UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

The management gap: Pooled resource governance and decision making within co-operative housing

A research project submitted

By

Abraham L. Krüger

447440

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirement for the degree

of

MASTERS OF BUSINESS ADMINISTRATION

14 January 2015

Abstract

The aim of the research is to find relationships that explain co-operative housing institutions through understanding the institution, management board and their decision making preferences. In the process of achieving the explanatory relationship, an analysis and overview of co-operative housing institutions is conducted with reference to the individual board member's understanding of the institution. Individuals are reviewed in context of their contractual relationship within the management structure using a principal-agent continuum conceptualized from agency theory. Individual board members are subsequently required to make a practical decision based on their now defined understanding of the co-operative institutional context. This decision records individuals' degree of self-interest behaviour as opposed to the institutional interest and individuals' responsibility of equitable distribution of common pooled resources. Significant relationships were found to explain the degree of self-interest portrayed by board members for the cooperative institution and a relationship construct was devised to illustrate the various aspects. Recommendations were made to reduce the degree of self-interest behaviour that board members portray in favour of behaviour that is within the best interest of the institution.

.

Keywords

Co-operative housing; institution; board; decision making; agent

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

A.L. Krüger

Date

Acknowledgements

To Charlene Lew for great guidance in directing my extensive and somewhat disjointed initial thoughts.

To my family and friends for their encouragement and patience.

Most importantly, to my wife Lauren, who enabled me in so many ways.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

CPR	Common Pool Resources
IAD	Institutional Analysis and Development Framework
PMA	Property Management Agent

1 Problem Definition

1.1 Research Title

The management gap: Pooled resource governance and decision making within co-operative housing.

1.2 Research Problem

From interviews with leading South African Property Management Agents (PMAs) it has been established that roughly 60,000 co-operative management institutions exist in South Africa (Schaefer, 2014); however, little is known about the management systems of these institutions. Through linear extrapolation these institutions manage assets to the value of R2,3 trillion. There does not seem to be a global colloquial term to describe the management structures that are referred to here. Depending on the legal incorporation of the managing entity, the leadership is referred to as the board of directors for a profit or non-profit organisation, or a board of trustees for a trust. These legal bodies in South Africa are inclusive of bodies corporate, home owners associations and share block companies (Schaefer, 2014).

Collective management of pooled resources is a common phenomenon, of which little is known, especially in the process of urban densification (Yau, 2011) where co-operative housing institutions become more prominent. Once homeowners become active in co-operative structures it is vital to understand the efficacy of these structures and how their internal management operates. Yau's concern lies predominantly at the people interaction level outside of the more formalised board of director (trust) structures. Homeowners become actively involved once their decision calculus has led to a positive utility function based on Yau's proposed collective interest model (CIM) grounded in the premise of self-serving behaviour. Research needs to be conducted on the way that these co-operatives are managed, their institutional structure (Ostrom, 2011), and how individual decision making preferences and appropriate methods of individual interaction control for improved performance. If the decision to be involved in co-operative management structures is dependant on the individual utility calculation, there is an apparent concern as to how utility is realised in an environment where there is little to no remuneration.

The frame of interest within which directors manage co-operative institutions is not incentivised. Homeowners are required to nominate individuals, who are also homeowners, to serve on the board of directors and manage the property on behalf of

the co-operative housing institution. The South African Companies Act 71 (2008) section 77(2)(a) states that directors and prescribed officers are liable for any loss, damage and cost incurred through personal negligence in the process of managing the legal entity, which in this case refers to the housing co-operative. In parallel, the South African Sectional Title Act (1986) states that directors cannot receive any remuneration for their role as a director within the housing co-operative unless agreed upon through a special vote, but this is seldom realised. This environment induces free-riding (Ostrom, 1999) within communities and through inference would encourage free-riding within the management structures were it not for utility received through self-interested behaviour. Minora, Mullins, & Jones (2013, p.35) states that free-riding in an urban context are "those who own a property and earn the land rent produced by the improvement and enhancement of value through the creation of services and infrastructures without paying anything". A question can therefore be proposed: How does the structure of the co-operative institution and the individuals managing these institutions ensure equitable resource distribution?

1.3 Research Aim

The aim of this research through a descriptive study is to better understand the factors affecting the way housing co-operatives are managed and how board members make individual decisions. Recommendations for improvement can only be made to housing co-operatives once the landscape is better understood. A snapshot view using a variety of analyses of the housing co-operative will be taken at various levels within the organisation. The following will be examined:

- Housing co-operative management structures within the larger industry to better understand the stakeholders.
- The director's individual decision making preferences in relationship to personal characteristics and his/her sentiment towards contractual interactions.
- Decision making from an individual perspective and how this relates to institutional structure.

Aspects of the housing co-operative will be evaluated through the use of well-developed theoretical frameworks to analyse the situation as well as the individual board member. These frameworks include agency theory (Eisenhardt, 1989) and the institutional analysis and development (IAD) framework (McGinnis, 2011a). The ability to describe a housing co-operative as indicated above would provide valid

insight when suggesting possible improvements that can increase the efficacy of co-operative management depending on the context within which it exists.

2 Theory and Literature Review

The broad framework of institutional analysis and development is used in the approach to fully understand the framework within which cooperative housing management structures exist (Ostrom, 2009). The framework is used as a skeleton to apply the applicable theories to each conceptual unit of thought; these include the design principles for successful governance of institutions as well as the propositions that are associated with agency theory imposed on a continuum. In this case, co-operative housing arrangements are viewed as institutions. McGinnis argued that "Institutions are human-constructed constraints or opportunities within which individual choices take place and which shape the consequences of their choices" (McGinnis, 2011, p.170).

2.1 The Institution

In order to fully understand any institution, it is imperative to deconstruct it into its various elements, which are combined into a framework to illustrate the logical relationships (McGinnis, 2011a) between these elements. The referenced institutions in this case are inclusive of bodies corporate, homeowners associations and share block companies.

E. Ostrom's institutional analysis and development (IAD) framework provides a backdrop to evaluate the housing cooperative management structures (Ostrom, 2011). As frameworks are one of the most general means of identifying elements within a given context, so is the IAD framework a general means of reviewing elements and their relationships with each other for institutions such as that of housing co-operatives. The application and review of the framework will be limited to the context of the subject at hand: an analysis of the institution, as explained in the diagram below.

2.1.1 Broad IAD framework

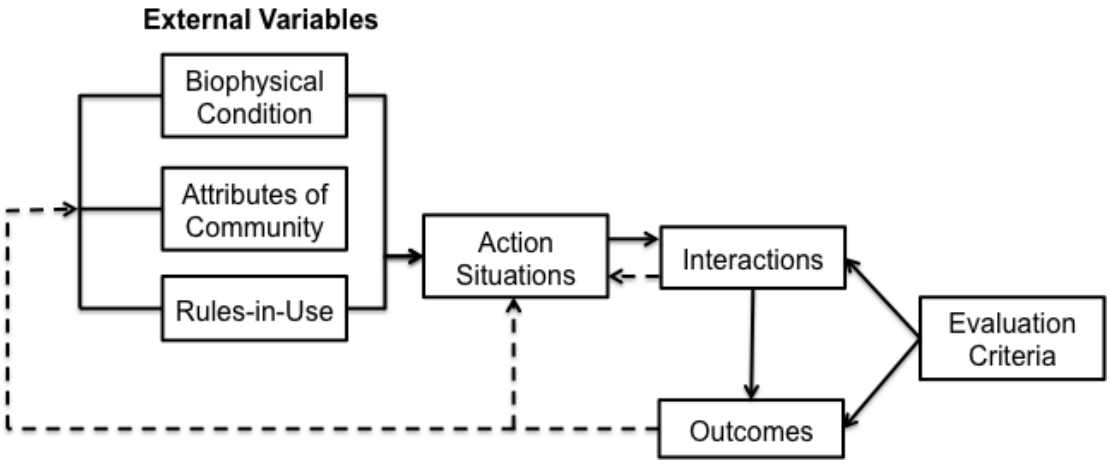

Figure 2-1: Institutional analysis and development framework adapted (Ostrom, 2011, p.10)

Figure 2-1 illustrates the elements forming part of the IAD framework, complete with the directional relationships. These key elements are described as follows:

1. External variables that serve as an input variable that attempt to describe the full contexts of a situation constructed from, but not limited to, political, economic, social, technological, cultural, legal and environmental aspects. All descriptors can be categorised within either one of the three external variables.
    a. Biophysical Condition (alternatively, Nature of Resource),
    b. Attributes of the Community,
    c. Rules-in-Use.
2. Action situation: Refers to the various actors, positions that actors occupy as board members, decisions that they make, information that they have, control they exert, outcomes they achieve and benefits that they receive.
3. Outcomes: A result of the outputs from the action situation through various interactions.
4. Feedback based on evaluation criteria developed for a specific context.

2.1.2 External Variables

2.1.2.1 The Biophysical Condition

The biophysical condition is used specifically with reference to the nature of the resource. The resource in this case is defined as property managed through a formal co-operative institution. Housing co-operatives are defined here as a common pool resources (CPR) type of good with high subtractability, as well as a high degree of

difficulty in excluding the beneficiary of the resource. The defining characteristics of co-operative institution are reiterated by McGinnis (2011) based on the original IAD framework put forward by Ostrom (1990) best illustrated in Table 2-1. Subtractability relates to the idea that the utilisation of a resource by one user reduces the utility of that resource for another user. The attribution of housing co-operatives to the common pool resource type of good is reiterated by Minora et al. (2013) stating that "most public assets in an urban context can be considered to be common pool resources: stairs, pavements, roads, and traffic management".

Table 2-1: Characteristics and Four Types of Goods (Ostrom, 2010)

		Subtractability of Use	
		High	Low
Difficulty of Excluding Potential Beneficiaries	High	Common pool resources: groundwater basins, lakes, irrigation systems, fisheries, forests, etc.	Public goods: peace and security of a community, national defence, knowledge, fire protection, weather forecasts, etc.
	Low	Private goods: food, clothing, automobiles, etc.	Toll goods: theatres, private clubs, day-care centres

2.1.2.2 Attributes of the Community

The attributes of the community as an external factor relates to the social and cultural context within which the action situation exists (McGinnis, 2011) and consists of various attributes used to describe the community. Attributes of the community are juxtaposed with the biophysical condition, or now more aptly defined as the co-operative housing institution or common pooled resource. Attributes include trust, reciprocity, common understanding, social capital and cultural repertoire. For the purpose of this discussion, these attributes can be defined as the norms of a community used in the process of deliberation and implementation. Rewording the juxtaposition yields the following inference: norms govern the importance that individuals within the co-operative community place on aspects used to describe the institution.

2.1.2.3 Rules-in-Use

The rules-in-use element within the IAD framework denotes aspects that relate directly to the governance of the institution, be it property rights or formal rules.

2.1.3 Action Situation

For each action situation there are associated inputs and outputs as illustrated in Figure 2-1. According to Ostrom (1990), it is crucial to identify each action situation and

for review purposes progress outwardly in the description of the inputs and outputs. Reference is made to actors (players within the institutional game), the position that they hold and the rules that govern their decisions or availability of decisions. A simplified version of the action situation can be seen in Figure 2-2. Only three of the working components of the action situation are included in the diagram, which are: actors, positions and actions. When considering all the working components, it is contextualised in a narrative stating that *Actors* in a *Position* must *Act* given the *Information* at hand which is *Linked* to *Outcomes* that are assigned *Costs and Benefits* (McGinnis, 2011).

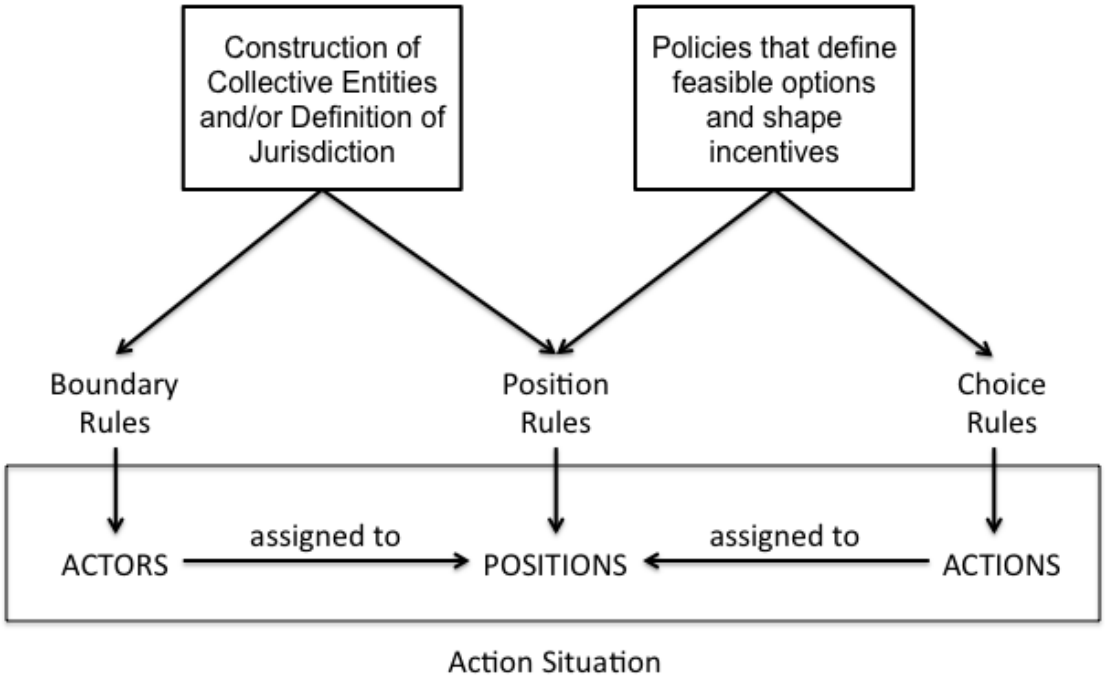

Figure 2-2: Action Situation Adapted (McGinnis, 2011; Ostrom, 2011).

The working components of the action situation are directly influenced by the rules, which in turn influence the output of adjacent action situations (McGinnis, 2011b). Michael McGinnis (2011) provides examples of the adjacent action situations which lead to the creation of the rules that affect the given action situation. This ties in with Yau's (2011) suggestion to further investigate the governance structures of co-operative housing arrangements, as rules influence the process of collective management.

For the purpose of this study it can be considered that the action situation would be the decision making process of a single board member serving on a board of directors within a housing co-operative institution management structure. Ostrom (1990)refers to the action situation as a conceptual unit forming part of the larger problem, i.e.

problems with the larger institution. A clear distinction needs to be made here between outcomes generated within the action and outcomes generated as a result of the action situation. An individual's action situation arrives at some outcome given the interaction of the remainder of the working components within the action situations. Actions within the action situations result in an outcome for the broader institution as indicated in Figure 2-1.

The actor in this instance, defined as the individual board member that exists within the action situation, should be defined according to four variables (Ostrom, 2011):

1. The available resources that the board member brings to the table.
2. The valuation that the board member assigns to states of the world and actions.
3. The way that board members acquire, process, retain and use knowledge contingencies and information.
4. The processes board members use for the selection of a particular course of action.

