditions increased. This is a further indication of companies transitioning from having no performance conditions to employing them. The increase might have been prompted or sustained by King III (effective date 1 March 2010, thus year ends from 28 February 2011 onwards), which encourages the use of performance conditions that encapsulate shareholder value and company performance. Share price, TSR and EPS are often viewed as such metrics.

In Section 3.5 it was indicated that one of the independent variables (capturing executive share-based remuneration) to be employed in answering Research question 3 was a binary variable indicating whether or not a company employed performance conditions based on share price, TSR and/or EPS. To create this binary variable, the company years in which a scheme with share price, TSR and/or EPS conditions was employed (the second to last column in Table 5.5) was coded as '1' (357 of 2 312 company years, or 15% of company years), while the remainder of the company years (the remainder of the columns in Table 5.5) were coded as '0'. A code of '1' indicated the usage of performance conditions related to share price, TSR and/or EPS, while a '0' indicated the absence of such conditions.

5.5.4 Comparison with previous research

Mavrodinov (2012) noted that, in South Africa, appreciation schemes tend to have longer service vesting periods (often 5 years and more), while full quantum schemes typically vest over a three-year period. The findings of the present study, if one considers the median service vesting periods of the scheme types in Section 5.5.1), agree with those of Mavrodinov (2012).

Bettis et al. (2018) found that the use of performance conditions in the US increased over time, especially after the effective date of FAS123R; most often TSR and EPS were used (Meridian Compensation Partners, 2018). The findings of the present study confirmed that the effective date of IFRS 2 seemed to have increased the usage of performance conditions (Section 5.5.3). The percentage of companies employing performance conditions increased from that point onward, throughout the period studied.

By 2012, Mavrodinov (2012) reported that performance conditions were employed extensively in South Africa, and that TSR, EPS and return on equity were most commonly used. The findings of the present investigation confirmed that performance conditions based on share price, TSR and EPS remained the most common performance conditions (Sections 5.5.2 and 5.5.3).

5.6 RESEARCH SUB-QUESTION 2.4: NUMBER OF INSTRUMENTS

The JSE Listing Requirements stipulate that companies should disclose – per executive, per scheme – the number of share-based instruments (e.g. the number of share options, or the number of SARs, or the number of contingent shares) held at the start of the year, granted during the year, exercised during the year, and held at year end. IRESS captures this information per executive, per scheme. In Section 3.4 it was explained that this data on the number of share-based instruments involved were exported from IRESS to the 'per-executive database on share-based remuneration'. For every company year, the per-executive data were then combined to create the 'per-company year database on share-based remuneration'. In the per-company year database additional columns were created that displayed the total number of instruments for all scheme types granted during the year, exercised during the year and held by executives at year end.

The average number of executive share-based instruments employed by the companies in the population are shown in Figure 5.3. This includes the instruments relating to all types of share-based schemes. The number of instruments provides a measure of how extensively a specific company employs share-based remuneration during a specific year. The number of share-based instruments granted, exercised and held by executives at year end has often been used to proxy executive share-based remuneration in earlier studies that considered the relationship between share repurchases and executive share-based remuneration (see Section 3.5).

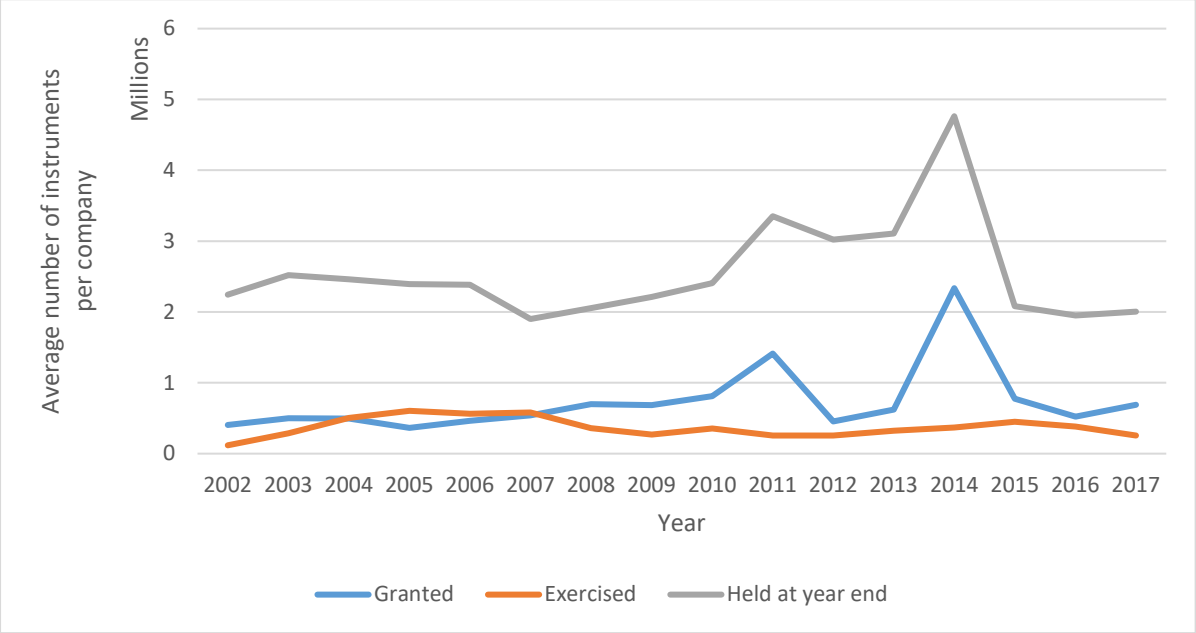

Figure 5.3. **Average number of share-based instruments granted, exercised and held at year end, per company**

Figure 5.3 shows a large peak at 2014 in the number of instruments granted and held at year end. On scrutinising the individual data entries for 2014, it was found that a single company, namely Morvest Group Limited (Morvest), caused the large peak. Morvest formed part of the population from 2002 to 2014.

Morvest employed no share-based incentives from 2002 to 2006. From 2007 to 2009 a modest number of share options were granted (and exercised) although the vesting periods were unusually short (3-month and 1-year vesting periods were applied, while the median was 5 years, as reported in Table 5.3). In 2010 no share-based incentives were employed by Morvest. From 2011 to 2014 unusually large numbers of share options were granted, with longer vesting periods (5 to 7 years) than before. The large number of share options granted was included in the number held at year end from 2011 to 2014, and inflated the average number of instruments held at year end during the 2011 to 2014 period. The average number of shares held at year end (shown in Figure 5.3) dropped again in 2015, as Morvest delisted before its 2015 year end and was thus excluded from the population from 2015 onwards.

The average number of share options granted by Morvest during the 2011–2014 period was 21.5 million share options per executive, per annum; while Morvest granted, on average, less than 2 million share options per executive, per annum during the 2007–2009 period. The average number of share options granted by the other companies in the population (excluding Morvest) was less than 200 000 share options per executive, per year, for the entire 2002–2017 period. Thus, it seems that Morvest employed an exceptionally large number of share options, especially during the 2011–2014 period (the reason for this is unknown). It was therefore deemed more appropriate to investigate trends relating to the number of instruments employed, with Morvest excluded. The trends relating to the average number of share-based instruments employed (excluding Morvest) may be seen in Figure 5.4.

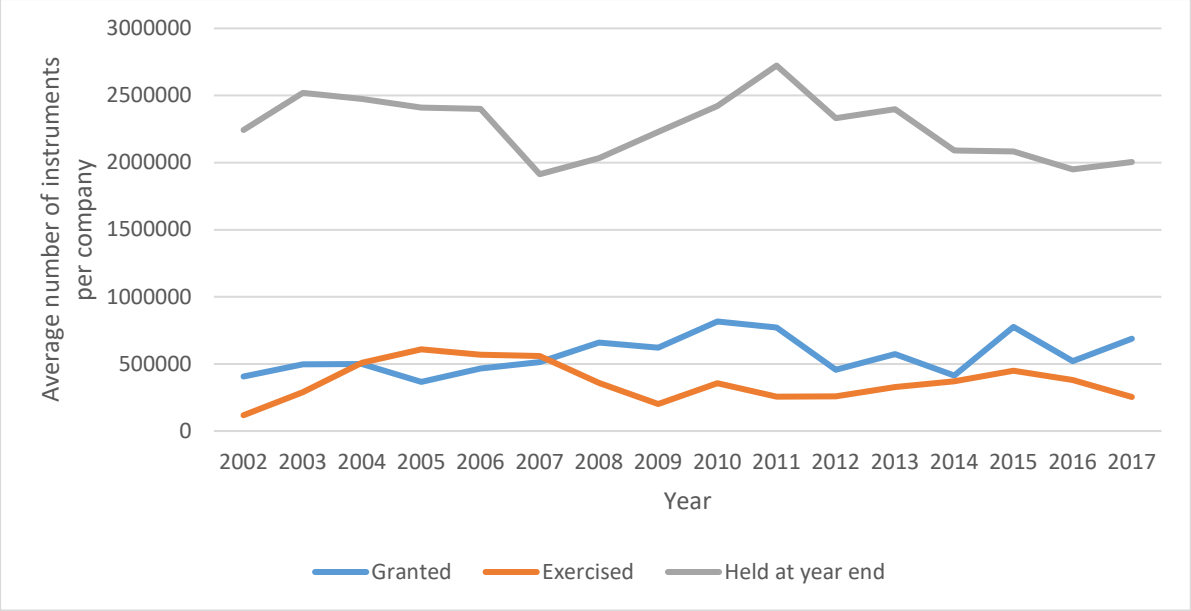

Figure 5.4. **Average number of share-based instruments granted, exercised and held at year end, per company (excluding Morvest)**

From 2002 to 2003 the average number of instruments held as closing balance increased, after which a slight decreasing trend was observed between 2003 and 2006. In 2007 a sharp drop occurred in the average number of instruments held at year end. The decrease during the 2003–2007 period was probably attributable to fewer instruments granted during 2005 and larger numbers exercised over the 2004–2007 period (evident from Figure 5.4). Moreover, 13.6 million instruments were forfeited or had lapsed during 2006 and 2007, leading to lower closing balances.

Between 2007 and 2011, the average number of instruments held at year end increased again – probably owing to companies starting to grant SARs (the increased number of instruments granted during 2006 to 2010 can also be verified in Figure 5.4), while legacy share option instruments were still outstanding. From 2012 onwards, the average number of instruments held at year end has generally shown a downward trend. This decrease in the closing balance number of instruments between 2012 and 2017 could be attributed to a number of factors. As full quantum schemes became more popular during this period, fewer shares needed to be granted to provide incentives of similar value to the appreciation schemes being phased out. The fact that fewer instruments were granted during 2012–2017 than during 2008–2011 can be verified in Figure 5.4. A second possible explanation for the decreasing number of instruments held at year end was that performance conditions became more popular during this period. The existence of the performance conditions led to a larger probability of instruments being forfeited (if conditions were not met), which would lead to a lower closing balance number of instruments.

The average number of instruments granted increased steadily over the 2002–2010 period, except for a slight dip in 2005. The dip in 2005 might relate to uncertainty regarding the effect of IFRS 2, that led to companies granting fewer instruments. From 2011 onwards the number on instruments granted has been more volatile, not exhibiting any fixed pattern.

From 2002 to 2005 the average number of instruments exercised increased steadily, and remained at a relatively high level throughout the 2005–2007 period. As appreciation schemes (and specifically share options) were the most common type of scheme employed during this period, the rising share prices on the JSE probably led to large-scale exercises over this period. Fewer instruments were exercised from 2008 to2009, during the latter part of the global financial crisis and when share prices on the JSE fell sharply. It may have been that executives did not want to exercise share-based instruments during a period of uncertainty for their companies. Moreover, lower share prices could have led to the share options and SARs being 'out of the money'. In 2010 slightly more instruments were exercised, but exercises were at a lower level during the period after the financial crisis than before. As mentioned, when discussing the fact that fewer shares were held at year end from 2012 onwards, the lower numbers exercised might have been the result of the full quantum schemes being employed more regularly or more instruments being forfeited.

5.7 INDEPENDENT VARIABLES TO BE EMPLOYED

The following share-based remuneration variables, selected on the grounds of earlier research in other countries, will be employed as independent variables in Chapter 6:

- Whether or not performance conditions based on share price, TSR and/or EPS were employed (as described in Section 5.5.3)
- The number of share-based instruments exercised during the year (as described in Section 5.6)
- The number of share-based instruments held by executives at year end (as described in Section 5.6)

For the share-based remuneration variables mentioned in the prior paragraph, differences between companies of various sizes are investigated in Section 5.7. As described in Section 4.8.1, the companies were classified as either Top40/MidCap, Small or Fledgling in a specific company year (based on the JSE indexes). Of the 2 312 company years being studied in Chapter 5, 2 021 (87%) could not be classified into one of the size groups (Top40/MidCap, Small and Fledgling), as certain criteria had to be met for a company to be included in the indexes (see Section 4.8.1). Of the company years that could be classified based on size, 671 company years (33%) were labelled as Top40/MidCap, while Small companies made up 23 per cent of the population (461 company years). The majority group (44% of population that could be classified) was Fledgling companies with 889 company years.

5.7.1 Performance conditions applied per size classification

In Section 5.5.3, the performance conditions applied by companies in the research population were discussed. Table 5.6 expands on this matter by showing, for the period 2002–2017, the percentage of Top40, MidCap, Small and Fledgling companies that was categorised as having (1) no scheme; (2) a scheme without performance conditions; (3) a scheme with conditions based on share price, TSR and/or EPS; and (4) a scheme with conditions other than those based on share price, TSR and/or EPS. The same classification was employed in Section 5.5.3 (Table 5.5). As explained in Section 5.5.3, a binary variable (to be employed as independent variable in Chapter 6) was created by coding '1' for company years in which a scheme with conditions based on share price, TSR and/or EPS was employed (column numbered (3)) and otherwise coding '0' (for the remaining columns). The percentages in Table 5.6 are rounded and therefore the total might equal 99 per cent or 101 per cent in some cases.

Table 5.6

Performance conditions applied by companies of different sizes

Size classification	No scheme (1)	Scheme without performance conditions (2)	Scheme with share price, TSR and/or EPS performance conditions (3)	Scheme with other performance conditions (4)
Top40/MidCap	8%	52%	31%	9%
Small	14%	56%	19%	10%
Fledgling	41%	51%	5%	3%
Average for 2002–2017 period (as reported in Table 5.5)	**28%**	**50%**	**15%**	**6%**

Only a small percentage of the Top40/MidCap and Small companies did not employ any share-based scheme. However, in more than 40 per cent of the Fledgling company years no share-based remuneration was provided to executives. It seems that size classification definitely played a role in the likelihood of share-based remuneration being employed or not.

