Chapter 1: Introduction

1.1 Setting the scene

South African Local Government is confronted with enormous financial and financial management challenges, which are compounded by structural reform and a massive increase in service delivery demands flowing from the demise of *Apartheid*. These challenges have been further exacerbated by the global financial crisis (GFC) of 2008 causing a widespread deterioration in local government revenue collection. This is during an era in which substantial parts of the population, previously excluded from the relatively prosperous 'white' local government system, had sought and had been promised access to basic services, such as electricity, water, sanitation, refuse collection and improved infrastructure (like roads and stormwater drainage), as well as access to housing[6]. Further complicating the service delivery challenge was a national government commitment to the provision of 'free' basic services to the 'poor'. This coincided with a post-*Apartheid* era during which local government infrastructure had been allowed to decay throughout a period of political uncertainty and an unwillingness of the population to pay for services. The response to these challenges required a substantial improvement in local government financial management, which was well documented in the 1998 White Paper on Local Government (National Treasury 1, 1998), including to improve revenue collections and then efficiently apply funds raised to service delivery for the betterment of the population.

Structural reform was the first key phase of remodelling local government to meet these challenges, amalgamating many former municipalities, and forming a new system from the year 2000 that created 'wall-to-wall' local government (currently 283 municipalities) across South Africa comprising very large 'metropolitan' municipalities, local municipalities and district municipalities with a varied distribution of local government functions. Structural reform was also implemented during a period when there was a mass exodus of 'white' officials from the public sector and these vacancies filled with educated but inexperienced persons. Although beyond the scope of this thesis, it is worth noting that these structural challenges created the 'perfect storm' in local government at the beginning of the new millennium.

[6] Although the responsibility for public housing falls with the national government, components of housing construction was a vertical shared-services model with many of the larger municipalities being responsible for construction, associated with the construction of usual local government provided infrastructure, applying provincial government funding. Therefore, capacity to deliver housing was an important local government factor.

A crucial part of the financial management reform was legislative, with a number of pieces of legislation passed with the intention of transforming local government into a system of well-functioning and effective municipalities which would meet the massive service delivery challenges it faced. The national government had legislative authority in the South African system, and consequentially oversight of the legislation was assigned to national government departments. The legislation most relevant to this thesis was the crucial Municipal Finance Management Act (MFMA) (National Treasury 2, 2003), for which oversight was assigned to the South African National Treasury. The subject of municipal finances had been deemed so crucial to the reform of local government that it warranted its own very substantial piece of legislation, unlike in other countries, such as Australia, where financial management requirements are dealt with in general local government legislation or even relegated to regulation. It should also be stressed that the Municipal Property Rates Act (National Treasury 21, 2004) had a marked relevance for financial management reform, for which oversight was somewhat dysfunctionally assigned to the Department for Provincial and Local Government.

The South African National Treasury responded to its local government financial management oversight role by supporting the financial management reforms of the MFMA through the Municipal Finance Management Technical Assistance Program (MFMTAP). MFMTAP comprised a series of mechanisms, including direct financial assistance to municipalities and international advisory technical assistance to selected municipalities, coordinated under the umbrella of a World Bank program. The World Bank program oversight was utilised to gain ready access to international expertise.

A crucial element of the MFMA, described in more detail in Section 2.2 ‘South African Local Government Financial Management Reform’, focussed especially on ensuring that municipalities maintained a sound and sustainable financial position. Municipalities were required to develop ‘balanced’ budgets that could include only expenditure proposals that were funded by available accumulated funds already in a municipality’s possession or based on realistic revenue collection projections (National Treasury 20, 2007). Obviously these were meritorious objectives, not dissimilar to the aims in developing countries with similar local government governance and service delivery structures, but clearly the aspirations may not have been realistic given the ‘perfect storm’ milieu in which South African local government found itself. Complementary to the ‘balanced budget’ reform were comprehensive accrual

accounting and budgeting reforms designed to rapidly transform financial management to best international practice.