Actors within action situations, through interaction, arrive at outcomes which provide feedback as an input to the community attributes and rules-in-use. It is worth noting that the community attributes throughout this process remain in congruence with the rules-in-use as derived by the actors. The prerequisite for effective governance is heavily rule-based and rules are dependent on actions taken by the actors within the given rule framework. A question arises about the efficacy of actors and their willingness to contribute to the system as a whole. Ernesto Reuben (2013) attempts to answer the efficacy question through his publication of the enforcement of contribution norms in public good games with heterogeneous populations. Reuben's (2013) results indicate that in the absence of a punishment aspect to institutional rules, all groups converge toward free-riding, equivalent to a known period game where actors/players/board members converge to a prisoner's dilemma or lose-lose situation. This again validates the importance of rules and the enforcement thereof to maximise overall utility and prevent a downward convergent utility spiral. The action situation of the IAD framework will be described through the well-developed principal-agent analogy. This analogy should also shed light on current institutional structures.

2.2 The Commons – A Practical View

The reason for discussing the concept of a common pooled resource is that it serves as a mandate with which leadership activity could be measured. If there is a lack of understanding of typical problems associated with the management of common pooled

resources, then a board of directors in charge of such a co-operative housing institution would not be familiar with current thought to optimize utility for the co-operative institution (institutional interest). The sole purpose of a housing co-operative is to ensure the habitability of the resource (Minora et al, 2013). Minora et al. (2013) define habitability as the capacity of a collective to influence the co-operative housing arrangement to settle in a given context with the means and motivation to manage their local environment irrespective of social and economic instability through the regeneration of resource value.

2.2.1 Definition of a Common Pool Resource

Resources in turn can be defined as all common property included in the scope of the housing co-operative that provides value to the co-operative stakeholders. The intention of the common pool resource term had its origins as a natural resource (Ostrom, 1999) which included forestry, fisheries and the atmosphere. Ostrom furthered the definition to include man-made resources where the use of the resource cannot be restricted after initial endowment. These resources may include roads, electricity and data connections, sewerage systems, parks, clubhouses and parking. Common pooled resources are listed as tangible resources with easily defined value propositions. Resources are, however, not only limited to the tangible utilities but also intangible services inclusive of, but not limited to, security, reporting systems, correct billing procedures and the degree of customer service. Reference should, however, not be made to the resource that is managed but the value that it provides, as value can be included in an individual's decision calculus (Yau, 2011). Habitability can therefore be related to the efficacy of the management team, how they exert their influence and make decisions amidst the various stakeholders.

2.2.2 Institutional Design Principles

Ultimately this paper will progress to an analysis of interactions within the co-operative management structures. It is important to understand the catalyst for the various discussions around the management of common pooled resources i.e. co-operative housing with shared common spaces utilised by players/owners/tenants within the created institution. The catalyst conversation originated with Garret Hardin's publication of the "Tragedy of the Commons" (1968). Hardin's tragedy was that, in an attempt to maximise personal utility in the absence of knowledge of what others are doing, all actions ultimately lead to ruin. This is clearly illustrated as a prisoner's dilemma in rebuttals (Ostrom, 1999), a lose-lose situation between parties, and clarifies the assumptions upon which Hardin's publication is based. These assumptions are

summarised here as a state in which there is no communication between players, no rules within which players operate and that there is no institutional direction provided for the effective appropriation of resources.

Ostrom initially identified eight design principles necessary for sustainable management of common pooled resources, defined here as share block companies, bodies corporate or homeowners associations (Ostrom, 1990). Minora, Mullins and Jones (2013) echoed these design principles in a journal article concerned with the governance for habitability:

1. Well-defined boundaries: This is in reference to physical and intangible boundaries of the housing co-operative that provide the sense of inclusion to the members of the co-operative through exclusion of others.

2. Congruence between rules and milieu: This allows for effective management of stakeholder expectations.

3. Individual players are active participants in the creation of rules to further transparency and inclusion.

4. Others accept created rules (not governed by these rules): Rules and structures exist within a local legal framework and need to adhere to the minimum prescribed legislation as determined by the registered legal entity.

5. Ability to monitor adherence to rules.

6. A system to reward or penalise.

7. Accessibility to systems of conflict resolution.

8. The system nests adequately within larger systems where they are present: Congruence between the housing co-operative and external entities is required for effective economic and social integration.

Common pooled resources governed by the co-operative institution refer to housing where the utility of individual players have ambiguous externalities outside the individual actor or player's control (Mändle, 2013). This is by definition the nature of co-operative housing scenarios where players affect each other, where some of the relationships are understood and predicted and others are not. The design principles for sustainable management attempt to create a framework within which effective governance can be accomplished. Minora et al. (2013, p.33) state that "habitability is

considered as a set of rules, social characteristics and conditions through which institutions define rights over resources between users (inhabitants) and as a set of opportunities those inhabitants and their organisations use to achieve them." Governance and habitability are dependent on the effective appropriation of resources.

2.2.3 Practical Effect – Institutional Design Principles

Through a review of the broad IAD framework as outlined in Figure 2-1, it is clear that the biophysical world, which in this instance consists of the defined co-operative institution managing a common pooled resource, is related to the outcomes of the institution as well as the outcomes of individual actors forming part of the action situation. Chapter 2.1.3 states that the community norms govern the importance that individuals, within the co-operative community, place on aspects used to describe the institution. These aspects for a common pooled resource are viewed as the design principles for sustainable management, which in turn are used to describe the level of understanding of the co-operative management institution, which results in the various outcomes for individuals and the institution as a whole.

2.3 The Agent Approach to Interactions

McGinnis (2011, p.173) states that the "action situation is the core component of the IAD Framework, in which individuals (acting on their own or as agents of organizations) observe information, select actions, engage in patterns of interaction, and realise outcomes from their interaction." The primary concern for this study remains with the individual board member or the participant in the management of co-operative housing institutions. Eisenhardt (1989) describes agency theory within the realm of relationships, where principals and the agents of the organisation are involved in co-operative behaviour with different goals and attitudes with regards to risk. Agency theory addresses the interaction conceptual unit within the IAD framework as discussed in Chapter 2.1.1.

2.3.1 Board Member as Agent

The question that is raised is how do the principal and the agent relate to the co-operative housing management structure? The board of directors are appointed as agents to represent the shareholders who are the principals in monitoring the entity management (Lan & Heracleous, 2010). The term shareholders, in the case of a co-operative housing institution, refers to property owners where the property is included within the defined boundaries of the co-operative (Minora et al., 2013). This would place the title of principal on the homeowners and by default define the board as an

agent required to interface with management illustrated as the level 1 relationship in Figure 2-3. In the case of co-operative housing in South Africa, board members or trustees are selected from the greater pool of owners. A second level of principal agent relationship exists within the context of co-operative housing management. The board of directors as representatives of the homeowners (shareholders) fill the principal role; appropriate caretakers or maintenance staff are appointed as agents that serve the operational needs of the board of directors.

Corporate law tends to give ultimate power to the board of directors as opposed to the shareholders that they represent (Lan & Heracleous, 2010). This power can be attributed to the dual role (Caers et al., 2006, p.42) of principal-agent within the close-knit structure of co-operative housing management. The board of directors in many cases are principal actors responsible for the action of the subordinate agent and are beneficiaries of the outcome. In reference to Figure 2-1, each action situation has an iterative interaction process leading to a defined outcome. For the purpose of this research it is proposed that interactions occur at level one and two as indicated in Figure 2-3. Both levels of interaction result in a formal outcome irrespective of the uncertainty related to the preference that individuals show towards level 1 or level 2 interactions.

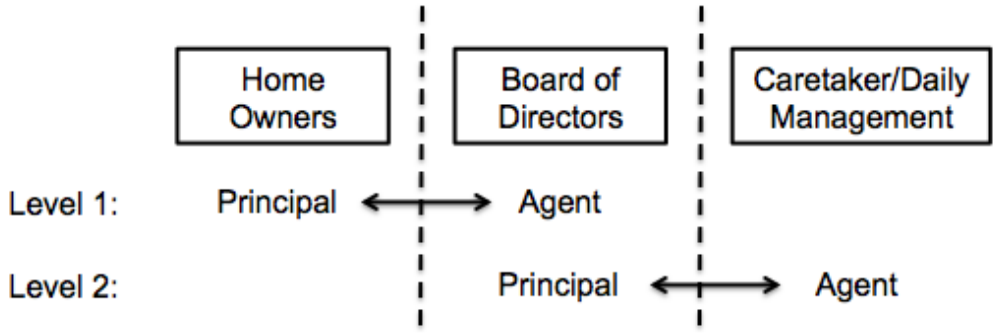

Figure 2-3: Management Centres (Author's Own)

This structure may lead to questions of accountability and governance within the board of director structure and has been addressed by Roberts, McNulty and Stiles (2005). They discuss the mechanisms of monitoring or control within the context of agency theory and the manipulation of rewards and sanctions to influence the individual's utility calculation. Hermalin and Weisbach (2003) stated that characteristics of the board have not yet been connected in any causal way to the institution's performance. Characteristics as referenced here can be related to the attributes of the community forming part of the IAD framework sketched out in Figure 2-1. This, however, does not detract from the idea that the way an individual perceives his/her position within the

institution as a principal or agent could influence the way that utility is derived for the individual or institution. All preferences regarding the board's decisions should be benchmarked and recorded with the degree of preference of an individual to act either as a principal or agent. As Yau (2011) stated, individuals are only involved in the co-operative management structure based on a positive utility function. Given the agency assumption that self-interest is the only motivator, individuals will occupy the role of an actor, either principal or agent, which will maximise their utility (Kluvers & Tippett, 2011).

2.3.1.1 Communication

Feedback from the level one agent to the homeowners generally mimics that of listed institutions with financial statements and an agreed upon annual general meeting. Feedback from the level two agents to the principal differs between institutions. According to Davis, Schoorman and Donaldson (1997), feedback is critical for attaining a psychological state of the individual where they experience meaningfulness of work, responsibility for the outcomes and obtain knowledge of actual results. The necessity for feedback in the IAD framework cannot be negated as it serves as a method of input to the external variables.

2.4 A Continuum View of Agent Interaction

Agency theory, the IAD framework and the eight design principles can be viewed from an interaction control perspective where the unit of analysis is the contract governing the interactions. Agency theory is primarily concerned with the contingent control between the principal and agent actors (Eisenhardt, 1989).

The action situations and the models used to analyse these situations ultimately describe requirements needed for control. Control within each action situation is exerted to maximise the utility of the individual or all other stakeholders. Control is used to manage the interface between principal and agent in the form of a psychological contract that is either behaviour-orientated or outcome-orientated. Caers et al. (2006) suggested that the behavioural and outcome-orientation of the principal-agent relationship could be defined on a continuum.

2.4.1 Continuum Construction

Agency theory was developed along two streams, the positivist stream and the principal-agent stream. Eisenhardt (1989, p.59) described positivist research and stated that it "focuses on identifying situations in which the principal and the agent are likely to have conflicting goals and then describing the governance mechanism that

limits the agent's self-serving behaviour". This study is, however, not concerned with describing the governance mechanism and is only concerned with how individual board members view the institution as defined by the eight design principles, their position within the institution and the contractual relationship that best describes their interactions. It is proposed that these concepts relate to the degree of self-interested behaviour that individuals portray. Eisenhardt (1989) goes further in defining the two extremes of the principal-agent continuum and the type of contractual relationship that exists between principal and agent:

1. Outcome orientated: Agents are likely to behave in the interest of the principal if the outcomes of both individuals are aligned, thus maximising the utility for both the principal and the agent.
2. Behavioural orientated: Refers to the ability that the principal has to verify agent behaviour through the availability of information that would encourage the agent to act on behalf of the principal.

The second stream is defined as principal-agent research, referred to here as the variables of the principal-agent continuum throughout this study. As stated above (Caers et al., 2006), reference is made to a continuum used to describe the degree of principal-agent goal conflict. Goal conflict is but one aspect used to describe the contractual principal-agent relationship. Many principal-agent studies have been done that support the propositions set out by Eisenhardt (1989). These propositions are summarised in Figure 2-4 on a continuum with behaviour-orientation towards the left and outcome-orientation towards the right. Figure 2-4 also indicates the variables used to determine the most appropriate principal-agent contract. There are a few basic assumptions that govern analysis through agency theory, which are worth mentioning at this stage: it is assumed that individuals are self-interested, bounded rational and risk averse. Research has also suggested the position of stewardship theory lies towards the far left on the agency continuum (Caers et al., 2006) where principal-agent goal conflict is negligible. Stewardship theory assumes (Caers et al., 2006) a complete alignment of the principal-agent goals, reducing relational conflict. Alternatively it states that irrespective of the agent's self-interest, the agent will attempt to maximise the utility of the principal.

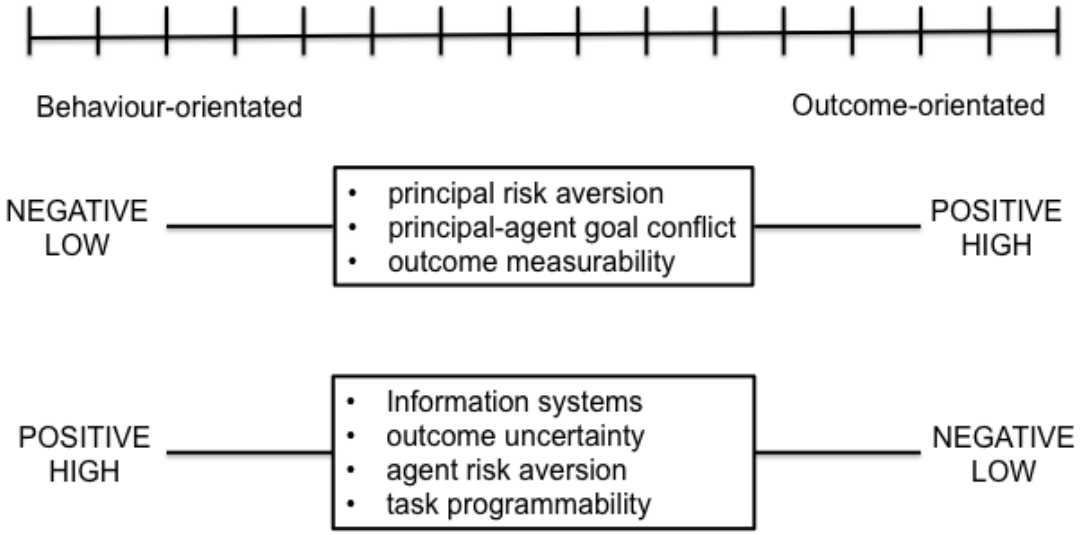

Figure 2-4: Adapted Principal-Agent Relationship Orientation (Eisenhardt, 1989, p.60), (Caers et al., 2006, p.29)

To achieve a uniform scale, the propositions made within agency theory are rewritten to orientate positive relationships with outcome-orientated interactions between the principal and the agent. As seen in Figure 2-5, the principal-agent continuum with seven variables describes the type of contractual relationship that exists between the principal and the agent.