In the entire population, during half the company years, a scheme without performance conditions was employed. This percentage was relatively constant throughout all the size groups. Thus, although Fledgling companies were less likely to employ share-based remuneration (had a higher percentage

of 'no scheme'), such companies were not less likely to employ schemes without performance conditions.

Performance conditions other than those based on share price, TSR and/or EPS were used more often by Top40/MidCap and Small companies, and less often by Fledgling companies. Similarly, employing performance conditions linked to the share price, TSR and/or EPS was very common for Top40/MidCap companies. It was less common in Small companies, and relatively uncommon for Fledgling companies. The fact that Fledgling companies were less likely to employ share-based remuneration seemed to lessen their usage of performance conditions (but did not make Fledgling companies less likely to employ schemes without performance conditions).

5.7.2 Number of instruments per size classification

In Section 5.6 the number of share-based instruments employed per company was discussed, and it was pointed out that Morvest skewed the number of instruments held at year end. Thus, Morvest (a Fledgling company) was excluded from the analysis in this section. Table 5.7 now shows the average number of share-based instruments in use for each of the size groups.

Table 5.7

Number of share-based instruments exercised and held at year end by companies of different sizes

Size classification	Average number of instruments exercised	Average number of instruments held at year end
Top40/MidCap	504 908	2 896 903
Small	521 247	2 427 428
Fledgling	207 163	1 951 021
Average for 2002–2017 period (on which Figure 5.4 is based)	**364 916**	**2 270 698**

Top40/MidCap and Small companies, on average, employed larger numbers of share-based instruments (both in respect of the number of instruments exercised during the year and held at year end), while the number of instruments employed by Fledgling companies was substantially smaller.

5.7.3 Conclusion on size classification

No major differences were noted between Top40/MidCap and Small companies. However, Fledgling companies were less likely to attach performance conditions based on share price, TSR and/or EPS.

When excluding Morvest, Fledgling companies also employed fewer share-based instruments. The findings of this study agree with those of previous research that larger companies were more likely to employ share-based remuneration (Gabaix et al., 2014; Steenkamp & Wesson, 2018b) and to attach performance conditions to share-incentives (Bettis et al., 2018). In the South African context, the present study adds to this knowledge by showing that Fledgling companies, specifically, were less likely to attach performance conditions linked to share price, TSR and/or EPS to share-based incentives and generally employed a smaller number of share-based instruments.

5.8 CONCLUSION

The aim of this chapter was to provide an overview of the characteristics of the share-based remuneration paid by companies in the population during 2002–2017. It addressed the value of share-based remuneration, the type of schemes employed, the vesting conditions employed by companies, and the number of instruments involved. Furthermore, differences between companies of different sizes were identified.

The proportion of share-based remuneration value (as measured by the line item 'gain on shares' captured by the IRESS financial database) in comparison to total executive remuneration value seemed to be smaller in South Africa than in the UK and the US, especially from 2010 onwards. The seemingly smaller value, however, could be due to measurement error. It might be that disclosure in annual financial statements (and correspondingly the IRESS financial database) does not accurately and completely reflect the value of all types of share-based remuneration provided by JSE-listed companies.

Before the effective date of IFRS 2, share options were the most common share incentive employed in South Africa. In 2005 and 2006 share option usage started to decrease while SARs increased. The use of SARs were unique to the South African experience – SARs were not as popular elsewhere in the world. In the US, companies changed from share options to contingent shares after the introduction of the new accounting regulations requiring share options to be expensed. Only from 2009 onwards (later than in the US), the use of contingent shares increased in South Africa. In 2009 appreciation schemes were less likely to be an effective incentive owing to the falling share prices on the JSE, and companies might have sought alternatives. At this time, the use of full quantum schemes had been endorsed by King III, and companies could have implemented contingent share plans to improve their corporate governance.

The median service vesting periods employed were either three or five years, and thus complied with the requirements of the King Reports. The use of performance conditions increased over time – as

SARs and contingent shares became more popular. The most common performance conditions employed were share price, TSR and EPS.

Certain trends were noticed when studying the number of executive share-based instruments employed per company. The number of instruments exercised was high during the 2002–2007 period (owing appreciation schemes being popular and rising share prices on the JSE). During 2008–2009, fewer instruments were exercised (probably caused by lower share prices on the JSE, leading to appreciation schemes providing a smaller payout at this point). Executives could also have felt it inappropriate to exercise share-based incentives during the global financial crisis. After the crisis, the numbers exercised increased again, but fewer instruments were exercised than before the financial crisis (this might be attributable to the increased use of full quantum schemes or the presence of performance conditions).

The number of share-based instruments held at year end decreased during the 2002–2007 period, as large numbers of instruments were exercised. In addition, during 2006 and 2007 numerous instruments were forfeited or had lapsed. From 2007 to 2011 the number of instruments in closing balance increased again – as new schemes were being granted, while legacy schemes were allowed to run their course. Between 2012 and 2017 the closing balance number of instruments decreased, probably owing to the same reasons mentioned for the decreasing number of instruments exercised.

Fledgling companies were less likely than other companies to employ performance conditions based on share price, TSR and/or EPS. Furthermore, Fledgling companies generally employed fewer share-based instruments, considering the number of instruments exercised and held at year end.

CHAPTER 6: RELATIONSHIP BETWEEN SHARE REPURCHASES AND EXECUTIVE SHARE-BASED REMUNERATION

6.1 INTRODUCTION

Over the past 20 years, more and more researchers have been pointing out that share repurchases could be employed by executives to artificially increase company share price and EPS – thus increasing the value of share-based remuneration earned by the executives themselves (Gao & Kronlund, 2020; Geiler & Renneboog, 2016; Jolls, 1998; Young & Yang, 2011). The possibility that such rent extraction by executives could be occurring has been studied globally, but no study has been done in South Africa owing to the lack of readily available comprehensive data on both share repurchases and share-based remuneration.

In Chapters 4 and 5 the data collected on both share repurchases and share-based remuneration, for the period 2002 to 2017, has been discussed. Having this data available, it is now possible to study the relationship between these two variables. Based on the findings of previous studies (see Section 2.4.1), it was postulated that a positive relationship between share repurchases and the number of share-based instruments exercised will be found. However, previous research points to a positive relationship between share repurchases and the number of share-based instruments held by executives only during the early years of the present study (prior to 2010). Similarly, a positive relationship between share repurchases and the use of performance vesting conditions related to the share price, TSR and/or EPS was only reported in previous studies based on data from before 2010. The positive relationships mentioned in the three preceding sentences (formulated based on previous research) were employed as expectations to guide the present research, and to enable a comparison between the findings of the present research and earlier studies addressing the same issue (see also Section 2.4.2).

If a positive (statistically significant) relationship could be established between share repurchases (dependent variable) and share-based remuneration (independent variable), this would point to the possibility of executives extracting rents from the companies they work for – using share repurchases. If this link between the two variables can be established, it would strengthen the argument that additional regulation regarding share repurchases is required in South Africa. Such regulation could include the real-time announcement of all share repurchases on SENS (as required by many stock exchanges worldwide); improved disclosure in annual financial statements; and accurate record-keeping by financial databases (such as IRESS and Bloomberg).

In Section 6.2 descriptive (univariate) statistics on the dependent, independent and control variables to be studied, are provided (the choice of variables was discussed in Sections 3.5.1 and 3.5.2). As all regression models have certain assumptions that need to be complied with, these assumptions and how they were addressed are discussed in Section 6.3. Lastly, the results from the regression analyses examining the relationship between share repurchases and share-based remuneration are reported (Sections 6.4 onwards). The choice of regression techniques was discussed in Section 3.5.3. A significance level of 10 per cent was employed, and all results that were significant at either the one per cent, five per cent or 10 per cent level of significance were seen as statistically significant and reported as such. Lastly, alternative interpretations relating to the results are discussed (Section 6.8) and a conclusion is provided (Section 6.9).

6.2 DESCRIPTIVE STATISTICS ON VARIABLES EMPLOYED

In this section further details are provided about the variables employed as dependent, independent and control variables; the abbreviations used for the variables; and descriptive statistics on the variables (Table 6.1). Besides the variables shown in Table 6.1, the company name, year, and industry were also collected, to be used to control for possible fixed effects in the data. It must, however, be noted that the industry dummy, based on the new JSE classification system, was only available from 2006 onwards. A small number of companies were initially listed in the Basic Materials or Financial industries, but amended their listing to an industry that fell within the scope of this study. Such companies were included in the present study for the entire 2002–2017 period, but the industry indication was left blank in years when they were listed in the Basic Materials or Financial industries.

As explained in Section 3.5.1.1, two types of dependent variables were employed in Chapter 6. The first was a binary variable capturing a company's decision to repurchase (or not) in a specific year. The second group of dependent variables were ratio-scale and measured the rand value spent on share repurchases in a specific year. The first ratio-scale dependent variable was the net repurchase value (i.e. the holding company repurchasing from third parties plus repurchases executed by subsidiaries) – which could be contrasted to gross repurchase value (which included, additionally, the intragroup transaction where the holding company repurchases treasury shares). Secondly, the ratio-scale dependent variables focused on certain subsets of net repurchase value, namely the repurchase value attributable to certain repurchasing entities (the holding company repurchasing from third parties; and subsidiaries repurchasing); the repurchase value associated with certain repurchase types (general repurchases and other specific repurchases); and the transparency of share repurchases (the announced and unannounced general repurchases).

In relation to the repurchasing entities in the previous paragraph, it must be noted that only two of the three repurchasing entities (identified in Chapter 2 and reported on in Chapter 4) are considered in Chapter 6. The reason for excluding the holding company repurchasing treasury shares is that such repurchases are intragroup transactions (their net effect on the group is zero). This corresponds with the notion of examining the net repurchase value rather than the gross repurchase value. When considering the repurchase types in the previous paragraph, it can be noted that only two of the four repurchase types (identified in Chapter 2 and reported on in Chapter 4) are studied in Chapter 6. The holding company repurchasing treasury shares (a type of specific repurchase) is excluded, as already mentioned. However, pro rata specific repurchases are also excluded in Chapter 6, since very few such repurchases took place during the target period. Furthermore, pro rata share repurchases are not known to lead to an increase in the share price (no long-term cumulative abnormal returns were noted after announcement of such repurchases) (Wesson, 2015, p.148).

Table 6.1

Descriptive statistics on variables employed in regression analyses

Variable name	Description	Abbreviation	Obser-vations	Minimum	Maximum	Mean	Standard deviation
		Dependent variables					
Decision to repurchase	Binary variable taking on the value 'one' if a repurchase did occur, and 'zero' if no repurchase occurred	Y_Yesno	2 312	0	1	0.27	0.44
Total (net) repurchases	Rand value spent on repurchases (excluding treasury shares repurchased by holding company) scaled by lagged market capitalisation	Y_Net	2 246	0	1	0.01	0.05
Holding company repurchases (from third parties)	Rand value spent on repurchases by holding company (excluding repurchases of treasury shares by holding company) scaled by lagged market capitalisation	Y_Cpy	2 246	0	0.76	0.00	0.03
Subsidiary repurchases	Rand value spent on repurchases by subsidiaries, scaled by lagged market capitalisation	Y_Sub	2 246	0	1	0.01	0.03
General repurchases	Rand value spent on general repurchases, scaled by lagged market capitalisation	Y_Gen	2 246	0	1	0.01	0.03
Other specific repurchases	Rand value spent on specific repurchases (excluding repurchase of treasury shares by holding company and pro rata repurchases) scaled by lagged market capitalisation	Y_Specother	2 246	0	0.93	0.00	0.03
Announced general repurchases	Rand value spent on announced general repurchases, scaled by lagged market capitalisation	Y_Anngen	2 246	0	0.21	0.00	0.01
Unannounced general repurchases	Rand value spent on unannounced general repurchases, scaled by lagged market capitalisation	Y_Unanngen	2 246	0	1	0.00	0.02

Variable name	Description	Abbreviation	Obser-vations	Minimum	Maximum	Mean	Standard deviation
		Independent variables					
Share-based instruments exercised by executives	Number of share-based instruments exercised by executives during the year, scaled by the number of holding company shares outstanding at year end	X_Exercised	2 312	0	0.11	0.00	0.01
Share-based instruments held at year end by executives	Number of share-based instruments held by executives at year end, scaled by the number of holding company shares outstanding at year end	X_Closing	2 312	0	0.42	0.01	0.02
Performance conditions linked to share price, TSR and/or EPS	Binary variable taking on the value 'one' if a company employed performance vesting conditions linked to share price, TSR and/or EPS, or 'zero' if not	X_TSREPS	2 312	0.00	1.00	0.15	0.36
		Control variables					
Share price performance	Prior-year change in share price, expressed as percentage increase or decrease based in opening share price in prior period	XL_Returnshare	2 114	-0.99	119.2	0.32	2.79
Market-to-book	Market-to-book ratio (lagged)	XL_Marketbook	2 181	0.00	120.18	2.35	3.72
Dividend yield	Dividend yield	X_Divyield	2 251	0.00	3520.00	4.87	74.93
Market capitalisation	Logged market capitalisation of the company (lagged)	XL_Lmarketcap	2 246	6.14	11.97	9.07	0.96
Shares owned by directors	Number of holding company shares owned by directors, scaled by the number of holding company shares outstanding at year end	X_Directshare	2 312	0.00	0.96	0.14	0.18
Debt-to-assets	Debt-to-assets ratio (lagged)	XL_Debtassets	2.243	0.00	2.33	0.53	0.24
Return on assets	Return on assets ratio	X_ROA	2 305	-198.08	205.56	12.89	16.81
Cash flow	Available cash flow, scaled by assets	X_Cash flow	2 301	-2.00	1.67	0.10	0.12

The data were examined prior to the calculation of the descriptive statistics in Table 6.1, and certain amendments were made to minimise measurement error. These amendments included (for an explanation of the abbreviations, refer to Table 6.1):

- Y_Net, Y_Sub, Y_Gen and Y_Unanngen: Two instances (two company years) were noted where the dependent variable (a fraction) marginally exceeded one. This is probably a result of the market capitalisation on IRESS being incorrectly captured (captured in thousands of rands rather than rands). As the dependent variable could not exceed one, the observations of the dependent variable Y_Net, Y_Sub, Y_Gen and Y_Unanngen were capped at one in these two cases.
- X_Closing: The number of share-based instruments held at year end was scaled by the number of holding company shares outstanding. After scaling, the variable was expected to be a fraction, ranging between zero and one. For Cashbuild Limited, in the year 2017, IRESS had inaccurately captured the number of share-based instruments held by executives (adding three zeros to the number of instruments), causing the fraction to exceed one. This was corrected based on the information contained in the annual financial statement.
- X_Directshare: The number of beneficial shares held by directors was extracted from IRESS and scaled by the number of holding company shares outstanding. After scaling, the variable should be a fraction, ranging between zero and one. However, for Cargo Carriers Limited, in the years 2016 and 2017, the variable exceeded one. On examination, it was found that IRESS had miscaptured the number of shares disclosed in the annual financial statement, and the variable was corrected based on the information contained in the financial statement.
- XL_Marketbook: The market-to-book ratio was not expected to be zero or negative. A total of 67 instances where IRESS reported zero, or negative, market-to-book ratios were deleted. Owing to missing market-to-book ratios, the related company years were automatically excluded from the regressions to follow in Chapter 6.