MFMTAP was designed to enable municipalities to move to best international practice, by supporting those larger municipalities that made a substantial contribution to the national economy with international technical advisory assistance. The technical advisory assistance was in the form of expert financial management practitioners obtained from developed countries with local government structures and systems similar to the South African aspirations.

MFMTAP formally concluded in May 2008, although the reforms continued past that date. For example, in 2009 the South African National Government promulgated new local government budget regulations, which effectively enshrined in law the administrative reforms promoted during MFMTAP (National Treasury 17, 2009). This legislation, and the complementary guidelines and other supporting materials, were this time supported by a European Commission project and involved a period of progressive implementation based on municipality capacity.

The financial management reforms were greeted with varying degrees of enthusiasm by municipalities. Past practices were entrenched, with many managers and staff in local government finance preferring to remain within the previous professionally driven regime guided by the Institute of Municipal Finance Officers (IMFO). Some municipalities welcomed the advisory technical assistance and moved forward with the reforms, whilst others resisted. Racially discriminatory practices, both those that existed in the *Apartheid* era and those implemented post-*Apartheid*, were also clearly having a detrimental impact on the reform and acceptance of modern financial management practices.

Service delivery expansion, especially the provision of free basic services, was occurring without a consistent resources base. Some municipalities could progress from a solid financial base and high historic revenue collection rates, yet many others were constrained by poor financial condition, poor revenue collection rates and local communities unwilling to pay for municipal services, as well as corruption at both the political and administrative levels. Some local politicians, including self-serving political entrepreneurs, pursued the service delivery objectives to the detriment of their municipality's financial position. Others strived to maintain the strict MFMA requirements, under community pressure against their under-delivery of national service delivery expectations and deteriorating economic conditions, whilst others tried to achieve a balance between reform and community pressures.

During MFMTAP a key specific question that was continually asked was related to how municipal adherence to the MFMA's 'balanced and funded budget' requirements in the new regime of accrual accounting and budgeting would be measured. Accounting reforms, progressively implemented, threatened to disguise the nature of underlying compliance. Complex evaluation procedures drained national and provincial oversight resources to respond and advise local government on their MFMA adherence, and prevented achievement of critical timeframes. By way of illustration, it proved futile for the South African National Treasury to conduct an extensive evaluation, only to discover that a municipal budget did not comply with the minimum requirements many months after a Council had already approved its budget and was moving forward on an expenditure program, thereby threatening its financial condition.

The South African National Treasury accordingly embarked on developing mechanisms that would measure municipal adherence to the MFMA's funding requirements and municipal financial health. This commenced with evaluating techniques that would assess financial health during MFMTAP, the issuing of budget funding instructions in 2007 (National Treasury 6, 2007) and then leading to the issue of the MFMA Funding Compliance Guideline (National Treasury 10, 2007). A key challenge of these financial condition assessment techniques was that they included a multitude of measures that invariably produced inconclusive results due to an inconsistent change of the measurement items. Another key challenge was that many of the measures of the funding compliance procedure were clearly highly correlated, so that positive or negative change in the measure results could be attributed to the same underlying factors. The funding compliance requirements were later legislated as part of the 'budget' regulations (National Treasury 17, 2009).

This thesis interrogates and extends these financial health and funding compliance mechanisms. The quantitative analysis seeks to assess municipal financial performance during the MFMTAP. The analysis conducted in this thesis also attempts to evaluate whether international advisory technical assistance had made a difference to the progress of the reforms, by comparing the financial assessment results of those municipalities that had received this assistance with those that had not. The analysis introduces a scale measurement methodology for simply assessing funding compliance and adapts a financial health methodology to enhance the procedure on which development had commenced only during MFMTAP. There was also an attempt to understand whether political entrepreneurs were having a detrimental impact on the legislated financial compliance requirements by seeking to

gain community praise and recognition for service delivery expenditure beyond the financial capacity of the municipalities.

There are many similarities between the South African local government structure and practices and those that exist in other countries. Quantitative analysis was therefore also pursued to ascertain if the financial condition and health analysis techniques developed during the South African reforms had broader application, especially in a developed country context. Even though advanced countries do not have the same socio-economic circumstances of South Africa, there are nonetheless similarities in the complexity of the financial analysis relating to local government's financial situation. Given that the writer has extensive experience in Australian local government financial management he therefore sought to determine if the techniques developed for South Africa had application in the Australian context.