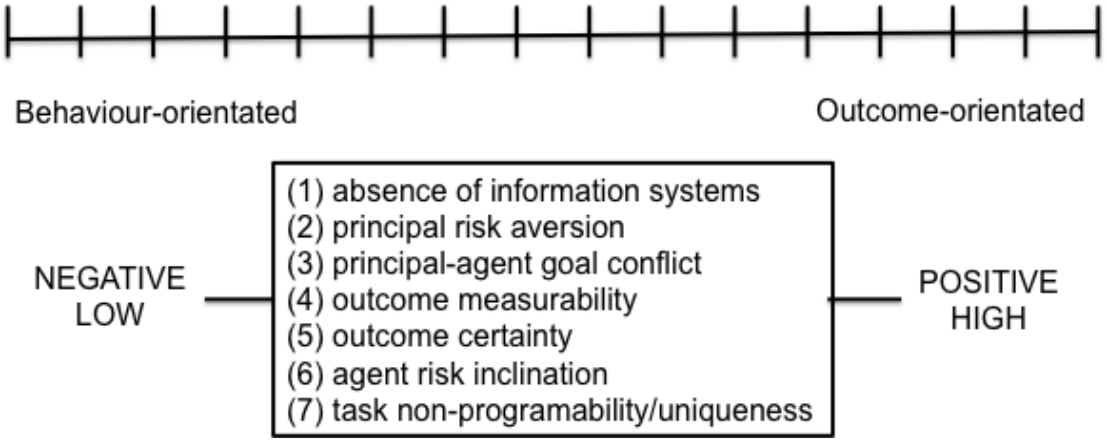

Figure 2-5: Principal-Agent Continuum (Author's Own)

Goal conflict and information asymmetry are the two main descriptors of principal-agent interaction. Caers et al. (2006) focus on the goal-conflict that relates primarily to the actor interactions amongst themselves but speaks less to the institutional structure. It is true that the institutional structure can affect the goal conflict, but information

systems provide a more direct description to rule and milieu congruence as defined in the eight design principles for co-operative management of common pool resources.

2.4.2 Continuum Explained

An example is provided here illustrating the appropriate way to interpret Figure 2-5: if individual board members are convinced that the absence of information systems is highly important (i.e. that it is not important to have information systems) it can be inferred that the contractual relationship between the principal and the agent that best suits this situation is highly outcome-orientated. Another example is if there is low principal risk aversion, there is a negative relationship with behavioural-orientated contracts making behavioural type contracts more acceptable than outcome based contracts. This example can be practically explained by stating that the principals accept the risk and are therefore content to monitor the behaviour of the agent as opposed to contractually keep the agent to a final deliverable. Monitoring agent behaviour can lead to the desired outcome, but it is not guaranteed.

Focus is placed on the magnitude and orientation of these variables as opposed to their existence. Individual board members are evaluated on the importance that they place on the variables describing the principal-agent continuum. An empirical study resulting in a positive outcome tested whether individuals under agency control invested more in alternatives to maximise organisational utility when compared to those individuals under stewardship control (Tosi & Brownlee, 2003). As stewardship control is located to the left of the continuum, within the sphere of behaviour-orientated contracts, the same could be said for low values on the principal-agent continuum. Rephrasing Tosi and Brownlee for this context states that high values on the principal-agent continuum would result in maximising the institutional utility. This is as a result of the alignment of the institutional and individual interest.

Tosi and Brownlee (2003) discussed the contradictory views of agency theory and reinforced the requirements for a well-developed level of control for people to act in the best interest of the organisation. Similarly, stewardship theory states that people will act in the best interest of the organisation without the rigorous controls required from agency theory. Viewing these concepts through a continuum integrates the theories and provides a basis for analysis and discussion.

2.5 Outcomes - Self-interest Behaviour

With reference to the IAD framework as outlined in Figure 2-2, it is necessary to consider the outcomes of the action situation given that the outcome for both the individual and the institution may differ based on the decisions of individual board members. Miller and Sardias (2011) believed that previous statements calling for the alignment of interest between principals and agents were incomplete. What they proposed is that principals or agents who have a long-term organisational interest in mind need to be incentivised and empowered to achieve said organisational interest.

Boivie, Lange, McDonald and Westphal (2011, p.551) summarised the actions of managers leading outcomes-based on individual self-interest behaviour: "one of the premises of the agency theoretic perspective on firms is that there is an 'agency problem in corporate control,' meaning that managers are inherently self-interested actors and therefore are predisposed to use their control of corporate policy to pursue personal goals". It concludes with a statement that management identification with the institution reduces cost to the firm as interests of both the institution and the individual are aligned for maximum utility. When relating this to the IAD framework, it can be stated that board members' understanding of the institution, as described by the design principles of common pool resources, and the individual awareness of their own contractual relationships, as described through the seven continuum variables, can be related to a practical display of self-interested behaviour where individuals pursue their own goals. Individual utility maximisation can occur when the individual board member's self-interest is aligned or not aligned with that of the institution.

Roberts, McNulty and Stiles (2005) are concerned with the manipulation of rewards and sanctions to influence the individual's utility calculation. A starting point is the analysis of the individual board member's understanding of the co-operative housing institution management to determine the types of relationships that exist and whether they can explain outcomes seen in practice.

2.6 The Conclusive Construct

A final construct is developed to illustrate the relationships using the IAD framework as a backdrop. Individual board member's understanding of, or their norms associated with the eight design principles, are used as an external variable in reference to the discussion of Chapter 2.2. These external variables in turn influence the action situation. The action situation contains the individual board member as actor that assumes a specific position which is investigated. Situations are described by the

contractual relationship that governs interactions associated with management decisions. Lastly, outcomes of management decisions are evaluated on the basis of the degree of self-interest behaviour that the individual board member portrays resulting in utility maximisation for either the institution or the individual, or both.

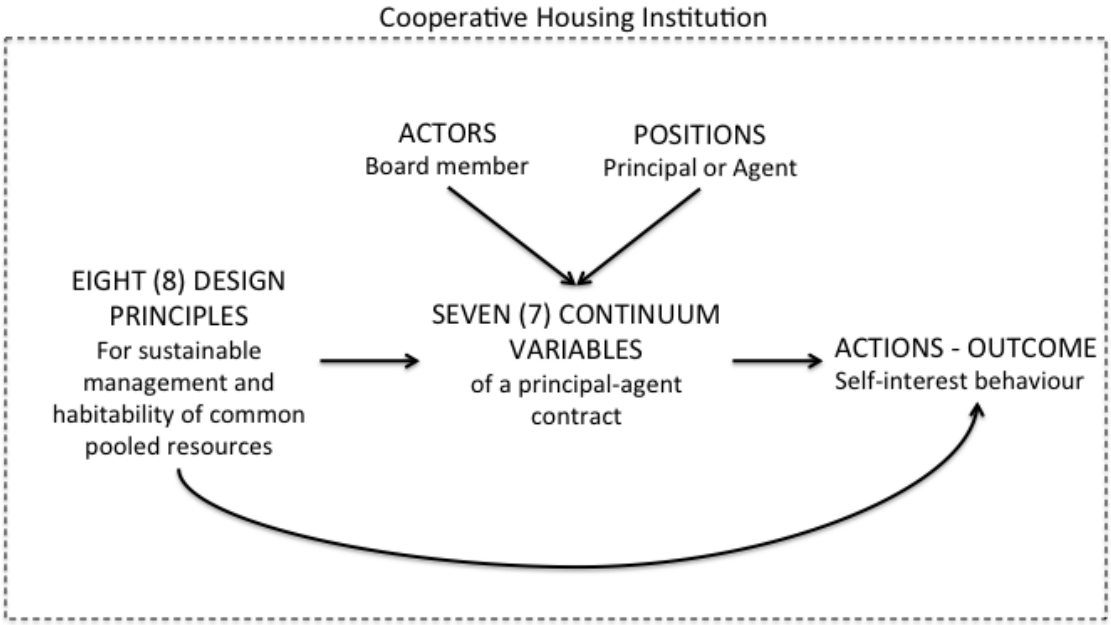

Figure 2-6: Co-operative Housing Relationship Construct (Author's Own)

Relationships within Figure 2-5 between the elements are illustrated using arrows. The purpose of this study is to review these relationships and determine the explanatory relationship that exists between the various elements of the co-operative housing construct. As stated in Chapter 1, there is certainty that co-operative housing management institutions comprise a large economic force that is largely unconsidered and fragmented. With an estimated 60,000 co-operative management institutions in South Africa in charge of assets to the value of approximately R2,3 trillion (Schaefer, 2014) there exists a clear need for a descriptive study. Ultimately a better understanding should be developed of the institution and perceptions of the institutions by the individual board members governing these co-operative housing institutions and the common pooled resources.

3 Research Questions

The listed research questions are formulated to enhance insight and provide a standard way of viewing the board of director milieu, characteristics and interactions with the given literature review as backdrop. However, the management question defined earlier claims a limited understanding of the co-operative management environment. Descriptive research questions are the most appropriate vehicle to effectively identify data relationships with the aim of making recommendations for improved co-operative management (Cooper & Schindler, 2014).

3.1 Research Question 1 and Hypothesis

Given the dual role of the co-operative housing directors as principal and agent, does a preference exist for individuals to operate within either position of the action situation? There are four relationships used to describe the functioning of bodies corporate management structures, two of these have a direct implication on the role that the board member plays:

3.1.1 Hypothesis 1

H_0: $\mu_{S4\text{-}1} - \mu_{S4\text{-}4} \leq 0$

Board members view themselves a principals with property owners responsible directly to them.

H_1: $\mu_{S4\text{-}1} - \mu_{S4\text{-}4} > 0$

Board members view themselves as agents acting on behalf of all property owners and are directly responsible to them.

3.2 Research Question 2 and Hypothesis

What is the relationship between board member understanding of co-operative housing institutions according to the eight design principles for sustainable management and the individual's positioning on the principal-agent continuum? Chapter 2.2.2 and Figure 2-5 makes reference to the eight design principles and variables of the continuum respectively.

3.2.1 Hypothesis 2

The sample mean of the variables used to describe the principal-agent continuum is used as the dependent variable.

H_0: $\beta_{S3\text{-}1,2} \vee \beta_{S3\text{-}3} \vee \beta_{S3\text{-}4} \vee \beta_{S3\text{-}5} \vee \beta_{S3\text{-}6} \vee \beta_{S3\text{-}7} \vee \beta_{S3\text{-}8} \vee \beta_{S3\text{-}9} = 0$

There are no significant institutional design principles describing board members' mean position on the principal-agent continuum.

H_1: $\beta_{S3\text{-}1,2} \vee \beta_{S3\text{-}3} \vee \beta_{S3\text{-}4} \vee \beta_{S3\text{-}5} \vee \beta_{S3\text{-}6} \vee \beta_{S3\text{-}7} \vee \beta_{S3\text{-}8} \vee \beta_{S3\text{-}9} \neq 0$

There are some significant institutional design principles describing board members' mean position on the principal-agent continuum.

3.3 Research Question 3 and Hypothesis

Are the variables used to describe an individual's position on the principal-agent continuum related to the way that practical decisions are made? A preference for outcome orientated contractual behaviour is positioned at one end of the continuum with behavioural orientated contracts at the other.

3.3.1 Hypothesis 3

The answers to a practical vignette are used as the dependent variable:

H_0: $\beta_{S5\text{-}1} \vee \beta_{S5\text{-}2} \vee \beta_{S5\text{-}3} \vee \beta_{S5\text{-}4} \vee \beta_{S5\text{-}5} \vee \beta_{S5\text{-}6} \vee \beta_{S5\text{-}7} = 0$

There are no significant principal-agent continuum variables that describe a board member's self-interest behaviour. Self-interest behaviour is defined in terms of the practical vignette.

H_1: $\beta_{S5\text{-}1} \vee \beta_{S5\text{-}2} \vee \beta_{S5\text{-}3} \vee \beta_{S5\text{-}4} \vee \beta_{S5\text{-}5} \vee \beta_{S5\text{-}6} \vee \beta_{S5\text{-}7} \neq 0$

There are some significant principal-agent continuum variables that describe the answer to the practical vignette measuring self-interest behaviour.

3.3.2 Sub-hypothesis

H_0: $\mu_{B1} = \mu_{B2} = \mu_{B3} = \mu_{B4} = \mu_{B5}$

The mean answer to the practical vignettes is independent of the specific question and can be viewed as a single larger sample.

H_1: At least one vignette μ differs from the others

3.4 Research Question 4 and Hypothesis

Is there a relationship between the eight design principles for institutions and the way that people make practical decisions?

3.4.1 Hypothesis

The answers to a practical vignette are used as the dependent variable. The analysis is also dependent on the solution to sub-hypothesis as stated in section 3.3.2.

H_0: $\beta_{S3\text{-}1,2} \vee \beta_{S3\text{-}3} \vee \beta_{S3\text{-}4} \vee \beta_{S3\text{-}5} \vee \beta_{S3\text{-}6} \vee \beta_{S3\text{-}7} \vee \beta_{S3\text{-}8} \vee \beta_{S3\text{-}9} = 0$

There are no significant institutional design principles that explain the way that board members make practical decisions.

H_1: $\beta_{S3\text{-}1,2} \vee \beta_{S3\text{-}3} \vee \beta_{S3\text{-}4} \vee \beta_{S3\text{-}5} \vee \beta_{S3\text{-}6} \vee \beta_{S3\text{-}7} \vee \beta_{S3\text{-}8} \vee \beta_{S3\text{-}9} \neq 0$

There are some significant institutional design principles that explain the way that board members make practical decisions.

3.5 Representation of Hypothesis on Construct

Figure 3-1 provides a visual reference for clarity regarding the co-operative housing construct as developed within the literature review. As stated within the literature review, concern lies with the relationships between the various elements within the construct.

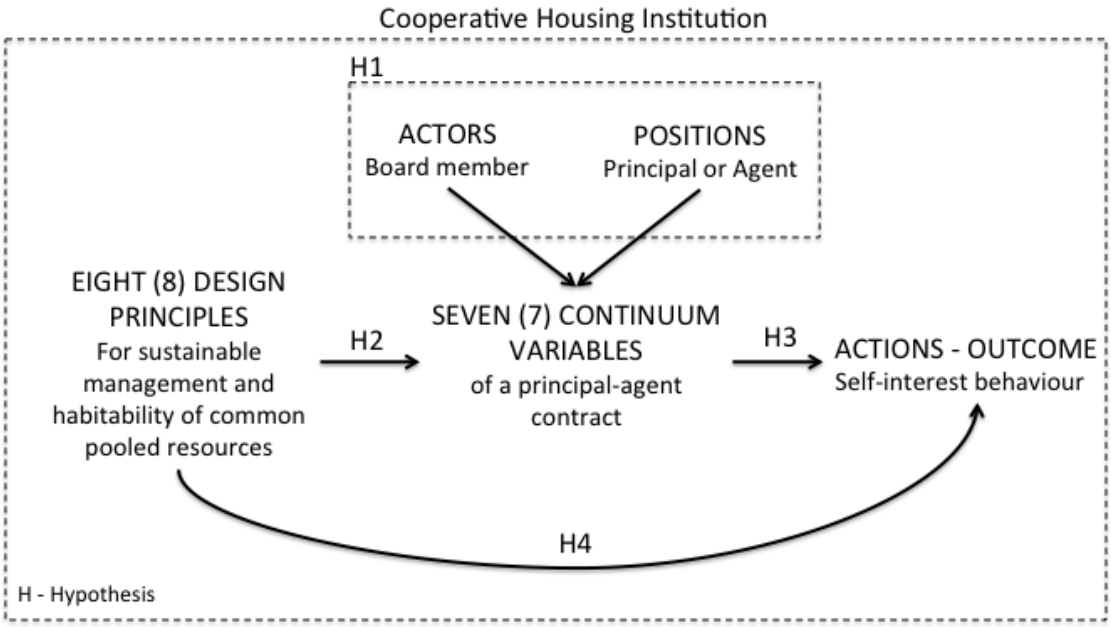

Figure 3-1: Visual Hypothesis Representation (Author's Own)

4 Research Methodology

4.1 Research Design

The various aspects considered with the research design included the data collection design and sampling design which fed into the instrument development (Cooper & Schindler, 2014). These aspects are discussed on an individual basis.