A total of 2 312 line items (company years) were included in the present study, and for this reason the number of observations for the Y_Yesno variable equalled 2 312. However, the ratio-scale dependent variables (Y_Net etc.) only had 2 246 observations each. The reason for this was that the lagged market capitalisation was not available for 66 company years (for example, in the company's first year of listing) and, as such, share repurchase value as a percentage of market capitalisation could not be calculated for 66 observations (leaving only 2 246 observations). All 2 312 company years had observations for the variable of interest (executive share-based remuneration), as lagged data were not employed. For the control variables, the number of company years for which observations were available ranged between 2 114 and 2 312.

In the research methodology (see Section 3.5.3.2) it was expected that the dependent variable's observations would cluster at the zero point. For both the Y_Yesno and the Y_Net variables, 73 per cent of the observations were zero (no repurchase), while very few dependent variable observations near or at the upper boundary were noticed when examining the data set. It would therefore seem that a two-limit tobit regression might be inappropriate and lead to illogical, biased results (Gallani et al., 2015) – which strengthens the argument rather to employ the FRM as primary model when studying the ratio-scale dependent variables.

When one considers the minimum and maximum values, as well as the standard deviations, of the individual variables in Table 6.1, it would seem that some of the variables may contain outliers. Specifically, the maximum values of X_Divyield, XL_Marketbook and XL_Returnshare seem extremely large and could be a possible measurement error (i.e. inaccurate capturing by IRESS Expert). It was therefore decided to winsorise these three variables to reduce the effect of the outliers.

6.3 REGRESSION ASSUMPTIONS

All regression models have certain assumptions, and if these assumptions are violated, the estimated coefficients could be biased or statistical significance cannot be inferred. Different assumptions are applicable to each of the models employed, but in this section the assumptions of OLS are listed and then discussed. The OLS assumptions are stricter than the assumptions of the primary models employed (the logit and the FRM) and would be applicable for the tobit and the LPM employed as robustness checks. As such, the OLS assumptions provide a good idea of how the assumptions were complied with and addressed to minimise bias and issues with statistical significance in these cases. The OLS assumptions are as follows (Wooldridge, 2014, p. 93):

- A correct functional form (specification) modelling the relationship between the dependent and independent variables (a linear relationship in the case of OLS)
- Random sampling
- No perfect collinearity (and no extreme multicollinearity)
- Zero conditional mean
- Homoskedasticity

The second assumption refers to a random sample to be selected. No sampling occurred in the present study as the entire population was studied. Therefore, the second assumption did not pose a problem.

6.3.1 Correct functional form to model the relationship

The LPM (OLS with a binary dependent variable) and tobit assume a linear relationship between the dependent and independent variables (Wooldridge, 2014, p. 71, 472). On the other hand, both the logit and FRM (which is modelled on the logit) assume a logistical relationship between the dependent variable and the independent variable (in effect an S-shaped line, or non-linear function form, modelling the relationship between dependent and independent variable) (Papke & Wooldridge, 1996; Wooldridge, 2014, p. 461). As the dependent variable is either binary (0 or 1) or bounded between zero and one, it is to be expected that a non-linear functional form assumed by both the logit and the FRM would be more appropriate (Gallani et al., 2015). Thus, the LPM and tobit are merely employed as robustness checks.

6.3.2 Multicollinearity

If the independent and control variables are highly correlated with each other (multicollinearity), the estimates produced by the regression model could be biased. To test for multicollinearity in the present study, a basic OLS regression was done with Y_Yesno as dependent variable, employing all the independent and control variables listed in Table 6.1. After the test, the variance inflation factor for all independent and control variables were calculated (Wooldridge, 2014, p. 86). The variance inflation factors ranged between 1.06 and 1.58, which indicated that multicollinearity was not a problem. No similar test exists for the logit or FRM models, but the OLS variance inflation factor test would have indicated if the independent and control variables seemed highly correlated.

Initially, it was thought to execute separate regressions for Top40/MidCap, Small and Fledgling companies (as different share repurchase activity and executive share-based remuneration characteristics were noted for the different groups). But, as the logarithm of market capitalisation was already employed as control variable, it was expected that multicollinearity issues would arise in such a case, and therefore such regressions were not executed.

6.3.3 Zero conditional mean

If the zero conditional mean assumption is violated then omitted variable bias exists (also referred to as endogenous variables) (Wooldridge, 2014, pp. 74–75). Several measures were applied to minimise the risk of omitted variable bias in the present study. Firstly, the control variables used in the majority of earlier studies (Table 2.4) were employed as control variables in the present study (see Section 3.5.2). Although a large number of control variables were employed, the risk remains that other aspects (such as the corporate governance practices and ownership structure of the company) could also influence share repurchase activity. If these omitted variables are permanent, then employing the fixed effects (Mundlak) approach would remove the bias (relating to these omitted variables) from

the coefficients produced by the regression model (De Jager, 2008, p. 62). This strengthens the argument to employ the Mundlak approach throughout.

Reverse causality (when the dependent variable also influences the independent variable) could pose an additional endogeneity problem (Antonakis, Bendahan, Jacquart, & Lalive, 2010, p. 1088). In the present study, if one measured the independent variable(s) in rands, then a reverse causality concern could have arisen (the share repurchases executed could have increased the share price, which in turn increased the rand value of executive share-based remuneration). To avoid reverse causality, the independent variables were rather measured as the number of share-based instruments employed (which cannot be influenced by share repurchases).

6.3.4 Heteroskedasticity

Homoskedasticity of the error term is important for statistical inference when applying the OLS and LPM models (Wooldridge, 2014, p. 93) and the tobit model (Gallani et al., 2015, p. 13). However, when the dependent variable is binary (or highly clustered at zero), it is not expected that the homoscedasticity assumption will be met (Gallani et al., 2015, p. 10). As such, this was compensated for by applying robust standard errors when estimating the LPM and tobit models in the present study. The logit (and by extension the FRM) automatically assumes heteroskedasticy and calculates robust standard errors by default (Wooldridge, 2014, p. 463).

6.4 REGRESSIONS OF DECISION TO REPURCHASE

In this section, the results from the regressions executed on the binary dependent variable Y_Yesno are discussed. As explained in the research methodology section, most previous studies employed a logit model (non-linear model) to test the binary 'decision to repurchase' variable. However, some of the more recent studies employed a linear probability model (OLS with binary dependent variable). In the present study it was decided to employ the logit model as primary model, but to employ the results of the linear probability model (LPM) as a robustness check. The results of logit regressions can be seen in Table 6.2.

The logit did not allow for the clustering of standard errors by company, although the logit assumes heteroscedasticity by default (Wooldridge, 2014, p. 463). The coefficients produced by the logit model for each independent variable are expressed as the change in the logarithm of the odds of a repurchase occurring, given a one-unit change in the independent variable. However, the change in the logarithm of the odds is not easy to understand, and therefore marginal effects (also referred to as partial effects) can be calculated to produce a version of the coefficient that is easier to understand and comparable to the coefficient produced by the OLS model (Wooldridge, 2014, p. 468). The

marginal effect of the logit model, in the case of the binary dependent variable of the present study, can be interpreted as the change in the probability of a repurchase occurring, given a one-unit change in the independent variable.

In Table 6.2, the following regression results are shown: panel model with fixed effects accounted for using the Mundlak approach for the period 2002-2017 (Model (1)); a similar model for only the period 2006–2017 (Model (2)); and, finally, a similar model for the 2006–2017 period with industry dummies added (Model (3)). In Table 6.2 the coefficients (Coef), the marginal effects (Marg) and the significance level of the coefficient (Sig) are reported.

Model (3) in Table 6.2 controls for industry fixed effects (industry dummies are added). However, industry classifications, based on the JSE's new classification system, were only available from 2006 onwards, and thus a comparable regression model for the 2006–2017 period was added to Table 6.2 (Model (2)). The differences between Model (2) and Model (3) (in Table 6.2) are therefore attributable solely to industry fixed effects. Although the Mundlak approach would already have catered for the fixed effects pertaining to a certain company, and thus have made industry dummies unnecessary, a few companies did move between industries during the period. Owing to the additional variation in the data because some companies moved between industries, it was possible, and considered as conservative, to estimate an additional model with industry dummies (Model (3)).

Models (1), (2) and (3) are indicated using the numbers (1), (2) and (3) in the headings of Table 6.2.

Table 6.2

Regression results on the decision to repurchase using the logit model

Independent / control variable	2002–2017 (1)			2006–2017 (2)			2006–2017, industry dummies (3)		
	Coef	Marg	Sig	Coef	Marg	Sig	Coef	Marg	Sig
X_Exercised	24.82	3.18	**	31.94	3.86	*	31.88	3.90	*
X_Closing	9.63	1.23	*	2.85	0.34		3.13	0.38	
X_TSREPS	0.21	0.03		0.03	0.00		0.03	0.00	
XL_Returnshare^	-0.27	-0.04	**	-0.13	-0.02		-0.14	-0.01	
XL_Marketbook^	-0.01	-0.00		-0.06	-0.01		-0.05	-0.01	
X_Divyield^	0.08	0.01	***	0.08	0.01	*	0.08	0.01	*
XL_Lmarketcap	0.25	0.03		0.13	0.02		0.06	0.01	
X_Directshares	1.48	0.19	*	4.08	0.49	***	4.11	0.50	***
XL_Debtassets	-2.55	-0.33	***	-3.41	-0.41	***	-3.46	-0.42	***
X_ROA	0.00	0.00		0.00	0.00		0.00	0.00	
X_Cash flow	2.82	0.36	***	1.60	0.19		1.55	0.19	
Constant	-7.08	n/a	***	-7.10	n/a	***	-9.11	n/a	***
Company fixed effects	Yes, Mundlak			Yes, Mundlak			Yes, Mundlak		
Year dummies	Yes			Yes			Yes		
Industry dummies	No			No			Yes		
Robust standard error clustered by company	Robust, not clustered			Robust, not clustered			Robust, not clustered		
Observations	2 077			1 411			1 411		
Chi-squared	109.884			77.084			83.098		
Prob > chi2	0.000			0.000			0.000		

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the decision to repurchase, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised.

**** p<0.01, ** p<0.05, * p<0.10*

6.4.1 Interpretation of regression results relating to independent variables

On considering the regression results pertaining to the X_Exercised variable in Table 6.2, it could be ascertained that the number of share-based instruments exercised in a year (expressed as a percentage of the holding company shares outstanding) was positively correlated to the decision to repurchase in all regressions executed. The marginal effect ranged between three and four, implying that the probability of a repurchase increased by between three and four percentage points when the number of instruments exercised by executives (as a percentage of shares outstanding) increased by one percentage point. The results of the OLS regressions (given in Appendix B1) show similar results regarding the number of instruments exercised, which provides robust evidence that the likelihood of a repurchase increases when executives exercise more share-based instruments in a given year.

The finding that the number of share-based instruments exercised by executives increases the likelihood of a company executing a share repurchase in a given year is in line with expectations (formulated based on the findings of previous research) and agrees with the findings of recent studies in other countries. Edmans et al. (2018) and Moore (2018) both found that the vesting of executive share-based incentives led to a higher likelihood of the company repurchasing shares. The increased likelihood of share repurchases was associated with short-term behaviour by executives (Edmans et al., 2018; Moore, 2018).

In respect of the X_Closing variable (Table 6.2), the number of share-based instruments held by executives at year end (expressed as a percentage of shares outstanding) was positively correlated to the likelihood of a repurchase in Model (1) (which considered the 2002–2017 period). However, as seen in Model (2), when only the 2006–2017 period was considered, no statistically significant relationship was found. This may be an indication of a relationship that was stronger in the pre-2006 period. On considering the results of the OLS model (Appendix B1), no statistically significant relationship was found between the likelihood of a repurchase and the number of share-based instruments held at year end. It was expected that there would only be a relationship between the decision to repurchase and the number of share-based instruments held by executives during the early years covered by the present study. The findings in Table 6.2 seem to agree with this expectation, and this idea is explored further in Section 6.7.1.

Jolls (1998) and Kahle (2002) showed that large numbers of share options held by executives increase the likelihood of a share repurchase, as executives holding unexercised share options prefer share repurchases over increasing dividends. These studies were performed pre-2000 or during the early 2000s and only included share options as share-based instrument type, as this was the dominant scheme type during that period of time. Less global evidence is available on whether a positive

relationship exists between the decision to repurchase and all types of share-based incentives (not only share options). Edmans et al. (2018), for instance, considered the relationship between the decision to repurchase and all share-based instruments held by executives (including both full quantum and appreciation scheme instruments). They found a positive relationship between the decision to repurchase and the instruments that were still to vest, while no significant relationship was identified between the already vested instruments and the decision to repurchase – once company fixed effects were controlled for (Edmans et al., 2018, p. 36).

No statistically significant relationships were noted between the likelihood of a share repurchase being executed and whether a company employed performance vesting conditions linked to share price, TSR and/or EPS (the X_TSREPS variable in Table 6.2). The lack of a significant relationship agrees with the recent findings of the Department for Business, Energy and Industrial Strategy (2019), but disagrees with the earlier findings of Young and Yang (2011), who only considered EPS-related conditions.

The final model (Model (3)) in Table 6.2 controlled for industry fixed effects. However, if one compares Model (2) and Model (3) in the table, then no substantial differences are noted between the models. Therefore, the effect of industry dummies (industry fixed effects) seem negligible.

6.4.2 Interpretation of regression results relating to control variables

In this section, the findings of Wesson et al. (2018) and earlier studies undertaken in other countries (Table 2.4) are compared to the findings of the present study relating to control variables. Although the relationship between the decision to repurchase and the control variables was not the focus of the present study, it was deemed important to consider whether these control variables were indeed related to share repurchase behaviour in the South African context. Limited research on this matter exists locally (Wesson et al., 2018). Wesson et al. (2018) considered South African companies' decisions between executing general share repurchases and declaring a special dividend. Their study, however, did not control for the number of share-based instruments held by executives as this information was not available.