The analysis for the thesis produced some promising, but inconclusive results. The results are tentative because the analysis period was characterised by deteriorating economic conditions and progressive implementation of the legislative reforms. Greater certainty would be gained from the analysis being repeated during a period of improving or stable economic conditions once the reform implementation was completed in South Africa, as well as being applied to a larger Australian sample. It was difficult to conclude that international advisory assistance had a profound impact on the target municipalities, although repeated analysis could also confirm this. The political entrepreneurs were found to be an impact on financial rule compliance, but not on escalating capital expenditure programs. The measurement scale approach applied to the South African funding compliance procedure proved to simplify the analysis and promises to improve the efficiency of that analysis. Factoring of the scale outcomes produced promising results, because there is the potential to enable an oversight institution, such as the South African National Treasury and provincial treasuries to quickly assess apparent non-compliance and act to prevent deteriorating financial condition that might lead to financial default.

Chapter 1 is divided into three main parts. Section 1.2 describes the chapter structure of the thesis. Section 1.3 sketches the writer's experience in South African local government financial management reform. Chapter 1 ends in Section 1.4 with a synoptic outline of the overall thesis.

1.2 Thesis structure

Chapters 1 to 3 define the institutional and research problem, sub-problems and hypotheses. **Chapter 4** describes the research purpose and the quantitative analysis design. **Chapter 5** contains the main body of quantitative analysis, including the application of factoring to reduce and simplify the number of funding compliance measurement instrument items.

Chapter 6 uses two measurement instruments, a financial health instrument and a funding compliance assessment, to analyse the financial health and condition of a sample of 50 South African municipalities during the Municipal Financial Management Technical Assistance Program (MFMTAP) between 2004/05 and 2010/11. Chapter 6 also includes an analysis of the political entrepreneur impact on the financial performance of the sample.

Chapter 7 discusses whether the funding compliance measurement instrument has a broader international application outside of South Africa, and presents the analysis results of the application of the quantitative analysis of two large Australian local government authorities.

Finally, **Chapter 8** presents the conclusions by discussing the analysis findings in the context of each of the sub-problems and their related hypotheses.

1.3 South African local government reform experience

The writer travelled to South Africa as an international technical (financial management) advisor in early 2003, and was engaged in various advisory roles throughout the entire World Bank MFMTAP until May 2008, first at the City of Tshwane and later at the South African National Treasury. Subsequently, from 2009 through to June 2010, further South African financial management reform experience included various European Union supported projects, all managed from within the South African National Treasury. The basis of some of the concepts included in this research emanated from advisory experiences at the City of Tshwane and work within the National Treasury. This included the development of the 'budget' regulations, guidelines and tools that became the basis of 2009 legislation to guide the production of future municipal medium-term framework and budgets.

Although substantial progress was made during this reform period, on reflection the experience was much like others have described based on involvement in similar programs throughout the developing world. During the literature review an apt quote was uncovered that probably best describes the feelings and frustrations of many involved in public sector

reform, that despite the undoubted progress those involved often feel they are caught in political and organisational paralysis:

> *PFM [public financial management] reform tends to be a complex, slow and time-consuming process. This makes the advisor's task difficult and potentially frustrating since, measured against the slowly shifting sands of progress, any contribution that he or she can be expected to make must surely seem insignificant*. (Allen, 2008, p.72)

Hence the need to develop and test new methodologies and techniques that measure the reform was identified, and hopefully through this thesis establishing a new higher performance benchmark.

1.4 Outline of the thesis

This thesis has three main parts. The first part, chapters 1 to 4, comprises the introduction, background and structure of the thesis. The first part includes setting the scene in terms of the South African situation at the outset of the research (Section 1.1), describing the South African local government financial management reform program that was a key motivator for the research (Section 1.3), and also describing the funding compliance measurement instrument that would become a fundamental component of the quantitative analysis that was to be conducted. The structural aspects of the first part include describing the research problem in detail (sections 2.1 through to 2.5) as well as describing the key components of the quantitative analysis which are the variables (Section 2.6), hypothesis (Section 2.7), research scope limitations (Section 2.8), a detailed description of the motivations and importance of the research (Section 2.9), the existing relevant theories (the theoretical framework) from the literature (Section 2.10), and any key assumptions that were made.