A sequenced schedule of research activities is provided to better illustrate the design process which was followed:

1. Literature review.
2. Research instrument development (Survey).
3. Pre-test of research instrument (Survey).
4. Incorporation of results from pre-test into a revised research instrument.
5. Research instrument distribution.
6. Data analysis.

The formality of the research questions is such that a *formal* study is in order; however, the population demographics will provide evidence for an exploratory analysis. Data collection for the study would be through a *communication study* that elicits participant responses through the use of an impersonally distributed research instrument (survey). As part of the communication study it is prudent to note that the instrument contained an *experimental* treatment component to illicit a response for an everyday practical situation; this will be discussed with regards to the instrument design.

The purpose of the study is threefold and aligns to the proposed research questions. Firstly, the underlying basis for testing the population sample was to *report* on previously unknown information relating to the individual's perceived identity as principal or agent, co-operative management institutions, the individual's self-interest and the way that this was practically realised. Secondly, the study was concerned with *describing the degree* to which variables were perceived to be of importance for the directors managing share block companies, bodies corporate or homeowners associations (Cooper & Schindler, 2014). Lastly, explanatory relationships between the various sub-theories were evaluated to understand the contribution of underlying institutional and behavioural frameworks to the practical decision making preferences. A summarised way of viewing the study is as correlational; a subset of a descriptive. This study identifies associations amongst variables, through regression, perceived to describe the given context of co-operative housing and participants, in this case being

individual board members. The nature of the study is purely *cross-sectional*, completely neglecting the time dimension as it is too complex to measure the evolution of the co-operative housing institution (Ostrom, 2000) in the allotted timeframe.

A broad *statistical study* as opposed to a case study was used as it offered the most appropriate means through inference to describe the population (Cooper & Schindler, 2014). The research environment was that of the participants' everyday environment. Normal routines were disrupted through the introduction of the research instrument that was distributed through indirect means; response was subject to the individual's decision to participate and they were *acutely aware* of their active participation in a research study.

The final reason for the specific choice of study design was that the researcher continued to be active on co-operative housing boards. Varying opinions exist about the management institution but as of yet there is little accumulated inferential data about the co-operative housing managing board populations. The proposed research design would provide inferential data about the population that could inform future decision processes. Depending on the results obtained from the study, this process would provide data for well-informed management decisions (Cooper & Schindler, 2014).

4.2 Scope

This research, through a descriptive and inferential study, was aimed at better understanding significant factors affecting the way housing co-operatives are managed. Recommendations for improvement could only be made to housing co-operatives once the landscape was better understood. The scope dealt with the institutional context within which the co-operative management structure existed as described by the institutional analysis and development (IAD) framework, the design principles required for effective institutional management and the application of agency theory to review individual's self-interest in decision making within the co-operative management board. The decision making occurred within in the action situation and therefore the views of the individual actor (board member) were analysed as a representation of board of director management.

4.3 Universe

As mentioned in the literature review, research has been conducted on the individual's utility calculation to become involved in co-operative management institutions. The co-operative institutions of interest in this case were defined as share block companies,

bodies corporate or homeowners associations. This terminology is consistent within the South African context but may vary globally and should not detract from the global prevalence of co-operative housing institutions.

The population of interest is South African co-operative housing institution board (trustee) members. This in itself proved a difficult population to grasp comprehensively as co-operative housing institutions were not registered on a compulsory central database. Probabilistic sampling of this population was not attainable, as the nature of this institution was not well bounded.

4.4 Unit of Analysis

Individual board members served as the unit of analysis with their attitude towards and comprehension of the co-operative institution characteristics, contractual/relational interaction and degree of self-interest were variables in the research study.

4.5 Justification of the Survey

A self-administered online questionnaire was the most appropriate research instrument that could be used to evaluate attitudes and comprehension of individual board members as stated in Section 4.4. There were various reasons for using a self-administered questionnaire (Fowler, 2009):

1. Individual surveys removed the likelihood of biases that existed within face-to-face interviews and telephone interviews where the loudest voice is heard.
2. It was a standardised measurement instrument that was consistent for all participants.
3. It was an effective way to ensure that questions were asked that relate to all the analysis variables.
4. A self-administered survey was cost effective due to Internet distribution channels.
5. Data consolidation of large numbers of participants could be efficiently managed through the use of electronic media.
6. Participants experienced higher degrees of anonymity.

There were some disadvantages to using self-administered online questionnaires. However, due to the research financial constraints the advantage obtained from this type of survey methodology outweighed the disadvantages.

4.6 Sampling

A complete list of individuals that form part of this population did not exist. Large co-operative institutions made use of property management agents (PMAs) for management assistance (Schaefer, 2014). Access to a list of housing co-operative directors was dependent on the researcher's current relationship with a nationwide property management agent (PMA) and referred contact persons.

4.6.1 Sampling technique

Due to the lack of availability of a consolidated list of the population of interest a non-probabilistic sampling technique was followed. The most appropriate method of creating a contact base for sampling was through the use of referral networks and a technique called snowball sampling (Cooper & Schindler, 2014). Property management agents (PMAs) maintain a database of directors and manage an array of buildings. Within the PMA organisation portfolio, managers are responsible for a range of co-operative institutions maintaining independent contact with each director (a decentralised management structure). Surveys were sent to portfolio managers for final distribution to directors. There were no further subdivisions of the PMA's database and questionnaires would be sent to all individuals; this was to eliminate additional researcher bias effects on the sampling process. An aspect of sampling that was a concern and needed to be addressed was whether or not a questionnaire sent out to directors through a branded affiliation with the PMA would elicit larger responses. The openness of individual responses might have been affected by the PMA affiliation; however, this could be countered by the ensured anonymity to all participating individuals.

4.6.2 Sampling Frame

As stated, a list of all individuals that formed part of the population does not exist. There are only market estimates as to the full size of the population. The sampling frame was a client base maintained by a PMA that contains approximately 3871 board member contact details. This sampling frame was a subset of the population and denotes the shortfalls of the snowball sampling methodology where it is unlikely to sample every unit of analysis or element within the population (Cooper & Schindler, 2014).

The sample frame could be discussed along three attributes (Fowler, 2009):

1. Comprehensiveness of the sample with reference to it covering the complete population. In this case it was limited due to the non-existence of a complete contact list.
2. Probability of individual selection was not equal due to the snowball sampling enforcing the concept that the frame and population differed.
3. Efficiency of the sample was high as the distinction between a board member and other individuals that do not form part of the population was clear. Classification questions within the questionnaire and the accuracy with which PMA's maintain their lists were the largest contributing factors to the efficiency.

4.6.3 Sample size

Current research includes access to approximately 3871 individuals.

Fowler (2009) reported response rates of up to 60% given that Internet surveys were mailed through a reputable recognisable source. This, however, was a comparative result and a minimum of 37 responses would be required for normally distributed data with a 95% confidence interval and disbursement on the Likert scale or spread of one points out of seven. A persuasive survey instrument design and distribution approach was employed to increase the response and completion rate.

4.7 Research instrument/Measurement

4.7.1 Design

The research instrument was a self-administered online questionnaire addressing the following topics (Cooper & Schindler, 2014)(Fink, 2009):

a) Administrative questions (This was minimal to protect individual identities).
b) Classification questions (Inclusive of demographic, economic and sociological aspects).
c) Target questions relating to the topic at hand.

The questionnaire was written in English using standard language rules. The instrument structure was designed according to topic groupings using principles of persuasion to increase the completion rate of the survey (Fink, 2009). The survey was conducted online; a hyperlink was included in an introductory email directing prospective participants to the survey (Scholtz, 2013) hosted on Google Forms.

The outline of the questionnaire comprised the following elements in a designed order and topic grouping:

1. Email Introduction: This was a persuasive argument including an ethos element where the researcher built rapport with the participant by recognising their thankless situation (Scholtz, 2013). The word “we” was used to influence group thinking and encourage the participant that the research would be to the benefit of all individuals (Robbins & Judge, 2013). An additional form of reciprocity was created with the promise of the research one day being able to provide useful tools that could aid in managing these co-operative institutions as well as the provision made that respondents would be given access to cumulative answers at the time when they completed the survey.
2. Classification and administrative questions (S1 & S2): These sets of questions were chosen to be demographic in nature. The reason for starting with topical questions was to create a conversational hook where people could familiarise themselves with topical non-threatening questions. Grant and Pollock (2011) reinforced the importance of the introduction of a document where, in the case of a survey, this constitutes the survey description and the first few questions. Various classification questions were asked to determine the individual board member’s degree of involvement in management activities. Responses were included if there was any indication of involvement in the co-operative board structure.
3. The research topic for question S3 related to the design principles suggested for the effective management of co-operative institutions and were measured as the importance individuals associated to each principle on a Likert scale (Wegner, 2013). This related to hypotheses two and four.
4. The research topic for questions S4 contributed to answering hypothesis one.
   The research topic for question S5 related to the principal-agent continuum and the importance individual board members associate to the variables that describe the most likely contractual relationship that an individual will form. Importance was measured on a Likert scale (Wegner, 2013). It should be noted that care was taken here to phrase all questions statements in a neutral manner to prevent a magnitude imbalance due to individual loss aversion (Evangelidis & Levav, 2013).
5. The research topic for question S6 related to the individual’s self-interest behaviour. This was based on a written and communicated treatment in the form of a vignette that provided an opportunity for an individual to act in a self-interest or institutional-interest manner. The vignette was structured in such a manner that strongly agreeing with the statement indicated individual self-interest to the detriment of the institution and equitable distribution of common

pooled resources. Alternatively, strongly disagreeing with the statement was an act in complete interest of the institution. Acting in the interest of the institution could, however, be seen to be an act of self-interest in the long run and could be related to stewardship control (Tosi & Brownlee, 2003). The vignette was therefore only concerned with the immediate self-interest behaviour. The wording used to persuade the individual to truly consider their context frame included the word “imagine”, which is considered to be one of the most powerful words in the English language (Scholtz, 2013). All questions forming part of the instrument remained consistent, except for the vignette. Five different surveys were created with everything remaining consistent except for the introduction of a different vignette. The reason for the use of different vignettes was to determine the statistical variance and equality of means between the different vignette treatments.

Results for the survey were largely dependent on a structured response to maintain the benefit of a numeric interval statistical analysis (Wegner, 2013). There was no requirement for disguising questions, as it was not believed that knowledge of the research intent on a macro level would influence the results. The title of the thesis alluded to the type of decision making present on an individual level, which was later described as the degree of self-interest behaviour. This could reflect negatively on individuals, which could impact the way in which these types of questions should be structured. The assumption was that individuals were naturally risk averse (Cooper & Schindler, 2014, p.214) and admitting to self-interested behaviour would separate the individual from the collective group, ultimately reducing the individual’s utility, also known as “group think” (Cooper & Schindler, 2014, p.326). This would indicate some reluctance on the part of the participant to answer the last few questions. Where participants may have been influenced through biases, a projective questioning technique was used. This was done by not connecting the individual to the aspects discussed by extracting general opinions and or attitudes.

Distribution channels for the survey were been met with a prerequisite that the survey be distributed via the company that holds the list of sample individuals. Given that the questions do not pertain to the managers of these lists, there was no expectation that this would influence the outcome of the answers. There may, however, have been a marked effect on the response rate of the questionnaire. It was expected that the questionnaire distribution through known contacts would increase the response rate (Cooper & Schindler, 2014).

4.7.2 Reliability and validity

Fowler (2009) described reliability as high if two respondents in the same position answered the question in exactly the same manner. The means of increasing the reliability as applied in this specific research instrument was the avoidance of inadequate wording and ensuring consistent meaning through the use of well-defined terms. This was refined through a pre-testing process as described in Section 4.7.3.

Fowler also (2009, p.16) stated that "the validity for subjective measures cannot be observed directly". Validity denotes the accuracy with which a respondent answers each question, which could be affected by the following factors (Fowler, 2009):

1. They do not understand the question.
2. They do not know the answer.
3. They cannot remember the answer even though they know it.
4. They do not want to report the answer.

To increase validity the first port of call remains high reliability (Fowler, 2009). Additionally persuasive wording and questionnaire structures are used to better effect the validity (Scholtz, 2013).

4.7.3 Pre-testing

The research instrument underwent a pre-test to determine how appropriate the questions were for the given participants, if language used was appropriate to the context and the time required to answer the survey. Another useful output from a pre-test was the amount of time participants took to complete the pre-test. Feedback from the pre-test was be used to revise problematic elements as highlighted. The main aim of the pre-test was to ultimately increase the instrument reliability and validity.

4.8 Data Analysis

Table 4-1 indicates the type of data analysis that was conducted on the survey data to achieve the required level of explanatory descriptors for each element in Figure 3-1.

Table 4-1: Summary of data analysis

Hypothesis	Analysis
Hypothesis 1	Inferential Statistics: One tailed comparison of means
Hypothesis 2	Linear regression through the use of a stepwise approach to determine the variables statistical dependence.

Hypothesis 3	Linear regression through the use of a stepwise approach to determine the variables statistical dependence. Analysis of variance for vignette results.
Hypothesis 4	Linear regression through the use of a stepwise approach to determine the variables statistical dependence. Analysis of variance for vignette results.

4.9 Research limitations

1. The co-operative management institutions measured excluded those that do not make use of a property management agents (PMAs). It was safe to surmise that informal co-operatives were completely excluded from this study.
2. The theoretical concepts (continuum variables and institutional principles) in most cases were only tested with a single question. The true accuracy with which these questions represent the theory needed to be verified to develop the most appropriate question statement. A broad descriptive study limited the focus on individual aspects, as focus was placed on describing the broader context.
3. General limitations relating to the use of an online survey were found. These included (but were not limited to) the participants' access to the internet, their ability to use a web browser, their computer literacy (especially amongst the older participants), and the resulting lack of randomness (Fink, 2009, p. 9).
4. A prerequisite for the survey was to be distributed through the property management agent (PMA) communication channels and response was related to the quality of relationship between the individual board members and the PMA.
5. Only a cross-sectional study was conducted, neglecting the time dimension due to the limited duration of this study.
6. It was assumed that all respondents would have a reasonably good understanding of the English language and could therefore understand the survey instructions and questions from a grammatical and vocabulary perspective.

5 Results

Results from the study are presented in a concise manner to best support the research questions as outlined in Chapter 3 in preparation for a detailed discussion of the results in Chapter 6. For clarity it is important to understand that the results are coded according to the research instrument design as outlined in Chapter 5.2.1, Table 5-1,Table 5-2 and Table 5-3. A short description will be provided to contextualise the coded information where hypotheses tests reveal significant relationships.

5.1 Pre-test Results

A pre-test was distributed to 13 individuals resulting in five responses (38% response rate). The individuals forming part of the pre-test were not subjected to the final distributed survey. As stated in Chapter 4.7.3, the aim was to increase the reliability and validity of the survey instrument. Feedback was presented along the lines of the factors outlined in Chapter 4.7.2.

The pre-test feedback and results yielded two significant aspects that were adjusted for the final survey:

1. Results indicated that all survey statements needed to be non-directional or neutral to prevent extreme skewness resulting in lost data contained in the tails of the distribution.
2. Simple wording needed to be used as there seemed to be a large discrepancy between individual's colloquial terms used in reference to co-operative management structures.

No further significant feedback was presented. Aspect one increased the validity of the survey by not imposing a directional frame on the participants, ultimately reducing bias, and aspect two increased the reliability through the use of simple wording.