Earlier studies found that a company's market-to-book ratio (Edmans et al., 2018; Moore, 2018; Young & Yang, 2011) and prior-period share price performance (Edmans et al., 2018; Moore, 2018) were negatively correlated with the decision to repurchase, which indicates that undervaluation does provide some incentive to engage in share repurchase activity. However, some previous studies also found that a company's market-to-book ratio was not related to the decision to repurchase shares (De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016), which might be an indication of prior-period share

performance being a better indication of undervaluation, especially in the context of the decision to repurchase.

A lower (or negative) prior-period share price performance was significantly correlated to a higher likelihood of executing a share repurchase in the present study (XL_Returnshare variable in Table 6.2). This relationship was found in Model (1) in Table 6.2 which considered the 2002–2017 period, but not when the regressions excluded the 2002–2005 period (models (2) and (3)). This probably indicates that a negative relationship between prior-period share performance and the decision to repurchase existed primarily in the 2002–2005 period. This finding does, however, point to the fact that undervaluation, as modelled by prior-period share price performance, provides a company with a motive to execute a share repurchase (especially before 2006). Undervaluation as modelled by a company's lagged market-to-book ratio was, however, not found to be related to the decision to repurchase in the present study (XL_Marketbook variable in Table 6.2).

Wesson et al. (2018), investigating South African data between 2000 and 2009, found no statistically significant relationship between the cumulative abnormal returns earned in the 50 days prior to a general repurchase and the choice between executing a general repurchase or paying a special dividend. It might be that the 50-day window period applied by Wesson et al. (2018) was too short to capture the prior share price performance adequately (the present study considered the entire 12-month period prior to the year in which the repurchase was executed). However, Wesson et al. (2018) did find a statistically significant relationship between having a higher market-to-book ratio and the choice of a special dividend over a general share repurchase.

A statistically significant positive relationship was found between a company's (current year) dividend yield and the decision to repurchase shares (X_Divyield in Table 6.2). It would seem that share repurchases were not replacing dividends (in which case one would expect a negative relationship between dividend yield and the decision to repurchase shares). Rather, share repurchases seemed to be an additional compensation method employed by companies which were already paying dividends. Companies' prior-period dividend yield was not found to be statistically significant in the decision between general share repurchases and special dividends in an earlier local study (Wesson et al., 2018). Possibly the current year's dividend yield is more appropriate to use (as used in the present study) or the dividend yield only becomes statistically significant when including all types of share repurchases (not only general repurchases). Burns et al. (2015) also found some evidence of a significant positive relationship between dividends and share repurchases.

Wesson et al. (2018) found that larger companies preferred special dividends over general repurchases. In the present study, however, company size was not significantly related to the decision to repurchase shares (XL_Lmarketcap variable in Table 6.2). Many earlier studies found that larger companies were more likely to execute a share repurchase (Burns et al., 2015; De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016; Kahle, 2002). However, these studies did not control for company fixed effects, and this might have influenced their results (endogeneity problems might have existed). Moore (2018) controlled for company fixed effects and found no significant relationship between company size and the likelihood of a share repurchase (as did the findings of the present study). This therefore emphasises the importance of controlling for company fixed effects. Larger companies may have specific characteristics that make it more likely that such companies will repurchase shares. Controlling for company fixed effects reduces the influence of such omitted variable biases (endogeneity problems).

Directors' shareholding was positively and significantly related to the decision to repurchase shares in the present study (X_Directshares in Table 6.2). This would mean that companies where directors own a larger percentage of the company's shares were more inclined to repurchase shares. This effect became more pronounced (highly significant) in the 2006–2017 period. Wesson et al. (2018) and Geiler and Renneboog (2016) did not find a statistically significant relationship between directors' ownership and the decision to execute a general repurchase of shares (but they also did not control for company fixed effects). However, like the findings of the present study, De Cesari and Ozkan (2015) found a positive and significant relationship between the number of shares owned by executives and the likelihood of a share repurchase.

Wesson et al. (2018) did not find the debt–asset ratio to have a significant impact on the decision between paying a special dividend and executing a general repurchase. However, in the present study, a lower debt-to-assets ratio was related to a higher propensity to repurchase shares (XL_Debtassets variable in Table 6.2). Most earlier studies have also found a negative relationship between debt or leverage and the propensity for executing a share repurchase (Burns et al., 2015; De Cesari & Ozkan, 2015; Moore, 2018; Young & Yang, 2011).

Some earlier studies have found a significant positive relationship between profitability and the decision to repurchase (Geiler & Renneboog, 2016), but more recent studies did not find such a relationship when controlling for company fixed effects (Edmans et al., 2018). No significant relationship was found between profitability (measured as the X_ROA variable in Table 6.2) and the decision to repurchase shares in the present study (company fixed effects were controlled for).

In the present study, it was found that companies with higher cash flows were more likely to repurchase shares (X_Cash flow variable in Table 6.2). However, this relationship was not statistically significant when the 2002–2005 data were excluded. Most earlier studies also found a significant positive relationship between the availability of cash and the likelihood of a share repurchase being executed (Burns et al., 2015; De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016; Moore, 2018; Young & Yang, 2011).

6.5 REGRESSIONS OF SHARE REPURCHASE VALUE

In this section, the results from the regressions executed on the ratio-scale dependent variable Y_Net (net rand value spent on repurchases, excluding repurchase of treasury shares by holding company, scaled by the company's lagged market capitalisation) are discussed. Based on the discussion in Section 3.5, the FRM was applied with fixed effects accounted for using the Mundlak approach. Table 6.3 provides the results relating to the entire 2002–2017 period (Model (1)), only the 2006–2017 period (Model (2)) and only the 2006–2017 period with industry dummies added (Model (3)). Industry classifications, based on the JSE's new classification system, were only available from 2006 onwards. Model (2) is thus provided to enable comparison with Model (3), to identify only the effect of adding industry fixed effects (industry dummies). Models (1), (2) and (3) are indicated using the numbers (1), (2) and (3) in the headings of Table 6.3.

Both the coefficients and the marginal effects are reported in Table 6.3, with the significance level of the coefficients indicated by employing asterisks. The marginal effect of the FRM, in the case of the ratio-scale dependent variable of the present study, can be interpreted as the unit of change in share repurchase value (as a percentage of market capitalisation), given a one unit change in the independent variable. In Table 6.3, the marginal effects are provided by indicating three decimal places, otherwise some of the statistically significant marginal effects would be rounded to 0.00.

As the majority of previous studies employed a tobit regression model to study the relationship between share repurchase value and executive share-based remuneration, the tobit model was employed as a robustness check for the FRM in the present study. It was, however, expected that the large number of observations of the independent variable clustering at zero would skew the results of the tobit regression, making it less reliable. The results of the tobit model regressions are provided in Appendix B2 and are compared to the results of the FRM (contained in Table 6.3) as discussed in Section 6.5.1.

Table 6.3

Regression results on repurchase value using the fractional regression model

Independent / control variable	2002–2017 (1)			2006–2017(2)			2006–2017, industry dummies (3)		
	Coef	Marg	Sig	Coef	Marg	Sig	Coef	Marg	Sig
X_Exercised	12.47	0.121		29.14	0.192	*	27.85	0.184	*
X_Closing	4.55	0.044		-0.63	-0.004		-0.08	-0.001	
X_TSREPS	0.11	0.001		-0.02	-0.000		-0.07	-0.000	
XL_Returnshare^	-0.15	-0.001		0.19	0.001		0.19	0.001	
XL_Marketbook^	-0.11	-0.001		-0.26	-0.002	***	-0.26	-0.002	***
X_Divyield^	0.03	0.000		0.08	0.001	**	0.08	0.001	*
XL_Lmarketcap	-0.66	-0.006	*	-0.24	-0.002		-0.23	-0.001	
X_Directshares	-1.94	-0.019	*	-0.08	-0.000		0.04	0.000	
XL_Debtassets	-2.89	-0.028	***	-2.14	-0.014	***	-2.22	-0.015	***
X_ROA	0.00	0.000		0.00	0.000		0.00	0.000	
X_Cash flow	1.42	0.014	**	3.86	0.025	***	3.81	0.025	***
Constant	-4.95	n/a	***	-6.22	n/a	***	-7.00	n/a	***
Company fixed effects	Yes, Mundlak			Yes, Mundlak			Yes, Mundlak		
Year fixed effects	Yes			Yes			Yes		
Industry fixed effects	No			No			Yes		
Robust standard errors, clustered by company	Yes			Yes			Yes		
Observations	2 077			1 411			1 411		
Chi-square	462.90			154.37			197.29		
Prob > chi2	0.00			0.00			0.00		

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the rand value spent on share repurchases scaled by market capitalisation, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised.

**** p<0.01, ** p<0.05, * p<0.10*

6.5.1 Interpretation of regression results relating to independent variables

When one considers the entire period under review (2002–2017), no significant relationship is identified between share repurchase value and executive share-based remuneration using the FRM (Model (1) in Table 6.3). The tobit model (Appendix B2) finds a significant positive relationship between share repurchase value and both the number of executive share-based instruments exercised (X_Exercised) and held at year end (X_Closing). Some caution must, however, be exercised when interpreting the results of the tobit model, as its results may be skewed owing to the clustering of dependent variable observations at zero. To test whether the results of the tobit-regression indeed seem inappropriate, an OLS regression was conducted (but not tabled, for the sake of brevity). The OLS regression did not find any significant relationship between share repurchase value and executive share-based remuneration. It was therefore concluded that no significant relationship between share repurchase value and executive share-based remuneration existed in South Africa, when one considered the entire 2002–2017 period (based on the results of the most reliable model – the FRM).

The lack of a significant relationship needs to be compared to expectations (based on the findings of previous research). It was expected that share repurchases would be related to the number of instruments exercised (during the entire 2002–2017 period) and to the number of instruments held (prior to 2010). However, it did not seem that the expectations had been realised in the South African environment.

Furthermore, the lack of a significant relationship needs to be compared to the findings of earlier studies. When examining the pre-2000 period in the US, Fenn and Liang (2001) found a significant positive relationship between share repurchase value and number of share options held by executives. De Cesari and Ozkan (2015), however, studied the 2002–2009 period in Europe and did not find a significant relationship between share repurchase value and the number of share options held by executives. In Chapter 4 it was mentioned that South African share repurchase activity (in terms of the value spent) is more like that of Europe than that of the US. The fact that the present study did not find a significant relationship between share repurchase value and executive share-based remuneration might be attributable to the fact that the effect of share repurchase value in the South African environment is more similar to that of Europe than that of the US.

A second reason for the present study not finding a significant relationship between share repurchase value and executive share-based remuneration (although many earlier studies undertaken in other countries did find such a relationship) could lie in the fact that a long period of time was examined (2002–2017). Most of the earlier studies (Table 3.1) researched shorter periods than the present study. Two major events, which may have influenced (and changed) the relationship between share

repurchase value and executive share-based remuneration occurred during the 2002–2017 period. The first major event was the effective date of IFRS 2 and the second was the global financial crisis.

From 31 December 2005 onwards, IFRS 2 required that share options be expensed in a company's annual financial statements. This resulted in many companies changing from share option plans to SARs and full quantum schemes. This change in incentive type may have had an impacted on the relationship between share repurchase value and executive share-based remuneration. The 2006–2017 period (the actual post-IFRS 2 period) was studied to examine the effects of industry fixed effects (as industry classifications, based on the JSE's new classification system, were only available from 2006 onwards) (Models (2) and (3) in Table 6.3). When one considers only the 2006–2017 period, a significant positive relationship between share repurchase value and the number of share-based instruments exercised is observed (Table 6.3, model (2)). This relationship was also found when employing the tobit model for the 2006–2017 period (Model (2) in Appendix B2). In a recent study, Edmans et al. (2018) considered the 2006–2016 period in the US and reported that share repurchase value was higher in periods when share-based instruments vested. Similarly, the present study provides evidence of a positive relationship between share repurchase value and the number of instruments exercised in South Africa after the effective date of IFRS 2.

The period studied included the global financial crisis, and it was expected that the relationship might be different before (2002–2006), during (2007–2009) and after the financial crisis (2010–2017). This effect of the global financial crisis is examined in Section 6.7.2.

A third possible rationale for the fact that the present study did not find a significant relationship between share repurchase value and executive share-based remuneration in South Africa during the entire 2002–2017 period (while many earlier studies undertaken in other countries did) could relate to the uniqueness of the South African repurchase environment. In South Africa, repurchases of holding company shares can be executed by both the holding company and subsidiaries (globally, it is generally only the holding company itself which may repurchase holding company shares). Additionally, both specific and general repurchases are widely employed by South African companies, while open market (general) repurchases are the most dominant form globally. The relationship between share repurchase value and executive share-based remuneration reported in earlier studies might relate specifically to open market (general) repurchases. Therefore it is important to examine the relationship between share repurchase value and executive share-based remuneration split between repurchasing entity (the holding company versus subsidiaries), repurchase type (general versus specific) and whether or not the repurchase was announced via SENS. Regressions relating to these aspects can be found in Section 6.6.

A fourth, and final, reason for the fact that this study did not find a relationship between share repurchase value and executive share-based remuneration (while some earlier studies undertaken in other countries did) can be found in the econometric model employed. Many earlier studies employed the tobit model (Burns et al., 2015; De Cesari & Ozkan, 2015; Fenn & Liang, 2001; Young & Yang, 2011), but this model is probably not appropriate when the data are clustered at the zero-point (Gallani et al., 2015). In the present study, the tobit model also found significant relationships between share repurchase value and executive share-based remuneration (Appendix B2). However, it was decided that these results were not reliable owing to the large number of observations at the zero-boundary and the fact that both the FRM (Table 6.3) and the OLS models (not tabled) found no significant relationships when considering the entire period (2002–2017).

The final model (Model (3)) in Table 6.3 added industry dummies for the period 2006–2017. Most previous studies (Table 3.2) added dummy variables to the data to control for possible fixed effects attributed to companies falling in a certain industry. However, as explained previously, industry classifications were only added from 2006 onwards, and therefore it was decided to evaluate the existence of possible fixed effects related to specific industries separately from the main analysis on share repurchase value. A comparison between Model (2) in Table 6.3 (2006–2017 without industry dummies) and Model (3) (which covers the same period, but adds industry dummies) showed that adding industry fixed effects produced no substantial changes to the model. This seems to point out that the industry in which a company is listed does not play a significant role in the determination of the relationship between share repurchase value and executive share-based remuneration. The Mundlak approach would probably also have controlled for the majority of the industry fixed effects.

6.5.2 Interpretation of regression results relating to control variables

The significant relationships found between the dependent variable (share repurchase value) and the control variables are now discussed and then compared to the findings of previous research. When looking at the 2006–2017 period (Model (2) in Table 6.3) a significant negative relationship was noted between share repurchase value and a company's lagged market-to-book ratio (the XL_Marketbook variable in Table 6.3) in the present study. This relationship was also negative when considering the entire 2002–2017 period, but not significant. This finding supports undervaluation as a motive for engaging in share repurchases, especially in the 2006–2017 period. A number of previous studies have reported a significant negative relationship between share repurchase value and a company's market-to-book ratio (Edmans et al., 2018; Fenn & Liang, 2001; Young & Yang, 2011).