The first part also includes the literature review, which is categorised in Chapter 3 in terms of the seven sub-problems. The final component of the first part is Chapter 4, which provides the detailed design and methodology of the quantitative analysis.

The second part of the thesis comprises the detailed quantitative analysis and outcomes. Chapter 5 includes the factoring analysis, generalisability test and a regression investigation. The factoring was pursued as part of the research design because of the need to reduce the number of variables, and eliminate the high level of probable correlation between the variables, to develop a simplified measurement instrument. Chapter 6 includes applying the results of the analysis from Chapter 5 to interrogate whether international technical assistance

made a genuine financial health difference to the limited number of beneficiary municipalities that received the assistance. Chapter 6 also uses a financial health measurement instrument, which was originally partially developed during the South African reform program and then enhanced during this research, to test whether there was difference between achievement of legislative funding compliance and a broader definition of municipal financial health. Chapter 7 describes the application of the funding compliance and financial health instruments to a developed country local government situation to ascertain whether the instruments that had been applied in a developing country could also be utilised in a developed country local government context.

The final part, Chapter 8, comprises the conclusions of the research and a description of opportunities for further research.

Chapter 2: Institutional problem and setting

The purpose of Chapter 2 is to describe in depth the key components of the research problem. Chapter 2 commences with a short presentation of the research problem wording (Section 2.1). Section 2.2 describes the South African institutional setting in which local government financial management reform has occurred. Section 2.3 then describes a core aspect of the quantitative analysis designed to support the reform, being the municipal funding compliance initiative. This is followed in Section 2.4 by a description of the key acronyms and abbreviations that are used in the thesis. A comprehensive description of the sub-problems is included in Section 2.5, followed by a discussion on the analysis variables in Section 2.6.

Section 2.7 proposes a hypothesis for each of the sub-problems. Section 2.8 explains the boundaries of the research by defining the delimitations of the scope. This is followed by a detailed explanation of the motivation and importance of the study in Section 2.9. The theoretical framework, being the existing theories uncovered from the literature, is outlined in Section 2.10 and Chapter 2 concludes with Section 2.11 explaining the key assumptions supporting the research design.

2.1 Research problem

The research problem is summarised as follows:

> ***Is international best practice technical assistance performance for South African local government financial management reform and capacity-building from 2003 capable of quantitative assessment?***

The research problem has been defined as comprising seven sub-problems. Each of the sub-problems is described in Section 2.5.

2.2 South African local government financial management reform

Local authorities are commonly referred to in South Africa as ‘municipalities’. In any analysis of municipal operations it is important to appreciate the environment, managerial and administrative capacity, with the broad constitutional and legislative context in which local

government exists. An apt synoptic description of the woes of South African local government that influenced the need for reform was given by (Brand, 2007, p.11):

> *Although there are shortages of appropriately qualified personnel in all three spheres of government, it is perhaps more acute in local government. This situation is aggravated by serious under-performance by some municipalities. The seriousness of the situation in some communities has even led to public protests by residents because they are not receiving the services that a municipality should provide.*

A 1998 White Paper (National Treasury 1, 1998) (Section G - Municipal Finance) accurately captured the urgent need for remedial reform in local government financial management, observing that 'budgeting, accounting, financial reporting and financial management practices suffer from a number of weaknesses', including 'unrealistic budgeting', 'poor credit control' and 'a lack of budgetary and financial discipline' (National Treasury 1, 1998, p.94).