5.2 Data Preparation

The survey data collection process was conducted using Google Forms. Data was exported to Microsoft Excel for cleaning and conversion. Of all data only two required field entries were left blank. The blank field entries of participant responses were ignored with the application of the various inferential statistical analyses. Final statistical analysis was conducted using IBM SPSS and StatPlus. Survey questions were assigned a unique code to simplify the data display within this document.

5.2.1 Survey Conversion

Information was presented that illustrated the connection between the survey statements with the appropriate theory variable as a legend to all future result discussions. Three descriptive tables were presented: Table 5-1 connected the correct survey statement to the associated institutional design principles, Table 5-2 connected the survey statement to the principal-agent continuum variables and lastly Table 5-3 labelled the various vignettes, each presented in a different survey.

All theory variables were connected to a unique survey statement except for institutional design principle in Table 5-1, which was connected to two survey statements. The average response measure for the survey statements was used as a descriptor for the associated design principle.

Table 5-1: Institutional Design Principle to Survey Statement Conversion

Principles	Survey Statements
Well-defined boundaries	S3-1. Directors (trustees) know exactly what all their responsibilities are.
	S3-2. Property owners/tenants know exactly what their responsibilities are when it comes to maintaining the premises.
Congruence between rules and milieu	S3-3. Rules are specifically and uniquely developed for each share block company, body corporate or homeowners association.
Individual players are active participants in the creation of rules to further transparency and inclusion	S3-4. All property owner/tenants have a say in the rules governing the housing institution.
Others accept created rules	S3-5. Everybody accepts and adheres to rules even if they have not created them.
Ability to monitor adherence to rules	S3-6. It is recorded if people disobey the rules.
A system to reward or penalise	S3-7. People are penalised if they do not adhere to the rules.
Accessibility to systems of conflict resolution	S3-8. There is a standard process to resolve conflicts between two or more property owners/tenants or board (trustee) members.
The system nests adequately within larger systems	S3-9. Share block company, body corporate or homeowners association rules suit the norms for the people in a wider yet immediate area (community).

Table 5-2: Continuum Variable to Survey Statement Conversion

Variables	Survey Statements
Absence of information systems	S5-1[a]. Information relating to all aspects involved with the property management is relayed to all property owners.
Principal risk aversion	S5-2. Property owners/tenants are made aware of sudden changes that could affect them.
Principal-agent goal conflict	S5-3[a]. Opinions regarding the property management between the property owners and board (trustee) members are aligned.
Outcome measurability	S5-4. Board (trustee) members' performance is extensively measured.

Outcome certainty	S5-5. Board (trustee) members have clearly defined outcomes/targets with which their performance is evaluated.
Agent risk inclination	S5-6. Board (trustee) members take full responsibility for all their decisions, irrespective of the fact that they can be held personally liable.
Task non-programmability/Uniqueness	S5-7[a]. Board (trustee) member tasks are consistent and do not change much throughout the year. It is also reasonably simple to teach someone else to do these tasks.

Results from survey inverted for positive alignment to the associated variable.

Table 5-3: Vignette Numbering

Vignette Number	Survey Statement
B1	The building where you live has a shortage of parking bays. There are, however, a few parking bays available for rent. You as a board (trustee) member maintain that you should get first preference to these additional parking bays.
B2	The exterior walls of all apartments need to be repainted every five years. The walls, however, start to look a bit tatty after two years. You instruct the caretaker to paint only your apartment with the leftover paint from the previous years.
B3	You love pets but live in a property where the rules state that you are not allowed to have any pets. You argue that if you get a pet that does not make a noise no one would mind.
B4	You want to build an extension on your townhouse and normally do the approvals for others who also make modifications to their property. It is acceptable to approve your own extension.
B5	You know that there are noise regulations in your estate. However, you have a party which might overrun the curfew set out in the rules. This does not bother you too much as you do not have parties that frequently and besides, the neighbours had a party last week.

5.3 Characteristics of the Sample Obtained

5.3.1 Response Rate

The final survey was distributed to 3871 board members through a property management agent based in Johannesburg, Durban and Cape Town. A response rate of approximately 2% was achieved totalling to 71. A single individual contacted the researcher claiming that a faulty hyperlink imbedded in the survey prompt email routed the individual to a faulty survey website. This singular incident by no means invalidated the responses and all responses were accepted.

Biases could have played a definite role in the responses. Of the various biases, social desirability would be a major contributor, where individuals answered questions based on what they thought the socially acceptable or expected answer should be. Care was taken as a result from the pre-test to frame questions in a neutral manner so that

individuals were not prompted with either a positive or negative bias about a given statement. There was, however, no clear means of measuring the effect this bias had on the study. A concern raised earlier was the implication of using a branded affiliation with the PMA to illicit larger response rates. There was, however, no indication of an increased response rate based on the low final response rates.

5.3.2 Qualifying Questions

Various questions were asked relating to the individual board member's level of involvement in co-operative management institutions to ultimately ascertain the respondent's level of participation in the management of co-operative institutions. All individuals illustrated some involvement on these boards. This can be seen in Table 5-4 where it is stated (S1-4.) that there was no single respondent that did not actively partake in board activities (i.e. the management of the co-operative housing institution).

Qualification questions as outlined in Table 5-4 served a dual purpose of building interest with participants regarding the given topic of co-operative management resulting in well-completed surveys. Additional administrative information captured in the Table 5-4 related to the various vignettes that formed part of the five distributed surveys. Each survey contained one of the five vignettes resulting in a response distribution as indicated.

Table 5-4: Administrative Qualification Questions - Frequency Distribution

Number of Respondents - 71		Total	Percent
Vignette	B1	16	23%
	B2	21	30%
	B3	8	11%
	B4	14	20%
	B5	12	17%
S1-1. Have you now or previously owned a property that forms part of a share block company, body corporate or homeowners association?	Yes	64	90%
	No	7	10%
S1-2. Have you ever served on a board of directors or trustees for a share block company, body corporate or homeowners association?	Yes	70	99%
	No	1	1%
S1-3. Have you served as the chairperson for a share block company, body corporate or homeowners association?	Yes	37	52%
	No	34	48%
S1-4. How long have you been active on these boards?	I have not served on these boards	0	0%
	less than 1 year	11	15%
	1 - 2 years	12	17%
	3 - 5 years	17	24%
	6 - 9 years	9	13%
	more than 9 years	22	31%

S1-5. On how many share block companies, bodies corporate and homeowners association boards do you currently serve?	1	51	74%
	2	10	14%
	3	4	6%
	4	1	1%
	5 and more	3	4%
S1-6. How much time do you spend on management activities for all the share block companies, body corporates or homeowners associations that you are involved with per month?	less than 1 hour	7	10%
	1 - 2 hours per month	19	27%
	3 - 5 hours per month	18	25%
	6 - 9 hours per month	11	15%
	more than 9 hours per month	16	23%
S1-7. Are you currently or have you ever been remunerated for you services on a share block company, body corporate or homeowners association board?	Yes	1	1%
	No	70	99%

As a summary of the individual's involvement in the co-operative management institution, it could be seen that more than half of the respondents were chairpersons, most respondents had served on these boards for more than nine years and respondents mainly served on one board at a time. Critically, almost none of the respondents had been remunerated for their involvement on these boards. Table 5-5 points out that only one respondent who falls into the category of spending a significant amount of time on management activities had been remunerated, whereas all other individuals received no remuneration.

Table 5-5: Time Spent vs. Remuneration Cross Tabulation

S1-6. How much time do you spend on management activities for all the share block companies, body corporates or homeowners associations that you are involved with per month?	S1-7. Are you currently or have you ever been remunerated for you services on a share block company, body corporate or homeowners association board?	
	No	Yes
less than 1 hour	7	
1 - 2 hours per month	19	
3 - 5 hours per month	18	
6 - 9 hours per month	11	
more than 9 hours per month	15	1
Total	70	1

5.3.3 Sample Description

Demographic information summarised respondents as primarily male, older than 30, educated to a level of a bachelors degree, white, under full time employment and married. This demographic data was clearly not representative of the larger South African population demographics and identifies a particular sampling bias encountered using a property management agent as survey distributor. All informal type co-

operative management institutions that do not employ a dedicated property management agent were completely neglected.

Table 5-6: Classification Questions Frequency Distribution

Number of Respondents - 71		Total	Percent
S2-1. What is your gender?	Male	56	79%
	Female	15	21%
S2-2. What is your age?	18 - 29 years	4	6%
	30 - 49 years	26	37%
	50 - 64 years	19	27%
	65 years or older	21	30%
S2-3. What is the highest level of education you have completed?	High school or equivalent	9	13%
	Vocational / Technical school (2 year)	7	10%
	Some university	14	20%
	Bachelor's degree	23	32%
	Master's degree	16	23%
	Doctoral degree	2	3%
S2-4. What is your race?	Prefer not to Answer	2	3%
	Black African	2	3%
	Coloured	1	1%
	Indian/Asian	2	3%
	White	63	89%
	Other	1	1%
S2-5. On what basis are you employed?	Self employed	21	30%
	Full time	35	50%
	Part time	0	0%
	Unemployed	0	0%
	Retired	14	20%
S2-6. What is your marital status?	Single/never been married	15	21%
	Married	46	65%
	Separated	0	0%
	Divorced	8	11%
	Widowed	2	3%

5.3.4 Descriptive Statistics of the Respondents

All descriptive analysis of survey statements were included in summarised tables for each hypothesis. Where information was missing for a particular response, one of two methods was followed: the value was completed using the sample mean or the field was simply skipped. This was indicated by the sample number shown in the descriptive statistic table.

5.4 Analysis

5.4.1 Research Question 1

A Likert scale was used ranging from one (strongly disagree) to seven (strongly agree) where individuals would select their level of agreement with the relationship statements

as indicated in Table 5-7. The sample statistics were normally distributed but were highly skewed based on a visual inspection of the sample histogram and the assumption that a maximum absolute skewness should be restricted to three.

Table 5-7: Co-operative Housing Management Relationship Descriptive Statistics

Statistic	S4-1. Board (trustee) members are responsible to the property owners.	S4-2. Caretakers and/or ground staff are responsible to the board (trustees).	S4-3. Caretakers and/or ground staff are responsible to the property owners.	S4-4. Property owners are responsible to the board (trustees).
Mean	**6.3**	**6.61**	**4.04**	**5.15**
Median	7	7	4	6
Mode	7	7	NA	7
Variance	1.15	0.36	5.16	3.39
Standard Deviation	1.07	0.6	2.27	4.11
Skewness	-2.63	-1.22	-0.03	-0.87
Maximum	7	7	7	7
Minimum	1	5	1	2
Count	71	71	71	71

The four relationships as indicated in Table 5-7 complete with descriptive statistics illustrated the different mean values for each relationship. It is prudent to further develop the null hypothesis to establish a population mean ranking for the various relationships to provide further insight into the viewpoint that the board members hold with regards to the hierarchy of communication within the co-operative institution.

A series of comparison of means were conducted employing bubble sort logic. The logic aids in confirming the largest to the smallest population mean in sequential order.

From the statistics in Table 5-7 an assumption was made that directors were more strongly in agreement that the caretakers and/or ground staff were responsible to the board (S4-2.) than any other relationship. This relationship was therefore compared to the mean level of agreement for all other relationships to determine if it was ultimately the relationship with the largest mean level of agreement.

Table 5-8: Bubble Sort Ranked Population Means

One-tailed t-distribution (α = 5%)				
	S4-1. Board (trustee) members are responsible to the property owners.	S4-2. Caretakers and/or ground staff are responsible to the board (trustees).	S4-3. Caretakers and/or ground staff are responsible to the property owners.	S4-4. Property owners are responsible to the board (trustees)
Null Hypothesis Alternative p-value Result	μS4-1 - μS4-3 ≤ 0 μS4-1 - μS4-3 > 0 0 Reject H_0	μS4-2 - μS4-1 ≤ 0 μS4-2 - μS4-1 > 0 0.017954 Reject H_0		μS4-4 - μS4-3 ≤ 0 μS4-4 - μS4-3 > 0 0.000838 Reject H_0
Null Hypothesis Alternative p-value Result	μS4-1 - μS4-4 ≤ 0 μS4-1 - μS4-4 > 0 0.000008 Reject H_0	μS4-2 - μS4-3 ≤ 0 μS4-2 - μS4-3 > 0 0 Reject H_0		
Null Hypothesis Alternative p-value Result		μS4-2 - μS4-4 ≤ 0 μS4-2 - μS4-4 > 0 0 Reject H_0		
Mean Rank Order	**2**	**1**	**4**	**3**

A lower p-value than the given level of significance indicated a rejection of the null hypothesis in favour of the alternative hypothesis. Table 5-8 yielded a mean rank order based on board members' level of agreement with the given relationship statement. A simple way to read the table would be to only look at the alternative hypothesis to determine which population mean is larger than the next. This population mean rank order could be summarised as follows:

$$\mu_{S4\text{-}2} > \mu_{S4\text{-}1} > \mu_{S4\text{-}4} > \mu_{S4\text{-}3}$$

In answer to the hypothesis as stated in Chapter 3.1.1, the null hypothesis (H_0) was rejected in favour of the alternative hypothesis (H_1) based on the ranked order.

H_1: $\mu_{S4\text{-}1} - \mu_{S4\text{-}4} > 0$ (Accepted)

Board members viewed themselves as agents acting on behalf of all property owners and are directly responsible to them.

5.4.2 Research Question 2

The eight design principles for institutions are measured on a Likert scale ranging from one (extremely unimportant) to seven (extremely important). The relationship between the board member's importance ratings of each one of the eight design principles to the mean position on the principal-agent continuum is investigated though a forward regression analysis process. The mean position of an individual is calculated by taking the average importance rating on the seven variables used to describe the principal-agent continuum.

$S_{3\text{-}7}$, the only statistically significant variable (Sig.=0.04) had a positive relationship ($\beta_{S3\text{-}7}>0$) to the mean position of an individual on the principal-agent continuum. It should be noted that the regressor explained 11.4% ($R^2=0.114$) of the variance seen in the mean position of an individual on the principal-agent continuum. Therefore, it can be stated that there was a weak positive relationship.

Table 5-9: Hypothesis 2 – Results

Descriptive Statistics

	Mean	Std. Deviation	N
S5-Average	4.26	.440	69
S3-1,2	6.12	1.109	69
S3-3	5.88	1.278	69
S3-4	5.25	1.344	69
S3-5	6.29	1.113	69
S3-6	5.87	1.327	69
S3-7	5.48	1.549	69
S3-8	5.59	1.321	69
S3-9	5.22	1.381	69

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.338[a]	.114	.101	.417

a Predictors: (Constant), S3-7

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.508	1	1.508	8.658	.004[b]
	Residual	11.672	67	.174		
	Total	13.180	68			

a Dependent Variable: S5-Average
b Predictors: (Constant), S3-7

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for β	
		β	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.730	.186		20.066	.000	3.359	4.101
	S3-7	.096	.033	.338	2.942	.004	.031	.161

a Dependent Variable: S5-Average

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	S3-1,2	.175[b]	1.397	.167	.169	.830
	S3-3	-.081[b]	-.690	.493	-.085	.974
	S3-4	-.090[b]	-.780	.438	-.096	1.000
	S3-5	.168[b]	1.215	.229	.148	.688
	S3-6	.051[b]	.371	.711	.046	.718
	S3-8	.179[b]	1.482	.143	.179	.889
	S3-9	-.049[b]	-.425	.672	-.052	.997

a Dependent Variable: S5-Average
b Predictors in the Model: (Constant), S3-7

The hypothesis can be answered based on information present in Table 5-9 and is illustrated through an adaptation of the original hypothesis statement.