The relationship between share repurchase value and the market-to-book ratio in the 2006–2017 period is noteworthy since, in Section 6.4.2, a significant negative relationship was found between the

decision to repurchase and prior-period share price performance (XL_Returnshare variable) seemingly rooted in the pre-2006 period. No significant relationship was noted between share repurchase value and prior-period share price performance. It could be that in the South African environment the decision to repurchase is triggered by a low prior-period share price performance (Table 6.2), while growing share repurchase value is induced by a low market-to-book ratio (Table 6.3). In contrast, the results regarding undervaluation could also indicate that prior-period share price performance is the best proxy for undervaluation in the South African environment prior to 2006 (Table 6.2), while from 2006 onwards the market-to-book ratio provided a better indication of undervaluation than prior-period share price performance (Table 6.3).

As found in Section 6.4.2 relating to the decision to repurchase, a positive relationship between share repurchase value and dividend yield (the X_Divyield variable in Table 6.3) was noted in the present study, if one considered only the 2006–2017 period. Young and Yang (2011) also noted a positive relationship, although non-significant.

When considering the entire 2002–2017 period, the logarithm of market capitalisation (XL_Lmarketcap variable in Table 6.3) was negatively related to share repurchase value. This means that large companies' share repurchases equated to a smaller percentage of their market capitalisation than that of small companies. This appears to be an illogical finding, as Section 4.8.3.2 showed that Top40/MidCap companies were responsible for the bulk of the resources spent on share repurchases in South Africa. However, this effect is probably a result of the extremely large market capitalisations that some Top40 and MidCap companies have on the JSE, which reduced the percentage of market capitalisation repurchased to a small percentage, rather than the actual (non-scaled) rand value spent on share repurchases by large companies (as employed in Section 4.8.3.2).

Recently, Moore (2018) also reported a negative relationship between share repurchases and company size (measured as the logarithm of market capitalisation), but many earlier studies reported a positive relationship between the value spent on share repurchases and company size (measured as log of sales or assets) (Burns et al., 2015; De Cesari & Ozkan, 2015; Edmans et al., 2018; Fenn & Liang, 2001). Young and Yang (2011) employed the logarithm of market capitalisation and found a significant positive relationship between share repurchase value and company size, but the coefficient was virtually zero. It seems that the expected relationship between share repurchase value and company size depends on the measure employed for company size, as market capitalisation could be much larger than assets or sales.

The percentage of directors' ownership (X_Directshares variable in Table 6.3) was negatively related to the value of share repurchases, indicating that companies which had a higher percentage of directors' ownership were less inclined to spend large amounts on share repurchases. Share ownership by directors therefore seemed to have a curbing effect on the resources spent on share repurchases in South Africa. This finding related to the entire 2002–2017 period, but was not significant when one considered only the 2006–2017 period (although still negative). Once industry controls were included (Model (3)), however, the relationship changed into a positive one, indicating that the negative relationship might have been limited to certain industries. Little is known about this relationship globally, as few studies have dealt with it. De Cesari and Ozkan (2015) found a positive relationship between executive share ownership and share repurchase value. In Section 6.4.2 a positive relationship was reported between the decision to repurchase and the percentage of shares owned by directors.

The present study found that a smaller debt-to-assets ratio (X_Debtassets variable in Table 6.3) was related to larger share repurchases. Companies with less debt were less constrained by financing costs and therefore more apt to repurchase shares (De Cesari & Ozkan, 2015). Burns et al. (2015), De Cesari and Ozkan (2015), Edmans et al. (2018), Fenn and Liang (2001) and Young and Yang (2011) also found a negative relationship between share repurchase value and either the debt-to-assets ratio or leverage.

No significant relationship was noted between share repurchase value and profitability (X_ROA in Table 6.3), but share repurchase value was positively related to having more available cash (X_Cash flow variable in Table 6.3). Companies with more cash flow were more inclined to expend this 'free' cash by executing share repurchases, in line with agency theory (Fenn & Liang, 2001). Earlier studies also found a positive relationship between share repurchase value and cash flow (Burns et al., 2015; De Cesari & Ozkan, 2015; Fenn & Liang, 2001; Young & Yang, 2011).

6.6 REPURCHASING ENTITY, REPURCHASE TYPE AND SENS ANNOUNCEMENTS

The resources spent on share repurchases did not seem to be related to executive share-based remuneration when one considered the entire 2002–2017 period in South Africa, although earlier studies (undertaken in other countries) mostly found that such a relationship existed. One of the possible reasons mentioned for not finding a significant relationship in South Africa is the unique regulatory environment in this country. In South Africa, both the holding company and subsidiaries may repurchase the holding company's shares; both general and specific repurchases are common; and a large portion of general repurchases are not announced via SENS.

It is therefore possible that a relationship between share repurchase value and executive share-based remuneration might only exist for certain categories of the net share repurchase activity. To examine whether the aforementioned was true, further regressions of share repurchase value were executed per repurchasing entity and per repurchase type, and based on whether the general repurchase was announced on SENS or not (reported in Sections 6.6.1, 6.6.2 and 6.6.3). In Section 6.6, the effects of industry dummies were ignored to ensure that the entire period (2002–2017) was included. Furthermore, the inclusion of industry dummies did not substantially alter the regression coefficients and p-values of the independent variables in Sections 6.4 and 6.5. Company fixed effects were assumed to be significant and thus compensated for by employing the Mundlak approach in all regressions executed in this section. Year fixed effects were assumed to be significant and thus included.

6.6.1 Repurchasing entity: Subsidiaries versus the holding company

In this section, the regressions executed on the ratio-scale dependent variables Y_Sub (rand value spent on share repurchases by subsidiaries as a percentage of market capitalisation) and Y_Cpy (rand value spent on share repurchases by the holding company, excluding the repurchase of treasury shares, as a percentage of market capitalisation) are compared. Table 6.4 shows the results of the FRM for both subsidiaries and the holding company. The coefficients and marginal effects are reported, with the significance level of the coefficients indicated by asterisks. In Table 6.4, the marginal effects are provided by indicating three decimal places otherwise some of the statistically significant marginal effects would be rounded to zero (0.00).

Table 6.4

Regression results on repurchase value: Subsidiaries versus the holding company

Independent / control variable	Subsidiaries			Holding company		
	Coef	Marg	Sig	Coef	Marg	Sig
X_Exercised	29.08	0.138	***	-0.10	-0.001	
X_Closing	4.97	0.024		3.78	0.019	
X_TSREPS	-0.01	-0.000		0.34	0.002	
XL_Returnshare^	0.08	0.000		-0.38	-0.002	*
XL_Marketbook^	-0.14	-0.001	**	-0.01	-0.000	
X_Divyield^	0.04	0.000		0.04	0.000	
XL_Lmarketcap	-0.31	-0.001		-0.99	-0.005	**
X_Directshares	-0.82	-0.004		-2.84	-0.015	**
XL_Debtassets	-2.48	-0.012	***	-3.23	-0.017	***
X_ROA	-0.00	-0.000		-0.00	-0.000	
X_Cash flow	0.51	0.002		1.92	0.010	***
Constant	-6.57	n/a	***	-4.08	n/a	**
Company fixed effects		Yes, Mundlak			Yes, Mundlak	
Year fixed effects		Yes			Yes	
Industry fixed effects		No			No	
Robust standard errors, clustered by company		Yes			Yes	
Observations		2 077			2 077	
Wald chi / Chi-square		490.52			261.79	
Prob > chi2		0.00			0.00	

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the rand value spent on share repurchases scaled by market capitalisation, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised.

**** p<0.01, ** p<0.05, * p<0.10*

Table 6.4 reports a significant positive relationship between subsidiary repurchases and the number of share-based instruments exercised by executives (X_Exercised). Furthermore, the coefficient attached to this relationship was (by far) the largest coefficient reported for any independent or control variable in Table 6.4. It appears that the exercise of executive share-based instruments was the factor most strongly related to subsidiary repurchases. The only other control variables significantly related to subsidiary repurchases were lower market-to-book and debt-to-assets ratios. A lower debt-to-assets ratio was, however, related to both the holding company repurchasing from third parties and subsidiaries as repurchasing entity.

No significant relationships were found between those share repurchases executed by the holding company and executive share-based remuneration (E_Exercised, X_Closing and X_TSREPS). Rather, it would appear that holding company repurchases were linked to undervaluation (lower prior-period share performance), company size, shares owned by directors, debt-to-assets ratio and the cash flow available.

In conclusion, it would seem that different factors were associated with subsidiary repurchases than with holding company repurchases. Subsidiary repurchases were strongly associated with the number of executive share-based instruments exercised. When a subsidiary repurchases shares of the holding company, this increases the demand for the holding company's shares and possibly causes an increase in share price. In addition, when the repurchase is announced, an increase in the share price is expected owing to signalling theory. This announcement could be before the execution of the share repurchase (if it was a specific repurchase) or after the execution of the share repurchase (if it was a general repurchase). Earlier results from the present study (Section 4.6.1) showed that subsidiary repurchases usually represented general repurchases. The aforementioned increase in the share price would enhance the value realised upon exercise of share-based remuneration.

The preference for subsidiary repurchases over holding company repurchases could be attributed to the flexibility provided by using a subsidiary as repurchasing entity. Shares repurchased by subsidiaries are not cancelled, but kept in treasury (in contrast, in South Africa, shares repurchased by the holding company are cancelled). Such shares could then in future be utilised to affect a business combination; be used to settle the share-based remuneration owing to all employees; or resold. Subsidiary repurchases could be seen as similar to treasury share repurchases that occur in other jurisdictions (where the holding company repurchases but the shares are not cancelled). Moreover, if subsidiary repurchases are normally executed as a general repurchase, this could further enhance their flexibility, as the requirements relating to general repurchases are less onerous than those relating to specific repurchases.

6.6.2 Repurchase type: General versus specific repurchases

In this section, the regressions run on the ratio-scale dependent variables Y_Gen (rand value spent on general repurchases, as a percentage of market capitalisation) and Y_Specother (rand value spent on specific repurchases, excluding pro rata repurchases and the repurchase of treasury shares by the holding company, as a percentage of market capitalisation) are compared. Table 6.5 shows the results of the FRM for both general and specific repurchases. The coefficients and marginal effects are reported, with the significance level of the coefficient indicated by asterisks. In Table 6.5, the marginal effects are provided by indicating three decimal places otherwise some of the statistically significant marginal effects would be rounded to zero (0.00). For X_ROA, even when adding three decimal places (the maximum provided by the Stata output) the marginal effect remains 0.000 (but statistically significant). However, the direction of the effect can be seen from the coefficients.

Table 6.5

Regression results on repurchase value: General versus specific repurchases

Independent / control variable	General repurchases			Specific repurchases		
	Coef	Marg	Sig	Coef	Marg	Sig
X_Exercised	17.23	0.089	***	-0.77	-0.003	
X_Closing	0.25	0.001		7.17	0.023	
X_TSREPS	0.10	0.000		-0.84	-0.003	
XL_Returnshare^	-0.07	-0.000		-0.30	-0.001	
XL_Marketbook^	-0.21	-0.001	***	-0.15	-0.000	
X_Divyield^	0.02	0.000		-0.06	-0.000	
XL_Lmarketcap	-0.46	-0.002		-1.35	-0.004	***
X_Directshares	-0.11	-0.001		-0.93	-0.003	
XL_Debtassets	-2.76	-0.014	***	-4.33	-0.014	***
X_ROA	0.01	0.000	**	0.03	0.000	***
X_Cash flow	0.95	0.025		2.99	0.010	***
Constant	-4.99	n/a	***	-7.05	n/a	***
Company fixed effects	Yes, Mundlak			Yes, Mundlak		
Year fixed effects	Yes			Yes		
Industry fixed effects	No			No		
Robust standard errors, clustered by company	Yes			Yes		
Observations	2 077			2 077		
Wald chi / Chi-square	729.72			479.35		
Prob > chi2	0.00			0.000		

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the rand value spent on share repurchases scaled by market capitalisation, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised.

**** p<0.01, ** p<0.05, * p<0.1*

The FRM reported a highly significant positive relationship between the value of general repurchases and the number of share-based instruments exercised by executives (X_Exercised). The marginal effect attached is not overly large (0.09), indicating that if the number of share-based instruments exercised as a percentage of holding company shares outstanding increases by one percentage point, then a 0.09 percentage point increase in the value of general share repurchases (expressed as a percentage of market capitalisation) is expected. However, the marginal effect associated with the number of share-based instruments exercised is the largest marginal effect of any of the predictor variables in Table 6.5, showing that general repurchases are strongly associated with the exercise of executive share-based remuneration. However, no statistically significant relationship was noted between specific share repurchases and executive share-based remuneration (E_Exercised, X_Closing and X_TSREPS), which may indicate that specific share repurchases occur for other reasons.

Globally, most of the share repurchases that occur are general (open market) share repurchases (Wesson et al., 2014). Thus, the finding that general share repurchases are associated with executive share-based remuneration is in line with the findings of earlier research in other countries. In the South African regulatory environment, specifically, general repurchases are much easier for executives to execute. Most often directors are annually authorised by the shareholders (at the AGM) to execute general share repurchases. After receiving this blanket approval, executives could execute general share repurchases when they saw fit. In contrast, specific share repurchases are much more cumbersome to execute, as each specific share repurchase must be individually authorised by shareholders before it can be executed.

As such, executives could easily execute general share repurchases in the period when their share-based instruments are due to vest or when they plan to exercise their share-based instruments, in an attempt to increase the share price and EPS figure and thus increase the value realised from their own share-based remuneration. The increase in the share price could occur through one or both of the following mechanisms: the repurchase could create a demand for the company's shares, increasing the share price owing to supply and demand forces, or the repurchase could be announced via SENS, increasing the share price because of the signalling effect. Subdividing the general repurchases between those that were announced and not announced will enable a further understanding of whether both or only one of these factors seem to be at work. The relationship between share-based remuneration and the general repurchases that were announced (or not) can be found in the next section (Section 6.6.3).

6.6.3 Announced versus unannounced general repurchases

The South African regulatory environment as regards the announcement of general share repurchases differs from the global norm. Globally, most sophisticated stock exchanges require that all executed open market (general) share repurchases be announced either immediately or within a short period of time (within a week, month or quarter). However, companies listed on the JSE only need to announce executed general repurchases once a three per cent threshold is reached. Some companies interpret this as an annual threshold and, as such, many general share repurchases are never announced.

In this section, the regressions executed on the ratio-scale dependent variables Y_Anngen (rand value spent on announced general repurchases, as a percentage of market capitalisation) and Y_Unanngen (rand value spent on unannounced general repurchases, as a percentage of market capitalisation) are compared. Table 6.6 reports the results of the FRM for both announced and unannounced general repurchases. The coefficients and the marginal effects are reported, with the significance level of the coefficients indicated using asterisks. In Table 6.6, the marginal effects are provided by indicating three decimal places, otherwise some of the statistically significant marginal effects would be rounded to 0.00. For X_ROA and X_Divyield, even when adding three decimal places (the maximum provided by the Stata output) the marginal effect remains 0.000 (but statistically significant). However, the direction of the effect can be seen from the coefficients.

Table 6.6

Regression results on repurchase value: (Un)announced general repurchases

Independent / control variable	Announced general repurchases			Unannounced general repurchases		
	Coef	Marg	Sig	Coef	Marg	Sig
X_Exercised	25.08	0.072	***	1.36	0.003	
X_Closing	-0.38	-0.001		1.78	0.004	
X_TSREPS	-0.34	-0.001		0.32	0.001	
XL_Returnshare^	-0.18	-0.001		0.08	0.000	
XL_Marketbook^	-0.35	-0.001	**	-0.12	-0.000	
X_Divyield^	0.00	0.000		0.06	0.000	**
XL_Lmarketcap	-0.55	-0.002		-0.32	-0.001	
X_Directshares	-1.39	-0.004		1.09	0.003	
XL_Debtassets	-3.45	-0.010	***	-2.08	-0.005	***
X_ROA	0.01	0.000	**	0.01	0.000	
X_Cash flow	1.02	0.003		0.96	0.002	**
Constant	-4.23	n/a	**	-7.87	n/a	***
Company fixed effects	Yes, Mundlak			Yes, Mundlak		
Year fixed effects	Yes			Yes		
Industry fixed effects	No			No		
Robust standard errors, clustered by company	Yes			Yes		
Observations	2 077			2 077		
Wald chi / Chi-square	597.74			177.08		
Prob > chi2	0.00			0.00		

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the rand value spent on share repurchases scaled by market capitalisation, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised.

**** p<0.01, ** p<0.05, * p<0.10*

The results in Table 6.6 seem to indicate that announced general repurchases, rather than the unannounced general repurchases, are associated with executive share-based remuneration. The FRM showed a significant positive relationship between announced general share repurchases and the number of share-based instruments exercised (X_Exercised). The marginal effect was only 0.07 (a 0.07% increase in share repurchases value as a percentage of market capitalisation when a one percentage point increase in the number of instruments exercised occurs), but was the largest marginal effect of all the predictor variables in Table 6.6.

As previously mentioned, announced general share repurchases could increase the share price in two ways: increasing demand for the company's shares on the open market and through the signalling effect of the announcement. Unannounced general share repurchases can only increase the share price as a result of supply and demand forces. The fact that specifically announced general repurchases are associated with executive share-based remuneration seems to point to executives rather executing announced general share repurchases when they are due to exercise share-based instruments – to obtain both the benefits of increased demand and signalling effect.

In summary (looking at the results of both Sections 6.6.2 and 6.6.3) the possibility exists that executives who are due to exercise share-based instruments will execute general share repurchases (owing to the ease of execution – no specific shareholder authorisation required) and then announce such repurchases. By announcing the share repurchase, the executives obtain the positive effect of signalling information on the share price, in addition to the beneficial effect that increased demand already had on the share price. However, it must be noted that announcements of general share repurchases sometimes occur in the year subsequent to the repurchase (or maybe several years later) so the signalling effect would not always be the major driver.

6.7 REGRESSIONS FOR SPECIFIC TIME PERIODS

In this section, the relationship between share repurchases and executive share-based remuneration is examined in specific time periods (namely before, during and after the global financial crisis). This is necessary as the global financial crisis could possibly have caused a structural break in the relationship.

6.7.1 Decision to repurchase

In Section 6.4.1 it was postulated that a positive relationship between the number of share-based instruments held at year end and the decision to repurchase might have existed in the early years covered by the study – i.e. before the global financial crisis, when share options were the primary share-based incentive type employed by companies. To test whether this was true, and further to

specifically examine the relationship between the decision to repurchase and executive share-based remuneration in the periods before, during and after the global financial crisis, a logit regression was run on the companies listed in the each of the periods: 2002–2006 (before the crisis); 2007–2009 (during the crisis); and 2010–2017 (after the crisis). The results thereof are shown in Table 6.7.

Table 6.7

Regression results on the decision to repurchase: Effect of the global financial crisis

Independent / control variable	Before the crisis (2000–2006)			During the crisis (2007–2009)			After the crisis (2010–2017)		
	Coef	Marg	Sig	Coef	Marg	Sig	Coef	Marg	Sig
X_Exercised	2.00	0.21		-18.56	-1.90		42.23	4.86	*
X_Closing	12.10	1.29		12.33	1.26		-3.55	-0.41	
X_TSREPS	2.44	0.26	**	-0.11	-0.01		-0.07	-0.01	
XL_Returnshare^	-0.31	-0.03		-0.70	-0.07		-0.09	-0.01	
XL_Marketbook^	-0.41	-0.04	*	-0.02	-0.00		-0.01	-0.00	
X_Divyield^	0.06	0.01		0.16	0.02		0.10	0.01	*
XL_Lmarketcap	1.08	0.12		-0.17	-0.02		-0.46	-0.05	
X_Directshares	-0.68	-0.07		2.95	0.30		2.71	0.31	
XL_Debtassets	-3.01	-0.32	**	-3.84	-0.39	*	-2.70	-0.31	***
X_ROA	-0.01	-0.00		0.00	0.00		0.02	0.00	*
X_Cash flow	5.68	0.61	***	-0.50	-0.05		3.46	0.40	*
Constant	-12.28	n/a		-14.37	n/a		-5.10	n/a	
Year dummies	Yes			Yes			Yes		
Industry dummies	No			No			No		
Robust standard error clustered by company	Robust, not clustered by company			Robust, not clustered by company			Robust, not clustered by company		
Number of observations	668			367			1042		
Chi-square	47.24			23.918			49.38		
Prob > chi2	0.01			0.47			0.01		

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the decision to repurchase, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised.

**** p<0.01, ** p<0.05, * p<0.10*

Contrary to expectations based on previous research (see Sections 2.4.2 and 6.1), the decision to repurchase shares prior to the global financial crisis was not related to the number of share-based instruments held by executives (X_Closing). The fact that Jolls (1998) and Kahle (2002) found such a relationship might be the result of their not controlling for company fixed effects. Edmans et al. (2018) controlled for company fixed effects and did not find a significant relationship between the decision to repurchase and the number of share-based instruments held by executives. It is quite possible that certain fixed effects (such as the quality of corporate governance) would influence both the likelihood of repurchasing shares and the number of share-based instruments granted to and held by executives.

The binary independent variable indicating whether (or not) a company employed performance vesting conditions related to share price, TSR and/or EPS has not been significant in any model reported up to this point. However, in the pre-financial crisis period, companies employing performance conditions related to share price, TSR and/or EPS (the X_TSREPS variable in Table 6.7) were more likely to repurchase shares. When interpreting the marginal effect, it was found that a company that went from not employing such performance conditions to employing such performance conditions increased its probability of a share repurchase by 0.26 per cent. This increase in percentage is small, and furthermore, the number of companies that employed performance vesting conditions related to share price, TSR and/or EPS during the pre-financial crisis period was limited (only 3% of company years). However, the finding of a relationship between the decision to repurchase and the use of performance conditions based on share price, TSR and/or EPS in the early years of the study is in line with expectations based on previous research (see Sections 2.4.2 and 6.1) and the findings of Young and Yang (2011).

During the global financial crisis, no significant relationship was found between the decision to repurchase and executive share-based remuneration (E_Exercised, X_Closing and X_TSREPS). The period of the global financial crisis was relatively short (3 years) and thus allowed for a relatively small number of observations (n=367), making it difficult to draw any statistically significant conclusions. Furthermore, the financial crisis was a period of financial distress for many companies and their behaviour might have been unusual or erratic.

After the global financial crisis, a significant positive relationship existed between the decision to repurchase and the number of share-based instruments exercised by executives (E_Exercised). When executives exercised one percentage point more share-based instruments, their companies were almost five per cent more likely to execute a share repurchase. Since the post-financial crisis period (2010–2017) made up half of the period included in the present study (2002–2017), it would seem as

if the post-financial crisis data drove the overall conclusion of the present study relating to the decision to repurchase. This finding is in line with expectations based on previous research.

6.7.2 Repurchase value

Continuing from the binary dependent variable (decision to repurchase), the relationship between share repurchase value and executive share-based remuneration is now examined in the different time periods. The results of this, using the FRM, are provided in Table 6.8. In Table 6.8, the marginal effects are provided by indicating three decimal places otherwise some of the statistically significant marginal effects would be rounded to 0.00. For X_ROA, even when adding three decimal places (the maximum provided by the Stata output) the marginal effect remains 0.000 in the post-financial crisis period (but statistically significant). However, the direction of the effect can be seen from the coefficients.

Table 6.8

Regression results on repurchase value: Effect of the global financial crisis

Independent / control variable	Before the crisis (2002–2006)			During the crisis (2007–2009)			After the crisis (2010–2017)		
	Coef	Marg	Sig	Coef	Marg	Sig	Coef	Marg	Sig
X_Exercised	11.31	0.175		82.13	0.675	**	37.66	0.232	***
X_Closing	17.50	0.270	***	-22.08	-0.182		-10.78	-0.066	
X_TSREPS	-0.00	-0.000		-0.66	-0.005		-0.02	-0.000	
XL_Returnshare^	-0.25	-0.004		0.15	0.001		0.03	0.000	
XL_Marketbook^	-0.22	-0.003		-0.39	-0.003		0.11	0.001	
X_Divyield^	0.02	0.000		0.11	0.001	**	0.05	0.000	
XL_Lmarketcap	-0.68	-0.010		-1.87	-0.015	**	-1.62	-0.010	***
X_Directshares	-1.46	-0.023		-3.59	-0.030		-2.56	-0.016	
XL_Debtassets	-3.77	-0.058	***	-1.63	-0.013		-2.44	-0.015	**
X_ROA	-0.01	-0.000		-0.00	-0.000		0.02	0.000	**
X_Cash flow	1.63	0.025	**	7.54	0.062	***	3.11	0.019	**
Constant	-8.18	n/a		-8.25	n/a		-3.28	n/a	
Year dummies		Yes			Yes			Yes	
Industry dummies		No			No			No	
Robust standard error clustered by company		Yes			Yes			Yes	
Number of observations		668			367			1 042	
Chi-square		544.49			61.66			142.11	
Prob > chi2		0.00			0.00			0.00	

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the rand value spent on share repurchases scaled by market capitalisation, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised.

**** p<0.01, ** p<0.05, * p<0.10*

In Section 6.5.1 it was mentioned that no significant relationship could be found between share repurchase value and executive share-based remuneration (E_Exercised, X_Closing and X_TSREPS), when considering the entire period 2002–2017. However, it was postulated that one of the possible reasons for not finding any significant relationship (while a significant positive relationship was found in several earlier studies) was the lengthy period examined (previous studies rarely exceeded a 10-year period). Several events (including the global financial crisis and the effective date of IFRS 2) occurred during the time period under review, which might have caused a change (structural break) in the relationship between share repurchase value and executive share-based remuneration. When one subdivides the period under review, as done in Table 6.8, clear differences in the relationship between share repurchase value and executive share-based remuneration are noted in the different periods.

Before the onset of the global financial crisis (2002–2006), a significant positive relationship existed between share repurchase value and the number of executive share-based instruments held at year end (X_Closing). However, during the period of the financial crisis (2007–2009) and after the crisis, a significant positive relationship was found between share repurchase value and the number of executive share-based instruments exercised (X_Exercised). This provided evidence of a possible structural break in the relationship between share repurchase value and executive share-based remuneration: before the global financial crisis there was a link between share repurchase value and the number of share-based instruments held by executives, while during and after the crisis the relationship shifted to the instruments exercised. These findings are in line with the expectation that there would be a relationship between share repurchase value and the number of share-based instruments held during the early years of the study. Although it was expected that a relationship between share repurchase value and the number of share-based instruments exercised would exist in the entire period studied, it was only found to exist from 2007 onwards.

This break in the relationship could have been caused by two factors (probably a combination of the two factors): the effective date of IFRS 2 (31 December 2005) and the global financial crisis. Before the effective date of IFRS 2, the dominant type of share-based incentive employed was share options (Steenkamp & Wesson, 2018b). Executives holding large numbers of share options would be more inclined to execute share repurchases than to increase dividends, as increasing dividends would have decreased the value of their unexercised share options (Fenn & Liang, 2001). After the effective date of IFRS 2, companies decreased their use of share options and increased their use of SARs and full quantum schemes (Steenkamp & Wesson, 2018b). Thus, the relationship between increased share

repurchases (in comparison to dividends) and executives holding share options would have started to dilute as share option usage decreased.

Furthermore, during the global financial crisis (as company share prices started to fall) many share options (and SARs) were 'out of the money' and did not offer much incentive value. This could have led to executives concentrating on the short-term value realised on the exercise from incentives, rather than on the long-term value encompassed by the incentives held at year end (which might only vest in 5 or 6 years). After the global financial crisis, this focus on the short-term may have persisted. Edmans et al. (2018) also reported this link between a short-term perspective (the vesting of executive share-based remuneration) and share repurchase value.

6.8 ALTERNATIVE INTERPRETATIONS OF RESULTS

Although the results reported in Chapter 6 seem to provide evidence of a positive relationship between share repurchases and executive share-based remuneration in South Africa during the 2002–2017 period, it was considered prudent to also consider alternative explanations for the results. Various aspects may have impacted the regression results, and these are discussed below.

6.8.1 The effect of outliers

Regression results are highly sensitive to outliers. The possibility that outliers in the share repurchase and executive share-based remuneration data might have influenced the regression results reported should be considered. In Chapter 4 it was reported that MTN executed a large specific repurchase in 2009, for which it paid by issuing its own shares. Most of the repurchase value seemed contrived, if one nets off the number of shares repurchased and those issued as consideration. It was mentioned that this repurchase caused a large spike in the trend relating to repurchase activity and must, at least, be considered an outlier (if not contrived). In Chapter 5 it was also mentioned that Morvest granted an abnormally large number of share options. Consequently, at year end the executives held an abnormally large number of share options, which also caused a spike in the trends relating to the number of share-based instruments held at year end. It is worth considering whether the results reported up to this point would have been significantly different if MTN and Morvest had been excluded from the population, owing to the fact that they possibly cause outliers in the data.