H_0: $\beta_{S3\text{-}1,2} \wedge \beta_{S3\text{-}3} \wedge \beta_{S3\text{-}4} \wedge \beta_{S3\text{-}5} \wedge \beta_{S3\text{-}6} \wedge \beta_{S3\text{-}8} \wedge \beta_{S3\text{-}9} = 0$

The listed coefficients describing the relationship between the eight institutional design principles and the board members mean position on the principal-agent continuum was not statistically significant. A complete list can be seen within Table 5-9 labelled as excluded variables.

H_1: $\beta_{S3\text{-}7} \neq 0$

The listed coefficient describing the relationship between the eight institutional design principles and the board members mean position on the principal-agent continuum was statistically significant. A list can be seen within Table 5-9 *labelled as coefficients.*

Table 5-10: Theory-Survey Concept Transform

Independent Variable		Dependent Variable
Design Principle	Survey Statement	Principal-Agent Continuum
6. A system to reward or penalise	S3-7. People are penalised if they do not adhere to the rules.	Mean position on principal-agent continuum

Table 5-10 took a cross section of the theory, survey and regression variables and indicated the weak positive relationship between the independent and the dependent variables. The aim of this cross section was to provide a simplistic platform for further discussions.

5.4.3 Research Question 3

This research question attempted to find a relationship between the seven variables used to describe an individual's position on the principal-agent continuum related to the way that practical decisions are made according to an individual's response to a vignette. The seven variables used to describe an individual's position on the principal-agent continuum were measured on a Likert scale ranging from one (extremely unimportant) to seven (extremely important). All respondents were presented with either one of five vignettes. Each respondent only answered one vignette.

5.4.3.1 Sub-hypothesis

Before a regression analysis could be done, an analysis of variance was conducted to determine if the mean answers to each vignette were the same. This was stated in Chapter 3.3.2 as the sub-hypothesis.

Table 5-11: Sub-hypothesis ANOVA - Results

Summary (α = 5%)

Groups	Sample size	Sum	Mean	Variance
B1	16	36	2.25	2.33
B2	21	31	1.48	1.56
B3	8	22	2.75	3.64
B4	14	31	2.21	3.26
B5	12	26	2.17	1.79

ANOVA

Source of Variation	SS	df	MS	F	p-level/Sig.	F crit
Between Groups	12.01	4	3	1.29	0.28	2.51
Within Groups	153.76	66	2.33			
Total	165.77	70				

The results from Table 5-11 indicated an acceptance of the null hypothesis at a 5% level of significance (Sig. = 0.28). The sample evidence was not strong enough to reject the null hypothesis in favour of the alternative hypothesis. The null hypothesis is therefore probably true.

H_0: $\mu_{B1} = \mu_{B2} = \mu_{B3} = \mu_{B4} = \mu_{B5}$ (Accept)

The mean answer to the practical vignettes was independent of the specific question and could be viewed as a single larger sample.

H_1: At least one vignette μ differs from the others

It could be concluded with a 95% confidence, that the mean level of agreement with the vignette statements between the five different categories of treatments (B1-B5) was the same. This implied that the mean result was independent of the different vignette statements and would be treated as a larger sample.

5.4.3.2 Hypothesis 3

Individual variables used to describe an individual's position on the principal-agent continuum were now used as independent variables to predict the board member's level of agreement with the practical vignettes. A forward regression analysis was conducted on the ordered and scale aligned data.

$S_{5\text{-}5}$, the only statistically significant variable (Sig.=0.021) had a positive relationship to the stated vignettes. It should be noted that the regressor explained 7.5% (R^2=0.075) of the variance seen in the agreement with the vignettes. Therefore, it could be stated that there was a weak positive relationship ($\beta_{S5\text{-}5}$>0) between the dependent and independent variables.

Table 5-12: Hypothesis 3 - Results

Descriptive Statistics

	Mean	Std. Deviation	N
S6-.	2.06	1.539	71
S5-1.	2.30	1.398	71
S5-2.	6.56	.691	71
S5-3.	2.25	1.180	71
S5-4.	5.00	1.320	71
S5-5.	4.92	1.471	71
S5-6.	5.86	1.246	71
S5-7.	2.83	1.320	71

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.273[a]	.075	.061	1.491

a Predictors: (Constant), S5-5.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.398	1	12.398	5.577	.021[b]
	Residual	153.377	69	2.223		
	Total	165.775	70			

a Dependent Variable: S6-.
b Predictors: (Constant), S5-5.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for β	
		β	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.650	.621		1.047	.299	-.589	1.889
	S5-5.	.286	.121	.273	2.362	.021	.044	.528

a Dependent Variable: S6-.

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	S5-1.	.049[b]	.400	.690	.048	.888
	S5-2.	-.075[b]	-.633	.529	-.076	.959
	S5-3.	.090[b]	.702	.485	.085	.827
	S5-4.	-.270[b]	-1.450	.152	-.173	.381
	S5-6.	-.134[b]	-1.135	.260	-.136	.955
	S5-7.	-.084[b]	-.722	.473	-.087	.992

a Dependent Variable: S6-.
b Predictors in the Model: (Constant), S5-5.

The hypothesis could be answered based on information present in Table 5-12 and was illustrated through an adaptation of the original hypothesis statement.

H_0: $\beta_{S5\text{-}1} \wedge \beta_{S5\text{-}2} \wedge \beta_{S5\text{-}3} \wedge \beta_{S5\text{-}4} \wedge \beta_{S5\text{-}6} \wedge \beta_{S5\text{-}7} = 0$

Of the seven variables used to describe an individual's position on the principal-agent continuum, there were six statistically insignificant coefficients. None of these coefficients could be used to describe a board member's agreement with the stated vignettes. A complete list can be seen within Table 5-12 labelled as excluded variables.

H_1: $\beta_{S5\text{-}5} \neq 0$

Only one statistically significant variable was found to describe a board member's agreement with the stated vignettes. A list can be seen within Table 5-12 *labelled as coefficients.*

Table 5-13: Theory-Survey Concept Transform

Independent Variable		Dependent Variable
Continuum Variable	Survey Statement	Vignette
Outcome Certainty	S5-5. Board (trustee) members have clearly defined outcomes/targets with which their performance is evaluated.	Degree of self-interest

Table 5-13 took a cross section of the theory, survey and regression variables indicating the weak positive relationship between the independent and the dependent variables. The aim of this cross section was to provide a simplistic platform for further discussions.

5.4.4 Research Question 4

Complementing the previous research questions, research question four tested the last directional conceptual units forming part of the IAD framework. Inference was made that there was a relationship between the eight institutional design principles and the way that people make practical decisions according to the collected answers from the vignette statements. This greater hypothesis for this inferential test was dependent on the sub-hypothesis results from Chapter 5.4.3.1 stating that the mean result was independent of the different vignette statements and could be treated as a larger sample.

A backward elimination regression analysis was conducted that yielded a statistically significant regression model through seven iterative steps. Only information pertaining to the last iteration is presented here. A backward elimination regression and forward selection regression procedure yielded the same result after alteration of the variable entry criteria to the regression equation. The entry criteria were dependent on the degree of correlation between variables.

$S_{3\text{-}1,2}$ and $S_{3\text{-}7}$ were the only statistically significant variables ($Sig_{3\text{-}1,2}$=0.015, $Sig_{3\text{-}7}$=0.032). $S_{3\text{-}1,2}$ had a moderate negative relationship ($\beta_{S3\text{-}1,2}<0$) to the stated vignettes whilst $S_{3\text{-}7}$ had a moderate positive ($\beta_{S3\text{-}7}>0$) relationship to the stated vignettes. It should be noted that the regressor explains 10.4% (R^2= 0.104) of the variance seen in in individual agreement with the stated vignettes. As seen in the ANOVA section of Table 5-14, the overall significance for the model is 2.4%.

Table 5-14: Hypothesis 4 - Results

Descriptive Statistics

	Mean	Std. Deviation	N
S6-.	2.06	1.539	71
S3-1,2.	6.11	1.096	71
S3-3.	5.83	1.309	71
S3-4.	5.28	1.344	71
S3-5.	6.30	1.100	71
S3-6.	5.89	1.315	71
S3-7.	5.41	1.661	71
S3-8.	5.58	1.317	71
S3-9.	5.25	1.381	71

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
7	.323g	.104	.078	1.478

g Predictors: (Constant), S3-7., S3-1,2.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
7	Regression	17.291	2	8.645	3.959	.024[h]
	Residual	148.484	68	2.184		
	Total	165.775	70			

a Dependent Variable: S6-.
h Predictors: (Constant), S3-7., S3-1,2.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for β	
		β	Std. Error	Beta			Lower Bound	Upper Bound
7	(Constant)	3.377	1.019		3.315	.001	1.345	5.410
	S3-1,2.	-.441	.176	-.314	-2.504	.015	-.793	-.090
	S3-7.	.255	.116	.275	2.190	.032	.023	.487

a Dependent Variable: S6-.

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
2	S3-6.	-.112b	-.626	.533	-.079	.412
3	S3-6.	-.050c	-.314	.755	-.040	.514
	S3-5.	.092c	.557	.579	.070	.471
4	S3-6.	-.040d	-.252	.802	-.031	.518
	S3-5.	.102d	.623	.536	.078	.475
	S3-3.	-.090d	-.681	.498	-.085	.728
5	S3-6.	-.034e	-.215	.830	-.027	.519
	S3-5.	.097e	.589	.558	.073	.476
	S3-3.	-.032e	-.250	.804	-.031	.813
	S3-4.	.148e	1.219	.227	.150	.859
6	S3-6.	-.040f	-.250	.803	-.031	.519

	S3-5.	.039f	.241	.810	.030	.511
	S3-3.	-.036f	-.284	.777	-.035	.814
	S3-4.	.085f	.728	.469	.089	.963
	S3-9.	-.153f	-1.253	.215	-.152	.856
7	S3-6.	.044g	.296	.768	.036	.592
	S3-5.	.087g	.554	.581	.068	.535
	S3-3.	-.008g	-.061	.951	-.007	.831
	S3-4.	.068g	.578	.565	.070	.972
	S3-9.	-.076g	-.650	.518	-.079	.966
	S3-8.	.214g	1.527	.132	.183	.657

a Dependent Variable: S6-.
b Predictors in the Model: (Constant), S3-9., S3-7., S3-3., S3-4., S3-1,2., S3-8., S3-5.
c Predictors in the Model: (Constant), S3-9., S3-7., S3-3., S3-4., S3-1,2., S3-8.
d Predictors in the Model: (Constant), S3-9., S3-7., S3-4., S3-1,2., S3-8.
e Predictors in the Model: (Constant), S3-9., S3-7., S3-1,2., S3-8.
f Predictors in the Model: (Constant), S3-7., S3-1,2., S3-8.
g Predictors in the Model: (Constant), S3-7., S3-1,2.

The hypothesis was answered based on the information as presented in Table 5-14 and was illustrated through an adaptation of the original hypothesis statement.

H_0: $\beta_{S3\text{-}3} \wedge \beta_{S3\text{-}4} \wedge \beta_{S3\text{-}5} \wedge \beta_{S3\text{-}6} \wedge \beta_{S3\text{-}8} \wedge \beta_{S3\text{-}9} = 0$

Six of the eight institutional design principles were considered to be insignificant statistical regressors in the explanation of the way that board members make practical decisions. None of these coefficients could be used to describe a board member's agreement with the stated vignettes. A complete list can be seen within Table 5-14 labelled as excluded variables. The excluded variable section of the table also illustrates the process followed with backwards elimination regression until the presentation of the final model, number seven.

H_1: $\beta_{S3\text{-}1,2} \wedge \beta_{S3\text{-}7} \neq 0$

There were only two statistically significant regressors found to explain the way that board members make practical decisions. Some significant institutional design principles that explained the way that board members make practical decisions.

Table 5-15: Theory-Survey Concept Transform

Independent Variable		Dependent Variable
Design Principle	Survey Statement	Principal-gent Continuum
1. Well-defined boundaries	S3-1,2. Average (S3-1 & S3-2) S3-1. Directors (trustees) know exactly what all their responsibilities are. S3-2. Property owners/tenants know exactly what their responsibility is when it comes to maintaining the premises.	Mean position on principal-agent continuum
6. A system to reward or penalise	S3-7. People are penalised if they do not adhere to the rules.	

Table 5-15 took a cross section of the theory, survey and regression variables and indicated the weak positive relationship between the independent and the dependent variables. The aim of this cross section was to provide a simplistic platform for further discussions.

6 Discussion of Results

This chapter discusses the results presented in the previous chapter and attempts to highlight explanatory relationships that exist between various elements identified in the construct developed in Figure 3-1.

6.1 Review of the Research Aim

The aim of the research is to find relationships that explain co-operative housing institutions through better understanding the management board and their decision making preferences. The IAD framework as developed by Ostrom (2009) was used as a backdrop in the development of the final relationship construct indicated in Figure 3-1. The theoretically developed construct clearly linked each relationship with the associated hypothesis used to test and develop the final co-operative housing relationship construct.

6.2 Sample Description

A summary was provided on the demographic and the degree of individual involvement within the co-operative housing management institution.

6.2.1 Demographics

As indicated in Chapter 5.3.3, demographic information summarised respondents as primarily male, older than 30, educated to a level of a bachelors degree, white, under full time employment and married. Stating this with a negative frame, the mutually exclusive marginal groups managing these co-operative institutions were women, less educated, non-white with flexible employment situations and were not married.

The age distribution found amongst those involved in co-operative housing institution managements could be related to initial buying age and entry into the South African housing market (Herman, 2008). The summary of first time property buyers indicated a mean around 30 years of age, substantiating the low involvement of adults younger than 30 yeas of age in management structures. An individual's involvement on the board was related to the transition period of board members; 85% of all board members had been involved in the management institution for a period of more than one year. When considering the buying age and the minimum period that would be required for an individual to actively get involved in the co-operative housing management, there was little space available for new participants. This information alluded to a low churn rate amongst board members. However, this could also be

related to the lack of interest of individuals to participate due to insufficient utility (Yau, 2011).

The education level of the respondents is also clearly linked to involvement on the board where the majority of individuals involved on the management boards had some level of university education. This could be related to the increased level of education which would be linked to increased levels of earnings (DeGregorio & Lee, 2002). Given the price of housing, the higher level of education would allow for increased individual income, which would in turn allow for respondents to own a property and participate in the management of the co-operative institution. As stated earlier, the ethnicity of the sample population was not representative of the larger South African demographic (World Bank, 2014). All informal co-operative management institutions that do not employ a dedicated property management agent were completely neglected. 89% of participants were white in a country where the black majority makes up 80% of the population.

6.2.2 Individual Involvement in Institution

All respondents formed part of the management of co-operative housing institutions in various capacities. It should be noted that the 31% of individuals had served on co-operative housing boards for more than nine years. This reinforced the assumption of low churn rates made in the previous section. 90% of individuals spend more than one hour per month on management activities and 23% spend more than nine hours per month on management activities. In addition to Table 5-5 that illustrated time spent versus the presence of remuneration; Table 6-1 expanded on the information. Only one individual was remunerated for work done as a board member. This single individual served on one co-operative management institution and spend more than nine hours per month on management activities. No other individuals were remunerated for their services, ultimately pointing to self-interest behaviour used to maximise individual utility (Yau, 2011), a fundamental assumption of agency theory (Eisenhardt, 1989).