As such, all observations relating to MTN and Morvest were deleted from the population. After this, the regressions were re-executed. It must be noted that excluding Morvest increased the coefficient relating to the independent variable X_Closing in almost all the models. As such, only changes in the level of significance of independent variables are discussed in the rest of the section.

Relating to the binary dependent variable 'decision to repurchase' no substantial changes were noted after the exclusion of the two companies, when considering the entire population (original results in Table 6.2, model (1)). The level of significance of X_Closing increased from 10 per cent to five per cent (i.e. both X_Exercised and X_Closing were now significant at 5%). When the data were sub-divided between the different periods (original results in Table 6.7), no changes were noted except that the significance level of the independent variable X_Exercised increased from 10 per cent to five per cent in the period after the global financial crisis.

When considering the effect of the exclusion of MTN and Morvest on the dependent variable 'share repurchase value' in the entire population, the significance level of X_Closing increased from insignificant to significant at the five per cent level (original results in Table 6.3, model (1)). Thus, when excluding MTN and Morvest the number of share-based instruments held by executives at year end was positively related to share repurchase value in the entire population. This provides further evidence of a positive relationship between share repurchase value and executive share-based remuneration, as found by prior global studies.

One must also consider the effect on the repurchase entity (original results in Table 6.4). When excluding MTN and Morvest, share repurchase value by subsidiaries was significantly (p-value smaller than 0.01) and positively related to both X_Exercised and X_Closing (in the original results only X_Exercised was significantly related to share repurchase value by subsidiaries). This strengthens the argument that a relationship existed between the share repurchases executed by subsidiaries and executive share-based remuneration (measured as both the number of instruments exercised and held at year end). Even when MTN and Morvest were excluded no significant relationships existed between share repurchases executed by the holding company and executive share-based remuneration.

The effect of excluding MTN and Morvest was considered in respect of the results relating to the repurchase type (original results in Table 6.5). No change was noted in relation to general repurchases (it still showed a significant positive relationship with X_Exercised). In relation to the specific repurchases, however, removing MTN and Morvest led to a significant positive relationship with X_Closing. It would seem, if one removed MTN and Morvest, as if general repurchases (which are less cumbersome to execute) were related the short-term incentives provided by executive share-based remuneration (those which are exercised or due to vest in the current year). Specific repurchases, which have a much more cumbersome authorisation process, were related to the long-term incentives provided by executive share-based remuneration (the cumulative value represented by the instruments held at year end).

No change was noted in relation to announced general repurchases and executive share-based remuneration, if one removes MTN and Morvest (originally shown in Table 6.6). Announced general repurchases were still significantly and positively related to X_Exercised. However, excluding MTN and Morvest, produced a significant positive relationship (at the 5% level) between unannounced general share repurchases and X_Closing (originally no significant relationship had been reported between unannounced general repurchases and executive share-based remuneration). This finding associated unannounced share repurchases with the long-term incentive provided to executives by the unexercised share-based instruments held at year end.

Finally, one needs to consider the removal of MTN and Morvest on the relationship between share repurchase value and executive share-based remuneration in the different periods (original results reported in Table 6.8). No change is noted in the period before the global financial crisis (X_Closing is still significantly and positively related to share repurchase value), but removing MTN and Morvest leads to no significant relationship between share repurchases and executive share-based remuneration during the financial crisis (which is to be expected during a period of financial distress). After the crisis, no change is noted when MTN and Morvest were removed (X_Exercised is still significantly and positively related to share repurchase value).

Overall, it can be concluded that excluding MTN and Morvest, the two companies who most obviously led to outliers in the share repurchase and executive share-based remuneration data, did not significantly alter the results produces by the regressions. It is, however, possible that excluding, or winsorising, other outliers might have significantly impacted the results. But, it was decided not to investigate outliers further, as this was not done in previous studies in other countries studying the relationship between share repurchases and executive share-based remuneration and the standard deviations relating to the dependent and independent variables did not seem extremely large. The fact that a large number of share repurchase observations are zero (no repurchase) would also reduce the effect of possible outliers. Furthermore, allowing the data to vary naturally facilitates the identification of important relationships.

6.8.2 Other alternative explanations

Since regressions apply the concept of statistical significance, the chance of a Type I statistical error remains. Especially when regressions are executed on smaller datasets within the population, as in Sections 6.6 and 6.7, the probability increases that a regression would produce a significant result purely by chance. Thus, in Sections 6.6 and 6.7 where the data were sub-divided, results that are only significant at the 10 per cent level should probably be treated with some scepticism. This pertains specifically to the result in Table 6.7 reporting a positive relationship between the decision to

repurchase and the number of instruments exercised, in the 2010–2017 period, which was significant only at a 10 per cent level of significance. All other relationships reported in Sections 6.6 and 6.7 were either significant at a five per cent or a one per cent level of significance, which reduces the chance of a Type I error.

When executing regressions, there is always the risk of omitted variable bias. If a certain variable was not included as control variable, but actually does influence share repurchases behaviour, and this omitted variable is also correlated to executive share-based remuneration, then the coefficients produced by the regressions might be biased as a result. Specifically, two such variables exist: institutional ownership and the number of shares issued to all employees during the year to settle share-based schemes. These variables were discussed in Section 3.5.2 but will be mentioned here again for the sake of completeness.

Institutional ownership was not included as control variable in the present study as it is not readily available from financial databases in South Africa. Institutional ownership can influence payouts (dividends plus share repurchases) as well as executive remuneration (De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016). As such, not controlling for institutional ownership might have led to omitted variable bias and the possibility exists that the significant results noted in the present study are a result of not including institutional ownership as control variable. However, as the institutional ownership percentage of a specific company is expected to be relatively constant, the present study indirectly compensated for institutional ownership by including company fixed effects. Furthermore, the risk relating to the omitted variable is not considered to be substantial as previous studies failed to find a significant correlation between share repurchases, which is a specific portion of payout, and institutional ownership (De Cesari & Ozkan, 2015; Geiler & Renneboog, 2016; Moore, 2019).

In Section 2.2.3.4, it was mentioned that share repurchases could occur when companies want to offset the dilution in EPS caused by issuing shares to employees during the year, to settle share-based remuneration schemes. In earlier studies in other countries it was debated whether share repurchases seemed to be linked to executive share-based remuneration, or rather to the shares issued to all employees during the year. Some of these earlier studies included the number of shares issued to employees during the year as control variable in their regressions. Later studies in other countries did not normally do so. As a result, and because the number of instruments issued to employees during the year is not readily available from annual financial statement disclosure nor the IRESS financial database, it was decided to not include this as control variable in the present study. It is also not expected that the number of instruments issued to all employees and the number exercised and held by executives, will be correlated. The risk of omitted variable bias was therefore considered minimal,

but there remains the possibility that the results reported in the present study were influenced by not including this control variable.

Finally, the population employed in the present study could have driven the results. It was decided to only include companies that have primary listings on the JSE in the population (and to exclude companies with secondary listings) as such companies must comply with the JSE Listing Requirements' announcement rules on share repurchases. It was specifically these announcement requirements, which are less strict than those in other countries, that made it crucial to study the relationship between share repurchases and executive share-based remuneration in South Africa. However, the possibility remains that the exclusion of the larger dual-listed companies may have influenced the results.

6.9 CONCLUSION

Around the turn of the century it was found that executives that held large numbers of unexercised share options preferred share repurchases over dividends (Fenn & Liang, 2001; Jolls, 1998; Kahle, 2002). More recently, researchers have been linking increased share repurchase activity to rent extraction and short-term behaviour by executives in a bid to enhance the value that they realise from share-based remuneration in general (Edmans et al., 2018; Gao & Kronlund, 2020; Lazonick, 2014).

The aim of the present study was to determine the relationship between share repurchases and executive share-based remuneration in the South African context. The period 2002–2017 was studied. It was expected that a positive relationship would be found between share repurchases and the number of share-based instruments exercised (during the entire 2002–2017 period), while a relationship between share repurchases and the number of share-based instruments held would only exist in the early years of the study (when share options were the dominant scheme type employed). Furthermore, it was expected that a positive relationship between share repurchases and the usage of performance vesting conditions linked to share price, TSR and/or EPS would be found during the early years of the study, when fewer companies were employing such conditions.

As expected, a positive relationship between the decision to repurchase and the number of share-based instruments exercised was found for the entire period studied. In addition, a positive relationship was found between the decision to repurchase and the number of instruments held at year end, which seemed to be more strongly rooted in the pre-2006 period. However, when only considering the pre-financial crisis period, no significant relationship was found.

Contrary to expectations, no relationship was found between share repurchase value and executive share-based remuneration, when considering the entire period of study. However, a positive

relationship was found between both share repurchases executed by subsidiaries and (announced) general share repurchases and the number of share-based instruments exercised by executives. Additionally, positive relationships were found between share repurchase value and the number of share-based instruments during specific periods. Prior to the global financial crisis, a positive relationship existed between share repurchase value and the number of instruments held at year end, while during and after the crisis a positive relationship was found between share repurchase value and the number of instruments exercised during the year.

Finally, no relationship was found between share repurchases and the use of performance vesting conditions based on share price, TSR and/or EPS when considering the entire 2002–2017 period. However, prior to the global financial crisis a positive relationship was found between the decision to repurchase and the use of such conditions, as was expected.

The aforementioned results suggest that South African executives could be abusing share repurchases to increase the value realised from share-based remuneration. Based on this possibility, it would be prudent if the JSE took the precaution of improving its regulations regarding share repurchases. Improved regulation should include the real-time announcement of all share repurchases on SENS (such announcements are required by many stock exchanges worldwide). Moreover, corporate governance regulations (such as the King Report) could require improved disclosure of share repurchases (and specifically the effect they had on executive share-based remuneration) in the annual financial statement or the integrated report. Furthermore, accurate recordkeeping by financial databases (such as IRESS and Bloomberg) is essential for future monitoring of share repurchases as a financial tool in the hands of companies.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.1 RECONCILIATION OF RESEARCH QUESTIONS

Share repurchases have habitually been associated with undervaluation and the availability of free cash flow. In addition, share repurchases are viewed as a flexible alternative to increasing dividends. However, in the last few years more and more researchers have been linking increased share repurchase activity (especially in the US and Western Europe) to the fact that executives can employ these repurchases to increase their companies' share price and EPS figure. As large portions of executive remuneration (share-based remuneration in particular) are linked to the performance of the share price (and also the EPS figure), share repurchases could be employed by executives to artificially increase the value of their own remuneration.

Although a number of recent studies have investigated the relationship between share repurchases and executive share-based remuneration, this relationship has not been studied in the South African environment. It is especially important to conduct such a study in South Africa, as share repurchase activity is less transparent here, owing to the fact that general repurchases need to be announced on the stock exchange only once three per cent of outstanding shares have been repurchased. Furthermore, South Africa has extreme levels of pay inequality (so much so that the King Report now requires disclosures on this issue at company level). Self-enrichment by executives could exacerbate pay inequality in South Africa, making the findings of the present study all the more relevant in the current context of this country.

Based on earlier studies undertaken in other countries, it was expected that a positive statistical relationship would exist between share repurchase and executive share-based remuneration variables in South Africa. To test whether this expectation was valid, three main research questions were developed and then tested by employing data from 2002 to 2017. Research question 1 centred on the extent of share repurchase activity in South Africa, while Research question 2 focused on the characteristics of executive share-based remuneration. Comprehensive data on share repurchases and executive share-based remuneration had to be gathered by way of annual financial statements and the IRESS financial database. This led to the creation of databases on both share repurchases and executive share-based remuneration – which can be employed in future research projects. With this data available, it was possible to address Research question 3, which sought to establish the relationship between share repurchases and executive share-based remuneration.

In Section 7.2 a summary of the main findings pertaining to the three research questions is provided. The research contribution and contribution to practice and policy follows in Sections 7.3 and 7.4, after which recommendations are made in Section 7.5. Chapter 7 closes with the limitations of the present study and recommendations for future research (Section 7.6), as well as concluding comments (Section 7.7).

7.2 SUMMARY OF FINDINGS

7.2.1 Research question 1: Extent of share repurchase activity

When considering the 2002–2017 period, it was found that share repurchase activity, measured as the rand value invested in share repurchases, increased over the 2002–2009 period, after which it seemed to stabilise at a lower level. In general, South African share repurchase activity in the post-financial crisis period seemed to resemble that experienced in Western European countries more closely than that in the US, where an increasing trend was noticed after the global financial crisis.

The number of companies engaging in share repurchases increased after the global financial crisis (showing that share repurchases had become widely accepted), but the value spent by each company has decreased, leading to a relatively stable trend in share repurchase quantum (measured as total rand value invested in share repurchases). The transparency of share repurchases (the percentage announced on the JSE's SENS) decreased over the period of the study, making it difficult for stakeholders to monitor share repurchase activity in real time.

7.2.2 Research question 2: Characteristics of executive share-based remuneration

During the 2002–2017 period, the rand value associated with executive share-based remuneration was not consistently disclosed in the annual financial statements of companies. However, based on the incomplete picture provided by these financial statement disclosures, share-based remuneration made up a substantial portion of executive remuneration. It is expected that the annual financial statement disclosures relating to the value of executive share-based remuneration will improve should companies comply with the requirements of King IV (effective from 2018 onwards).

During the early years of the present study, share options were most commonly granted by companies. After the effective date of IFRS 2 and during the global financial crisis there was a gradual shift first to SARs and then to full quantum schemes. Full quantum schemes provide improved alignment of executive and shareholder interest (in line with agency theory). Over the target period of the present study, the usage of performance conditions increased, with share price, TSR and EPS commonly being employed in the latter years of the present study.

7.2.3 Research question 3: Relationship between share repurchases and executive share-based remuneration

After controlling for other variables associated with share repurchases, a positive relationship was found between the decision to repurchase and both the number of share-based instruments exercised and the number of instruments held at year end. However, the relationship between the decision to repurchases and the number of instruments held at year end only existed during the early years of the present study, when share options were the dominant type of scheme.

When considering the entire 2002–2017 period, no statistically significant relationship was found between share repurchase value and the number of share-based instruments. A statistically significant positive relationship, however, existed when considering certain time periods or certain repurchasing entities or repurchase types. Prior to the global financial crisis, a positive relationship existed between share repurchase value and the number of instruments held at year end. During and after the global financial crisis, a positive relationship was found between share repurchase value and the number of instruments exercised during the year. Furthermore, a positive relationship existed when only considering the share repurchases executed by subsidiaries or when only considering (announced) general share repurchases.

Finally, no relationship was found between share repurchases and the usage of performance vesting conditions based on share price, TSR and/or EPS when considering the entire 2002–2017 period. However, prior to the global financial crisis, a positive relationship was found between the decision to repurchase and the usage of such conditions.