Table 6-1: Time Spent vs. Remuneration

S1-5. On how many share block companies, bodies corporate and homeowners association boards do you currently serve?	S1-7. Are you currently or have you ever been remunerated for you services on a share block company, body corporate or homeowners association board?	
	No	Yes
1	49	1
2	10	
3	4	
4	1	
5 and more	3	
Total	70	1

6.3 Research Questions

Research questions were proposed in Chapter 3 based on the literature review. As the aim required practicable explanatory results, these questions were related to specific hypotheses used to describe the relationships between the various elements identified in the construct illustrated in Figure 3-1.The individual board members served as the unit of analysis within this study. What was measured was the individual's attitude towards and the comprehension of the elements contributing to the co-operative housing relationship construct. Statistically significant design principles and continuum variables were incorporated into a final construct illustrated in Figure 6-1.

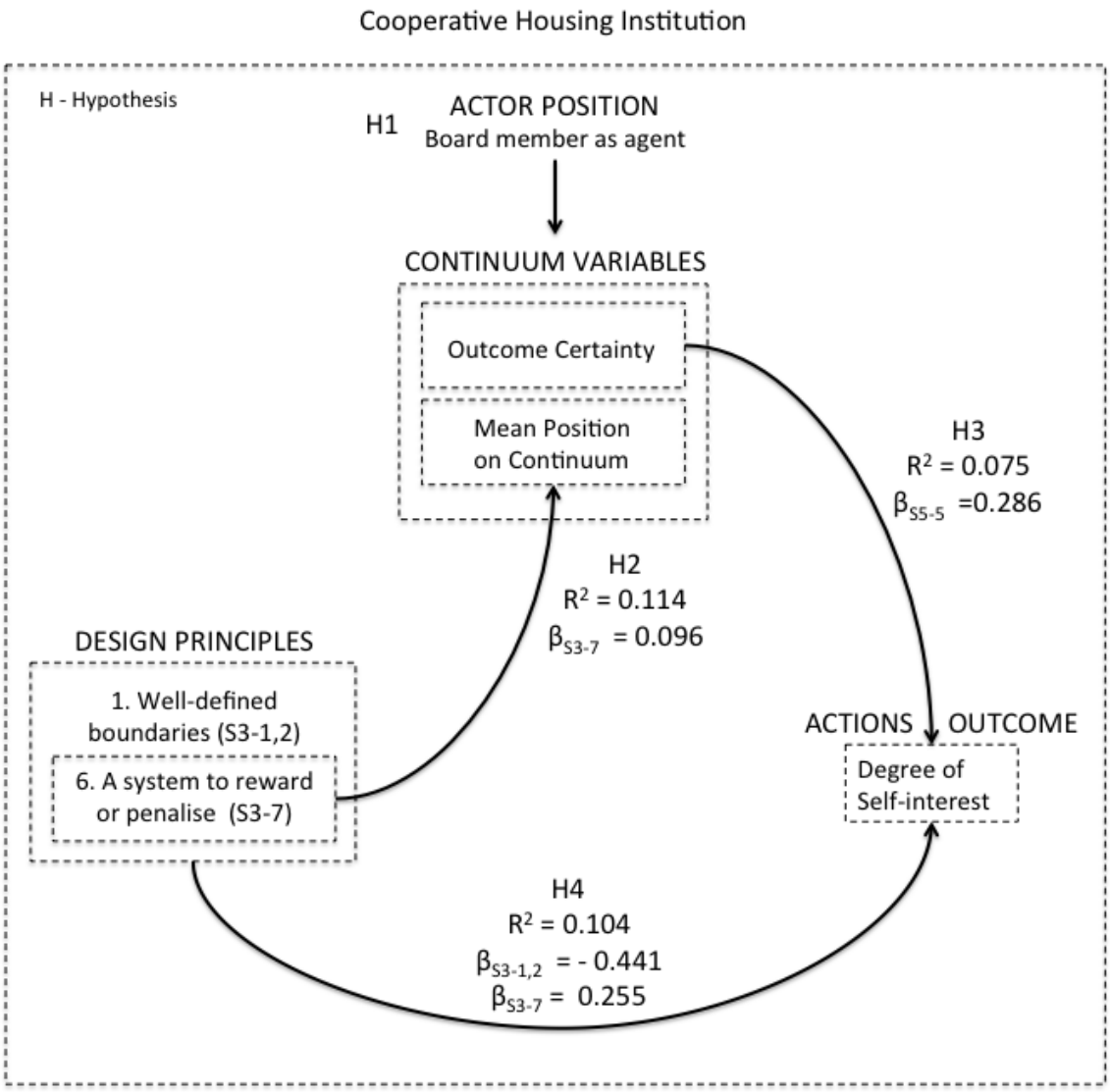

Figure 6-1: Significance Construct

This figure illustrated the final results obtained from the various hypotheses tests. Each regression type analysis was shown complete with its respective regression coefficients (β). Both the orientation and magnitude of each coefficient conveyed important information. A positive coefficient dictated a positive relationship between the dependent and independent variable and a negative coefficient dictated a negative relationship. All insignificant regression coefficients were disregarded. The significance construct mimicked the original IAD framework where external variables (design principles) influenced the action situation (actor position and the continuum variables) that yielded various outcomes (degree of self-interest). Variables and principles were surrounded by a dashed line box, which was connected to a relationship arrow. Some relationships had multiple regressors that explain the outcome; these would be surrounded by a single dashed line box.

6.3.1 Hypothesis 1

The original research hypothesis stated that even though there exists a dual role for the board within the co-operative housing institution, individuals would prefer to operate within either the agent or the principal position of the action situation. The accepted alternative hypothesis stated that board members viewed themselves as agents acting on behalf of all property owners and were directly responsible to them.

Respondents were presented with a series of relationships indicative of those present in co-operative housing management. The process of ranking the importance that respondents placed on the various relationships clarified the position that the actor population believed themselves to occupy. Figure 2-3 in the literature review indicated the suggested prominent relationships, which were proven correct in the relationship ranking process. Level two relationships were the most prominent and ranked at number one in the final results. Level one relationships ranked the second highest.

The certainty of the agent position was used to correctly interpret the position of an individual's contractual relationships on the principal-agent continuum (Hypotheses two and three related to continuum variables). Relationships could be practically illustrated by the flow accountability. Caretaker and/or ground staff were accountable to the board and the board in turn was accountable to the property owners. Identifying the flow of accountability was the first step in understanding the alignment of self-interest behaviour between the board member as agent and the property owners principal (Roberts et al., 2005). Given that there exist a preference amongst board members to act as an agent it will be prudent to view this against the statement set out by Boivie et al. (2011): When the board identifies with the owners in the context of cooperative housing and the roles are intertwined as suggested by the dual role hypothesis, board members are more likely to act in the interest of the institution. This might suggest that, in the context of public companies, the degree of self-interest behaviour will be exaggerated compared to that of cooperative housing institutions.

6.3.2 Hypothesis 2

The original research question was concerned with finding a relationship between the board member's importance ratings of each one of the eight design principles of a common pooled resource institution to the mean position of an individual on the principal-agent continuum.

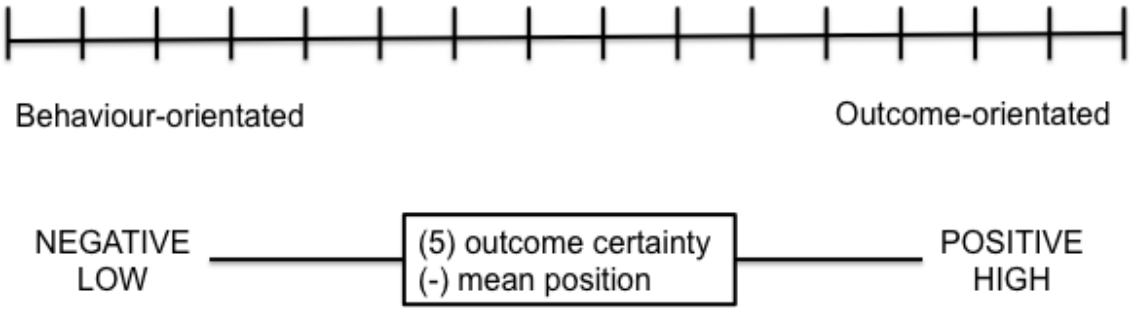

Figure 6-2: Significant Principal-agent Continuum

The final results indicated in Figure 6-1 show one significant principle that was positively related to the mean position on the principal-agent continuum. Importance ratings of design principles were entirely based on the respondents' perception of what they constitute as necessary for effective management of co-operative housing institutions. The principal-agent continuum is described in Chapter 2.4.2. Based on the seven variables that describe an individual's position on the continuum, a contractual relationship between a principal and an agent would tend to fall on a scale with the opposing ends being outcome-orientated or behaviour-orientated. Both contract orientation types attempted to align the interest of the agent with that of the principal through different means.

A system to reward or penalise was one aspect of the original eight design principles that had been found significant in explaining the individual board member's preference for an outcome-based or a behavioural-based contract. If an individual board member placed a high importance on a system to reward or penalise, the board member would attach more importance to an outcome-based contract to the property owners as measured by the mean position on the principal-agent continuum. If a board member placed a low importance on systems to reward or penalise, board members were more likely to favour behavioural-based contracts. The mean position on the principal-agent continuum is described by the seven variables as previously identified. If a board member rated the importance of systems to penalise or reward as high, it explained the average orientation and result of the following variables:

1. A lack of information systems
2. High principle risk aversion
3. High principal-agent goal-conflict
4. High outcome measurability
5. High outcome certainty
6. High risk agent behaviour
7. High task uniqueness or non-programmability

The perception of the board member indicated that systems to reward or penalise people within the co-operative institution had a positive relationship with the mean variables of the principal-agent continuum. The usefulness of the principal-agent continuum is in its connection to the degree of self-interest that board members were likely to portray. Institutional design principles and continuum variables could be linked to costs associated with the lack of involvement of free-riders that purely consume resources for personal utility as opposed to encourage facilitating equitable resource distribution (Minora et al., 2013). If appropriate cost determinations could be made for the various principles and factors, an optimised relationship could be attempted where costs were ultimately reduced. The relationship purely indicated the explanatory levers. As stated in the literature review by Reuben's (2013), without systems to reward or penalise individuals forming part of the cooperative institution will tend to free-ride. It follows that management through their attempt to prevent free-riding implements systems to reward or penalise (S5-Average=4.26) resulting in a mean continuum position that favours outcome-orientated contracts. Hermalin and Weisbach (2003) stated that characteristics of the board have not yet been connected in any causal way to the institution's performance. Here however a explanatory relationship is shown to the contractual relationships that board members prefer which is later linked to their degree of self-interest behaviour.

6.3.3 Hypothesis 3

Hypothesis 3 attempted to find a relationship between an individual board member's position on the principal-agent continuum and self-interested behaviour portrayed in everyday business activities. Only one statistically significant variable, outcome certainty, was found to describe the board member's level of agreement with the stated vignettes.

As seen in Figure 6-1 and Figure 6-2 if impressions of outcome certainty were high, then individuals were more likely to act in a self-interest manner. Highly outcome orientated contracts were positively related to self-interested behaviour. Vignettes used to measure the level of self-interested behaviour placed self-interest and institutional-interest on opposite sides of a scale. If an individual strongly agreed with a vignette statement, then they were making a highly self-interested decision. If an individual board member strongly disagreed with a statement, they were making a decision in the interest of the institution through the equitable distribution of resources.

A description of the outcome certainty is that all activities have some associated risks; the larger the outcome certainty, the less risk there is to be borne by the agent.

Eisenhardt (1989) stated that the lack of outcome certainty made it extremely difficult to pre-plan activities and this risk had to be borne by someone. If outcome certainty was high, the cost of shifting risk from the principal to the agent was low; alternatively, if outcome certainty was low, the cost of shifting risk to the agent was high and behaviour-orientated contracts were favoured. It could be summarised that if a task or activity outcome certainty was high (and the costs of transferring the risk to the board member was low), then the board member was likely to behave in a more self-interested manner.

6.3.4 Hypothesis 4

The original question was concerned with the relationship between institutional design principles and the degree of self-interested behaviour that individuals portray in answer to a practical vignette. Only two statistically significant regressors were found to explain the way that board members make practical self-interest decisions.

In some aspects the results echoes findings from Roberts et al. (2005) stating that the perception of control does not mean true effectiveness in the way that boards are managed. As seen in Figure 6-1, well-defined institutional boundaries had a negative relationship with self-interest behaviour. More importance associated to well defined boundaries, result in less self-interest behaviour. The second significant regressor, a system to reward or penalise, had a positive relationship to the self-interest behaviour (outcomes). The second regressor's positive relationship was also reinforced through the indirect positive relation with continuum positioning. A preference to control through well defined boundaries as opposed to the addition of systems to reward and penalise would result in more accountability and actions in the interest of the institution.

Expanding on the discussion of institutional design principles for common pooled resources, well-defined boundaries were explained as follows: boundaries of an institution where the resources for equitable distribution as well as the individuals forming part of the institution were clearly defined (Ostrom, 1990).

6.4 Relationship Summary

If the design principles were viewed as systems of implementation, then it could be stated that well-defined boundaries and systems to reward or penalise had a real relationship to the degree of self-interested behaviour that individuals portrayed. These two principles, if implemented, would have a direct relationship with the way that board members view their relationship and position within the co-operative housing institution. And lastly, the way that board members viewed their relationships, primarily with

regards to task outcome certainty, explained some of the self-interest behaviour they portrayed. A scenario was sketched for each significant relationship based on the premise that man is rational (Mills, 1879), if something is important to an individual and the individual is provided with more quantity or quality of that something, it results in increased utility for the individual:

- If co-operative housing institutions had better defined boundaries (clarification of resources and individual's access to the resources) board members would be less self-interested and be more likely to act in the interest of the institution.
- If there were more or better systems used to reward or penalise individuals making use of common pooled resources within the co-operative housing institution, then board members managing these institutions would act more in their own self-interest and less in the interest of the institution.
- If there were more or better systems used to reward or penalise individuals making use of common pooled resources within the co-operative housing institution, then board members managing these institutions would be more likely to follow an outcome orientated contractual relationship between the board members and the property owners.
- If tasks within co-operative housing management (action situations) had high outcome certainty as defined in Chapter 6.3.3, then its board members would be more likely to act in their own self-interest and less in the interest of the institution.

7 Conclusion

The research attempted to explain co-operative housing institutions through a better understanding of the management board, their contractual relationships and their decision making preferences

7.1 Findings

Significant relationships were found between institutional design principles, principal-agent continuum variables and practical self-interest behaviour. Independent variables as illustrated in Figure 6-1 explained some of the variance seen in self-interest behaviour as listed below:

1. Individual board members viewed themselves as agents acting on behalf of property owners (principals).
2. An institutional system to reward or penalise had a positive relationship with a board member's perception of their mean position on the principal-agent continuum and therefore also on outcome-orientated relationship contracts.
3. Outcome certainty, a variable describing the principal-agent contractual relationship, had a weak positive relationship with the board member's self-interest behaviour.
4. Well-defined institutional boundaries had a negative relationship with board member self-interest behaviour. An institutional system to reward or penalise had a positive relationship with board member self-interest behaviour.

7.2 Recommendations

Co-operative housing institutions can encourage board members to act less in their own self-interest and more in the interest of the institution if they employ aspects as indicated in Figure 6-1 and summarised here:

Boards should focus on creating co-operative housing institutions where individuals, forming part of the co-operative, are subjected to systems that are less focused on rewards and penalties and more focussed on defining the boundaries of the institution. This is related to a more outcome-orientated contractual relationship between the board member and the property owners, and will ultimately result in less self-interest behaviour by the board member. Additionally, if tasks within the co-operative housing management are simple and can be considered to have outcome certainty, then board members are likely to act in their own self-interest. It is therefore recommended that property owners direct the board members with clear yet complex goals that are

challenging to achieve, forcing individuals to actively partake in the management process. In these scenarios, board members who portray less short term self-interest will act more in the interest of the co-operative housing institution.

7.3 Recommendations for Future Research

Further research can be conducted on the practical implementation of the final significance construct and recommendations as well as the monetary effects that this will have on the larger co-operative housing market. Elements forming part of the final significance construct (Figure 6-1) should be further researched. Board member importance ratings are based on a respondent's answer to a single question and the mutual exclusivity of these independent variables needs to be verified. More elements relating to the IAD framework can be identified within co-operative housing management, especially at higher levels of analysis. Current research is only concerned with the operational sphere leading to practical management outcomes. More research can be done on higher levels, such as the governmental type institutions that govern the co-operative housing environment.

This research also forms the basis for non-remunerated environments and an additional experimental study could be conducted on the influence of remuneration as motivation to affect the degree of self-interest behaviour and extrinsic and intrinsic rewards to the system can be evaluated. Non-remunerated environments can serve as a benchmark for the remunerated boards where the utility realisation is affected differently. A bounded rational man assumption enforces the concept that personal utility maximisation is achieved through self-interest behaviour. This final construct development can be analysed based on the commentary to bounded rationality in the fields of behavioural economics.

8 References

Boivie, S., Lange, D., McDonald, M. L., & Westphal, J. D. (2011). Me or we: The effects of CEO organizational identification on agency costs. *Academy of Management Journal*, *54*(3), 551–576. doi:10.5465/AMJ.2011.61968081

Caers, R., Du Bois, C., Jegers, M., De Gieter, S., Schepers, C., Pepermans, R., & Bois, C. (2006). Principal-agent relationships on the stewardship-agency axis. *Nonprofit Management & Leadership*, *17*(1), 25–47. doi:10.1002/nml

Companies act no.71 (2008). South Africa. Retrieved from http://www.acts.co.za/companies-act-2008

Cooper, D. R., & Schindler, P. S. (2014). *Business Research Methods* (Twelfth Ed., p. Chapter 14). McGraw-Hill: Maidenhead.

Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a stewardship theory of management. *The Academy of Management Review*, *22*(1), 20. doi:10.2307/259223

DeGregorio, J., & Lee, J. W. (2002). Education and income inequality: New evidence from cross-country data. *Review of Income and Wealth*, *48*(3), 395–416.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *The Academy of Management Review*, *14*(1), 57. doi:10.2307/258191

Evangelidis, I., & Levav, J. (2013). Prominence versus dominance: How relationships between alternatives drive decision strategy and choice. *Journal of Marketing Research*, *L*(December), 753–766. Retrieved from http://journals.ama.org/doi/abs/10.1509/jmr.13.0052

Fink, A. (2009). *How to conduct surveys. A step-by-step guide*. (V. Knight, Ed.) (4th ed.). London: SAGE Publications.

Fowler, F. J. J. (2009). *Survey research methods*. (V. Knight, Ed.) (4th ed.). London: SAGE Publications.

Grant, A., & Pollock, T. (2011). Publishing in AMJ—Part 3: Setting the hook. *Academy of Management Journal*, *54*(5), 873–879. Retrieved from http://amj.aom.org/content/54/5/873

Hardin, G. (1968). The tragedy of the commons. *Science*, *162*(3859), 1243–1248. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:The+Tragedy+of+the+Commons#0

Hermalin, B., & Weisbach, M. (2001). Boards of directors as an endogenously determined institution: A survey of the economic literature. *Economic Policy Review – Federal Reserve Bank of New York*, *9*(1), 7–26. Retrieved from http://www.nber.org/papers/w8161

Herman, D. (2008). First-time home buyers are getting older. *IOL News*. Retrieved December 11, 2014, from http://www.iol.co.za/news/south-africa/first-time-home-buyers-are-getting-older-1.386805#.VJ5NW5bDA

Kluvers, R., & Tippett, J. (2011). An exploration of stewardship theory in a not-for-profit organisation. *Accounting Forum*, *35*(4), 275–284. doi:10.1016/j.accfor.2011.04.002

Lan, L. L., & Heracleous, L. (2010). Rethinking agency theory: The view from law. *Academy of Management Review*, *35*(2), 294–314. doi:10.5465/AMR.2010.48463335

Mändle, M. (2013). The economics of housing co-operatives externalities. *International Journal of Co-Operative Management*, *6*(2), 26–33. Retrieved from http://www.bhamlive3.bham.ac.uk/Documents/college-social-sciences/social-policy/IASS/housing/international-journal-cooperative-management.pdf#page=25

McGinnis, M. D. (2011a). An introduction to IAD and the language of the Ostrom workshop: A simple guide to a complex framework. *Policy Studies Journal*, *39*(1), 169–184. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1541-0072.2010.00401.x/full

McGinnis, M. D. (2011b). Networks of adjacent action situations in polycentric governance. *Policy Studies Journal*, *39*(1), 51–79. doi:10.1111/j.1541-0072.2010.00396.x

Miller, D., & Sardais, C. (2011). Angel agents : Agency theory reconsidered. *The Academy of Management Perspectives*, 6–14. Retrieved from http://amp.aom.org/content/25/2/6.short

Mills, J. S. (1879). *Utilitarianism* (7th ed., p. 10). London: Longmans, Green, and Co.

Minora, F. (2013). Collective institutions towards habitability: Roles, strategies and forms of governance. *Euricse Working Paper N. 52|13.* Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2249710

Minora, F., Mullins, D., & Jones, P. A. (2013). Governing for habitability: Self–organised communities in England and Italy. *International Journal of Co-Operative Management*, *6*(2), 34–46.

Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.

Ostrom, E. (1999). Coping with tragedies of the commons. *Annual Peview of Political Science*, (1968), 493–535. Retrieved from http://www.annualreviews.org/doi/abs/10.1146/annurev.polisci.2.1.493

Ostrom, E. (2000). Collective Action and the Evolution of Social Norms. *The Journal of Economic Perspectives*, *14*(3), 137–158. Retrieved from http://www.jstor.org/stable/2646923 .

Ostrom, E. (2009). *Understanding institutional diversity* (pp. 3–31). Princeton university press. Retrieved from

http://books.google.com/books?hl=en&lr=&id=LbeJaji_AfEC&oi=fnd&pg=PR11&dq=Understanding+institutional+diversity.&ots=kv1z-UepYN&sig=E5xFOfqcNfTGfscROt0JQTT5lsQ

Ostrom, E. (2010). Beyond markets and states : Polycentric governance of complex economic systems. *American Economic Review*, *100*(3), 641–672.

Ostrom, E. (2011). Background on the institutional analysis and development framework. *The Policy Studies Journal*, *39*(1), 7–28. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1541-0072.2010.00394.x/full

Reuben, E., & Riedl, A. (2013). Enforcement of contribution norms in public good games with heterogeneous populations. *Games and Economic Behavior*, *77*(1), 122–137. doi:10.1016/j.geb.2012.10.001

Robbins, S. P., & Judge, T. A. (2013). *Organizational behaviours*. (S. Yagan, Ed.) (15th ed., p. 312). Harlow: Pearson Education Limited.

Roberts, J., McNulty, T., & Stiles, P. (2005). Beyond agency conceptions of the work of the non-executive director: Creating accountability in the boardroom. *British Journal of Management*, *16*(S1), S5–S26. doi:10.1111/j.1467-8551.2005.00444.x

Schaefer, M. (2014). Personal communication. Johannesburg.

Scholtz, G. J. (2013). *The keys to persuasion*. (R. Richter-Herbert, Ed.). Cape Town: Zebrapress.

Sectional title act no.95 (1986). South Africa. Retrieved from http://www.acts.co.za/sectional-titles-act-1986/

Tosi, H., & Brownlee, A. (2003). An empirical exploration of decision- making under agency controls and stewardship structure. *Journal of Management*, *40*(December), 0022–2380. Retrieved from http://onlinelibrary.wiley.com/doi/10.1046/j.1467-6486.2003.00411.x/full

Wegner, T. (2013). *Applied business statistics*. (P. Carter, Ed.) (Third Edit.). Cape Town: Juta & Company.

World Bank. (2014). South Africa overview. Retrieved December 21, 2014, from http://www.worldbank.org/en/country/southafrica/overview

Yau, Y. (2011). Collectivism and activism in housing management in Hong Kong. *Habitat International*, *35*(2), 327–334. doi:10.1016/j.habitatint.2010.11.006

9 Appendix

9.1 Research Survey

Co-operative Housing Survey
A series of questions have been structured specifically for each board member of a share block company, body corporate or homeowners association.
We need you to answer these questions because we recognise that this is an undervalued and thankless job.
All research that is conducted in this field will be used to better understand the industry and in future provide you with better tools to manage these institutions.
At the end of the survey you will be able to view the accumulated answers to each question. You should be able to complete the survey in 15 minutes.
///
Disclosure:
I am conducting research as part of the MBA programme at the University of Pretoria's Gordon Institute of Business Science (GIBS). The questionnaire should not take more than 15 minutes and your participation is voluntary. You can withdraw at any time without penalty and all data will be kept confidential. By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact me or my supervisor. Details provided bellow:
Researcher Name: Abraham Krüger Email: abekruger@gmail.com
Telephone number: -
Research Supervisor Name: Charlene Lew Email: clew@gibs.co.za
Phone: -

S1-1. Have you now or previously owned a property that forms part of a share block company, body corporate or homeowners association?	Yes	No				
S1-2. Have you ever served on a board of directors or trustees for a share block company, body corporate or homeowners association?	Yes	No				
S1-3. Have you served as the chairperson for a share block company, body corporate or homeowners association?	Yes	No				
S1-4. How long have you been active on these boards?	I have not served on these boards	less than 1 year	1 - 2 years	3 - 5 years	6 - 9 years	more than 9 years
S1-5. On how many share block companies, bodies corporate and homeowners association boards do you currently serve?	1	2	3	4	5 and more	

S1-6. How much time do you spend on management activities for all the share block companies, body corporates or homeowners associations that you are involved with per month?	less than 1 hour	1 - 2 hours per month	3 - 5 hours per month	6 - 9 hours per month	more than 9 hours per month	
S1-7. Are you currently or have you ever been remunerated for you services on a share block company, body corporate or homeowners association board?	Yes	No				

S2-1. What is your gender?	Male	Female				
S2-2. What is your age?	18 - 29 years	30 - 49 years	50 - 64 years	65 years or older		
S2-3. What is the highest level of education you have completed?	High school or equivalent	Vocational / Technical school (2 year)	Some university	Bachelor's degree	Master's degree	Doctoral degree
S2-4. What is your race?	Prefer not to Answer	Black African	Coloured	Indian/Asian	White	Other
S2-5. On what basis are you employed?	Self employed	Full time	Part time	Unemployed	Retired	
S2-6. What is your marital status?	Single/never been married	Married	Separated	Divorced	Widowed	

The following questions relate to aspects of the rules set out in share block companies, bodies corporate or homeowners associations as a governing institution. Please state the level of importance associated with each statement:							
	Extremely Unimportant						Extremely Important
S3-1. Directors (trustees) know exactly what all their responsibilities are.	1	2	3	4	5	6	7
S3-2. Property owners/tenants know exactly what their responsibilities are when it comes to maintaining the premises.	1	2	3	4	5	6	7
S3-3. Rules are specifically and uniquely developed for each share block company, body corporate or homeowners association.	1	2	3	4	5	6	7
S3-4. All property owner/tenants have a say in the rules governing the housing institution.	1	2	3	4	5	6	7
S3-5. Everybody accepts and adheres to rules even if they have not created them.	1	2	3	4	5	6	7
S3-6. It is recorded if people disobey the rules.	1	2	3	4	5	6	7
S3-7. People are penalised if they do not adhere to the rules.	1	2	3	4	5	6	7
S3-8. There is a standard process to resolve conflicts between two or more property owners/tenants or board (trustee) members.	1	2	3	4	5	6	7
S3-9. Share block company, body corporate or homeowners association rules suit the norms for the people in a wider yet immediate area (community).	1	2	3	4	5	6	7

The following questions relate to the different stakeholders internal to a share block company, body corporate or homeowners association. Answer the following questions:							
	Strongly Disagree						Strongly Agree
S4-1. Board (trustee) members are responsible to the property owners.	1	2	3	4	5	6	7
S4-2. Caretakers and/or ground staff are responsible to the board (trustees).	1	2	3	4	5	6	7
S4-3. Caretakers and/or ground staff are responsible to the property owners.	1	2	3	4	5	6	7
S4-4. Property owners are responsible to the board (trustees)	1	2	3	4	5	6	7

From a board member's perspective, responsible to all property owners for the management of the share block company, body corporate or homeowners association. Please state the level of importance associated with each statement:							
	Extremely Unimportant						Extremely Important
S5-1. Information relating to all aspects involved with the property management is relayed to all property owners.	1	2	3	4	5	6	7
S5-2. Property owners/tenants are made aware of sudden changes that could affect them.	1	2	3	4	5	6	7
S5-3. Opinions regarding the property management between the property owners and board (trustee) members are aligned.	1	2	3	4	5	6	7
S5-4. Board (trustee) members' performance is extensively measured.	1	2	3	4	5	6	7
S5-5. Board (trustee) members have clearly defined outcomes/targets with which their performance is evaluated.	1	2	3	4	5	6	7
S5-6. Board (trustee) members take full responsibility for all their decisions, irrespective of the fact that they can be held personally liable.	1	2	3	4	5	6	7
S5-7. Board (trustee) member tasks are consistent and do not change much throughout the year. It is also reasonably simple to teach someone else to do these tasks.	1	2	3	4	5	6	7

Imagine you as a board (trustee) member receive some benefits for your involvement in the share block company, body corporate or homeowners association.
A typical example of this would be free cleaning/gardening services, status through publicising your name on all mail, annual staff dinners or purely the joy of managing people. Indicate your level of agreement with the following statements keeping this in mind:

	Strongly Disagree						Strongly Agree
S6-B1[a]. The building where you live has a shortage of parking bays. There are, however, a few parking bays available for rent. You as a board (trustee) member maintain that you should get first preference to these additional parking bays.	1	2	3	4	5	6	7
S6-B2[a]. The exterior walls of all apartments need to be repainted every five years. The walls, however, start to look a bit tatty after two years. You instruct the caretaker to paint only your apartment with the leftover paint from the previous years.	1	2	3	4	5	6	7
S6-B3[a]. You love pets but live in a property where the rules state that you are not allowed to have any pets. You argue that if you get a pet that does not make a noise, no one would mind.	1	2	3	4	5	6	7
S6-B4[a]. You want to build an extension on your townhouse and normally do the approvals for others who also wish make modifications to their property. It is acceptable to approve your own extension.	1	2	3	4	5	6	7
S6-B5[a]. You know that there are noise regulations in your estate. However, you have a party which might overrun the curfew set out in the rules. This does not bother you too much as you do not have parties that frequently and besides, the neighbours had a party last week.	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
S7-1. Board (trustee) members generally try and serve all stakeholders within the share block company, body corporate or homeowners association equally.	1	2	3	4	5	6	7
S7-2. Board (trustee) members sometimes advance their own interests.	1	2	3	4	5	6	7
S7-3. What is the total annual income/revenue that the share block company, body corporate or homeowners association receives?							

a Only a one of the five vignettes are presented in a participants survey