7.3 RESEARCH CONTRIBUTION

The first scientific contribution of the present study relates to the creation of two databases: one on share repurchases and one on executive share-based remuneration. Comprehensive information on these two matters did not exist prior to the present study, and thus could not be downloaded from established financial databases. The databases created during the present study can be utilised in future research to investigate issues relating to finance and financial management.

The second scientific contribution that the present study makes is establishing the fact that a statistically significant positive relationship exists between share repurchase and executive share-based remuneration variables in South Africa, as has been observed globally. The existence of a positive relationship between share repurchases and executive share-based remuneration indicates that South African executives could be abusing share repurchases to increase the value realised from share-based remuneration.

7.4 CONTRIBUTION TO PRACTICE AND POLICY

The findings of the present study provide shareholders with a more comprehensive understanding of both the quantum of share repurchases and the characteristics of executive share-based remuneration in South Africa. Furthermore, this study alerts shareholders to the fact that executives may be enriching themselves using share repurchases. This information gives grounds for enhanced shareholder activism regarding share repurchases (shareholders could, for instance, demand comprehensive disclosure regarding the relationship between share repurchases and executive share-based remuneration in the company's integrated report).

The current SENS announcement rules on share repurchases do not allow for real-time monitoring of all share repurchases (general repurchases are only announced once 3% of outstanding shares have been repurchased). Based on the evidence provided by the present study (the existence of a relationship between share repurchases and executive share-based remuneration), the JSE could amend its announcement rules to ensure that all share repurchases are announced in real time – which would be in line with global best practice.

7.5 RECOMMENDATIONS

The finding that some executives seem to be enriching themselves through share repurchases points to the existence of an ethical dilemma. Executives should be acting in the best interests of the company, and not directing company resources in a way that financially benefits the executives. Thus, this finding of possible self-enrichment is important from a social justice perspective, given the high levels of income-inequality in South Africa. It is recommended that this matter be addressed at several levels and in various ways, including amending the JSE announcement rules relating to share repurchases, requiring improved disclosure in annual financial statements and integrated reports, and increasing the awareness of both shareholders and non-executives about this issue.

It is critical that the JSE should clarify its announcement rules pertaining to share repurchases, by confirming that it presently requires all share repurchases to be announced on SENS. The present three per cent rule is not producing complete and useful information for monitoring purposes as many companies interpret the rule to be an annual one, while it was meant to be cumulative. Furthermore, the JSE could consider reducing the present threshold (3%) to a lower one, or ideally require real-time announcements of all share repurchases (as is required by many stock exchanges worldwide). This will allow stakeholders to actively monitor the interaction between share repurchases and executive share-based remuneration.

The share repurchase environment in South Africa is unique, given that both the holding company and subsidiaries can repurchase shares issued by the holding company, and that shares repurchased by the holding company are cancelled from issued share capital. Owing to this uniqueness, the annual financial statement disclosures required by IFRS relating to the number of shares in issuance, as well as the number and rand value of shares repurchased, does not produce complete and accurate information relating to total share repurchase activity in the South African environment. The South African Institute of Chartered Accountants issues accounting standards called Financial Reporting Guidelines, which prescribe the accounting treatment and disclosure relating to issues that are specific to the South African environment (for example, for BEE transactions). It is recommended that a Financial Reporting Guideline be created for the annual financial statement disclosure of movements in share capital, including share repurchase activity. Such a Financial Reporting Guideline could then require companies to disclose both the group number of shares and the holding company number of shares in issuance, and the share repurchase activity of both the holding company and subsidiaries. Repurchases by consolidated share trusts could also be a mandated disclosure. Some of the above-mentioned disclosures are already required by the JSE Listing Requirements, but companies are not adhering to the requirements by providing these disclosures. For JSE-listed companies, the JSE and company auditors should be stricter in enforcing the annual financial statement disclosure requirements relating to share repurchases already contained in the JSE Listing Requirements.

Shareholders should not merely provide a blanket approval for general share repurchases at the AGM, but rather interrogate the share repurchases actually executed by the board in the prior financial period before approving future share repurchases. Shareholders could also demand improved disclosure (in the integrated report) of the share repurchases actually executed; the reasons for engaging in such repurchases; and the effects that repurchases had on both the share price and EPS. Furthermore, corporate governance regulators (such as the King Report) could prescribe more comprehensive disclosure on the aforementioned.

On scrutinising executive share-based remuneration, it was noted that the value realised by executives from share-based remuneration was inadequately disclosed in annual financial statements of many South African listed companies. Should companies adhere more fastidiously to the requirements of King IV, more comprehensive and consistent information regarding the value of executive share-based remuneration will be provided in the remuneration reports of companies. However, it is critical that financial databases (such as IRESS and Bloomberg) then comprehensively collect data on the per executive value of executive share-based remuneration – which will allow future researchers to access comprehensive information on the value of executive share-based remuneration. The data capturing

problems, relating to executive share-based remuneration, identified during the present study should be considered by IRESS (and other financial database operators). Training opportunities should be offered to data capturers and enhanced quality control procedures should be implemented. Furthermore, it is advised that the Employment Equity Act be amended to include the value realised from share-based remuneration in the definition of the remuneration that needs to be reported by companies. This will enable regulators to more accurately calculate and monitor the wage gap between executives (who are often remunerated extensively using share-based remuneration) and other employees.

The remuneration committees of JSE-listed companies are charged with corporate governance relating to executive remuneration. Training should be provided to the non-executive directors who serve on remuneration committees to educate them regarding the risk that executives could be increasing the value of their own share-based remuneration through share repurchases. Such training will ensure that the non-executives are better equipped for their role. Also, the characteristics of executive share-based remuneration in South Africa, as described in the present study, should be considered by the remuneration committees of JSE-listed companies when formulating executive remuneration policies, and implementing these policies. Although the average vesting period employed is above the three-year minimum stipulated by King III, remuneration committees could employ staggered vesting over a longer period to foster a more long-term outlook. Remuneration committees should be wary of over-reliance on certain performance vesting conditions, such as share price, TSR and EPS, that could be manipulated by share repurchases. Furthermore, the use of non-financial performance conditions should be increased in the design of executive share-based remuneration schemes.

Business ethics educators and organisations promoting business ethics in South Africa should take note of the possibility that executives could increase the value of their share-based remuneration through share repurchase activity. The King Report should condemn such actions. Business ethics educators should include case studies relating to this phenomenon in their materials.

Finally, the present study showed that the FRM (and the Mundlak approach for panel data) is an appropriate regression technique when the dependent variable is naturally scaled as a percentage, and the data clusters at the zero point. As many accounting-related studies employ dependent variables that are naturally scaled as a percentage (and often skewed at the zero point), researchers should be educated about the FRM as it could be useful in future accounting-related research.

7.6 LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The results of the present study cannot be generalised to all companies on the JSE's Main Board, as companies in the Basic Materials and Financial industries were excluded from the research population. Also, only companies with a primary listing on the JSE were included in the present study, and thus the results are not indicative of companies with a secondary listing on the JSE. Furthermore, the results of the present study cannot be generalised to other countries, given the country-specific regulatory requirements applicable to share repurchases in South Africa. Future research could expand the present study to the Basic Materials and Financial industries, and other emerging economies.

The data employed in the present study were gathered from the disclosures in annual financial statements and the IRESS financial database. The completeness and reliability of the data collected on both share repurchases and share-based remuneration is thus impacted by the data source. Furthermore, the theoretical underpinning of the present study assumes that the identified share repurchase occurred before the exercise of the share-based instruments. However, date of the share repurchase and the exercise of the executive share-based remuneration could only be narrowed down to occurring in the same year, given the announcement rules relating to general repurchases and the inconsistent disclosures in annual financial statements pertaining to executive share-based remuneration. Thus, the assumption that the share repurchase preceded the exercise of executive share-based remuneration could not be verified. Future researchers could conduct a case study of a small number of companies (possibly the companies with the largest share repurchase value) and investigate the dates relating to share repurchases and the exercise of executive share-based remuneration in greater depth, possibly by using multiple data sources (including interview data).

There remains the possibility that outliers in the data might have influenced the results, although this did not seem to be the case in initial tests which excluded the companies with the largest share repurchase value and number of executive share-based instruments held at year end. Additionally, two possible omitted variables exist: institutional ownership and the number of shares issued to all employees during the year. These variables are not readily available from financial databases. Future researchers could collect these variables by hand, for the companies that disclose them in their annual financial statements, and then include the variables in the regressions executed in Chapter 6. This would allow a more accurate depiction of the relationship between share repurchases and executive share-based remuneration.

Given that a database on share repurchases was created during the present study, the relationship between share repurchases and a company's internal investment decisions (in capital assets and human resources) could be evaluated by future researchers. The database on executive share-based

remuneration could be employed, by future researchers, to study the effect of corporate governance on executive share-based remuneration in South Africa. Also, the database on executive share-based remuneration currently contains the 'gain on shares' value as extracted from IRESS. Future research could determine the actual value realised from executive share-based remuneration, based on disclosures in annual financial statements, and compare this value to the 'gain on shares' value as currently included in the database (as reported by IRESS).

7.7 CONCLUSION

Worldwide, the growth in share repurchase activity is being questioned – increasingly researchers are linking share repurchases to an attempt by executives to enrich themselves by enhancing the share price and EPS, thereby increasing the value they realise from share-based remuneration. In South Africa, the value that executives realise from share-based remuneration is poorly disclosed in the annual financial statements of listed companies and a considerable proportion of the share repurchases executed are not announced on SENS – which makes it difficult to ascertain whether such a link exists. With this as background it was deemed important that the relationship between share repurchases and executive share-based remuneration should be studied in South Africa.

The present study found a positive relationship between these two variables – indicating that executives could be abusing their power to execute share repurchases in an attempt to enrich themselves (rather than advancing the interests of shareholders and other stakeholders). It is recommended that the JSE require all share repurchases to be announced via SENS, and that shareholders become more active in monitoring the share repurchase activity of the companies in which they have invested.

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APPENDIX A: REGRESSION RESULTS OF MODELS EMPLOYED AS ROBUSTNESS CHECK

A1 Decision to repurchase: Linear probability model regressions

Independent / control variable	2002–2017 (1)		2006–2017 (2)		2006–2017, industry dummies (3)	
	Coef	Sig	Coef	Sig	Coef	Sig
X_Exercised	3.24	*	4.24	**	4.16	**
X_Closing	0.95		0.18		0.22	
X_TSREPS	0.04		0.01		0.02	
XL_Returnshare^	-0.03	**	-0.02		-0.02	
XL_Marketbook^	0.00		-0.00		-0.00	
X_Divyield^	0.01	**	0.01	**	0.01	**
XL_Lmarketcap	0.01		-0.01		-0.02	
X_Directshares	0.18	*	0.42	**	0.43	**
XL_Debtassets	-0.35	***	-0.44	***	-0.44	***
X_ROA	0.00		0.00		0.00	
X_Cash flow	0.31	***	0.17		0.16	
Constant	-0.12		-0.12		-0.37	
Company fixed effects	Yes, Mundlak		Yes, Mundlak		Yes, Mundlak	
Year dummies	Yes		Yes		Yes	
Industry dummies	No		No		Yes	
Robust standard error clustered by company	Yes		Yes		Yes	
Number of observations	2 077		1 411		1 411	
Chi-square / F-test	143.710		Not shown		140.973	
Prob > chi2 / F	0.000		Not shown		0.000	

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the decision to repurchase, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised. 'Coef' denotes the coefficient, while 'Sig' denotes the significance of coefficient.

**** p<0.01, ** p<0.05, * p<0.10*

A2 Repurchase value: Tobit regressions

Independent / control variable	2002–2017 (1)		2006–2017 (2)		2006–2017, industry dummies (3)	
	Coef	Sig	Coef	Sig	Coef	Sig
X_Exercised	1.01	**	0.75	**	0.75	**
X_Closing	0.38	**	0.00		0.01	
X_TSREPS	0.00		-0.00		-0.00	
XL_Returnshare^	-0.01	**	0.00		0.00	
XL_Marketbook^	0.00		-0.00	**	-0.00	**
X_Divyield^	0.00	**	0.00	**	0.00	**
XL_Lmarketcap	-0.02	*	-0.00		-0.00	
X_Directshares	-0.05	*	0.03		0.03	
XL_Debtassets	-0.12	***	-0.07	***	-0.07	***
X_ROA	0.00		0.00		0.00	
X_Cash flow	0.12	***	0.10	***	0.09	***
Constant	-0.22	***	-0.14	***	-0.17	***
Company fixed effects	Yes, Mundlak		Yes, Mundlak		Yes, Mundlak	
Year fixed effects	Yes		Yes		Yes	
Industry fixed effects	No		No		Yes	
Robust standard errors, clustered by company	Robust, not clustered by company		Robust, not clustered by company		Robust, not clustered by company	
Observations	2 077		1 411		1 411	
Wald chi / Chi-square	133.01		95.018		98.625	
Prob > chi2	0.00		0.00		0.00	

Note. All data were collected from IRESS and annual financial statements. The dependent variable is the rand value spent on share repurchases scaled by market capitalisation, while the independent variables of interest are the number of share-based instruments exercised scaled by number of shares outstanding (X_Exercised), the number of share-based instruments held by executives at year end scaled by the number of shares outstanding (X_Closing) and whether or not performance vesting conditions related to share price, TSR and/or EPS were applied (X_TSREPS). Control variables are described in Table 6.1, and ^ indicates that such control variables were winsorised. 'Coef' denotes the coefficient, while 'Sig' denotes the significance of coefficient.

**** p<0.01, ** p<0.05, * p<0.10*

APPENDIX B: ETHICAL CLEARANCE LETTER

PROJECT EXEMPT FROM ETHICS CLEARANCE

21 November 2017

Project number: USB-2017-1814

Project title: The relationship between share repurchases and share-based remuneration for executive directors of JSE-listed companies

Dear Mrs. Gretha Steenkamp

Your application received on 25/10/2017 11:13 was reviewed by the REC: Humanities.

You have confirmed in the proposal submitted for review that your project does not involve the participation of human participants or the use of their data. You also confirmed that you will collect data that is freely accessible in the public domain only.

The project is, therefore, exempt from ethics review and clearance. You may commence with research as set out in the submission to the Research Ethics Committee: Humanities.

If the research deviates from the application submitted for REC clearance, especially if there is an intention to involve human participants and/or the collection of data not in the public domain, the researcher must notify the DESC/FESC and REC of these changes well before data collection commences. In certain circumstances, a new application may be required for the project.

Please remember to use your **project number** (USB-2017-1814) on any documents or correspondence with the REC concerning your project.

Sincerely, Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)