As a consequence, the South African National Treasury (NT) embarked on a technical assistance capacity-building program in the year 2000. NT's primary objective was to secure sound and sustainable management of government financial affairs, including local government, and to lead these reforms (National Treasury 1, 1998). NT's Municipal Financial Management Technical Assistance Program (MFMTAP) was a local government financial management reform and capacity-building 'pilot' program. MFMTAP was supported by international expert advisors commencing in 2003 with seven municipalities and later expanding to 36 municipalities. The expert advisors were required to guide the preparation and tabling (at meetings of the municipal Council itself) of multi-year budgets. Appendix C, **Table A1**, (Advisory Technical Assistance) lists the municipalities that received advisory technical assistance and the duration (years). Table A1 includes information for the total number of years of each advisor and the total number of years of advisory technical assistance that was provided to each municipality. More than one entry for a municipality indicates that multiple advisors were assigned during the period of MFMTAP. Fifteen municipalities had multiple advisors.

National Treasury had expected an improvement in financial and budget outcomes by achieving 'substance as well as form' and not merely 'form', that is, mere improvement in the format and content of budget, annual financial statement and annual report documents would have been a replication of the reform failure documented in the literature.

The required budget content and format was determined by the Municipal Finance Management Act 56 of 2003 (MFMA) (National Treasury 2, 2003). The MFMA was

modelled on the South African Public Finance Management Act (PFMA), similar legislation applicable to the broader public sector, but modified for specific local government conditions:

> *The MFMA aims to enhance budget, accounting and financial management practices by placing local government funding on a sustainable footing in order to maximise the capacity of municipalities to deliver services to communities.* (National Treasury 19, 2012)

The objective to achieve sustainable local government funding, a higher aim than mere budget process and budget document format improvement, is worthy of note.

The relevant MFMA provisions are displayed in Appendix D (MFMA legal requirements for funding a municipal budget). These provisions aim to restrain municipalities from spending beyond their means, by encouraging or restricting budgets to include only regular collectable revenue and only borrowing for capital expenditure (implying that municipalities cannot borrow for operational purposes, since 'operational borrowing' creates a risk of unsustainable operations, a common practice prior to the reforms). It has been concluded previously (Shah, 2007) that these provisions illustrate how the central government responded to the local government financial management challenges described by the 1998 White Paper (National Treasury 1, 1998) referred to previously.

National Treasury (NT) regularly issues guidance pronouncements, entitled *MFMA Circulars*, providing direction on reform implementation. Two key circulars were *MFMA Circular 28: Budget Content and Format* (2006/07 MTREF) and *MFMA Circular 42: Funding the Municipal Budget*. There were significant and ground breaking NT circulars, introducing the format and content for the municipal budget, emphasising the 'budget must be funded according to MFMA section 18(1); and must be credible' (National Treasury 5, 2005) (National Treasury 6, 2007).

MFMA 28 and MFMA 42 defined a ***credible and realistic budget*** as it being essential to contain the following elements:

- 'Contains revenue and expenditure projections that are consistent with current and past performance and supported by documented evidence of future assumptions' (National Treasury 5, 2005, p.2),
- 'Does not jeopardise the financial viability of the municipality (ensures that the financial position is maintained within generally accepted prudential limits and that obligations can be met in the short, medium and long term' (National Treasury 5, 2005, p.2),

- ‘A realistic, credible, viable and sustainable budget is achieved through simultaneous alignment of projected financial performance, financial position and cash flows’ (National Treasury 6, 2007, p.1),
- ‘The budget can only be funded by realistically anticipated revenue to be collected and cash-backed accumulated funds from previous years, not committed for other purposes’ (National Treasury 6, 2007, p.2),
- ‘The capital budget may be funded by cash-backed current year surplus in the Financial Performance budget, including capital grants and other contributions, cash-backed accumulated funds from previous years not committed for other purposes, and borrowing’ (National Treasury 6, 2007, p.2),
- ‘The term “realistically anticipated” requires the budget to consider previous years’ performance, and the likelihood of whether all revenue sources will be realised’ (National Treasury 6, 2007, p.4), and
- ‘Capital expenditure must only be included in the budget if there is certainty that financing will be secured’ (National Treasury 6, 2007, p.4).

These requirements are absolutely critical to the funding measurement approach to be discussed here, as they were used as a checklist to develop the funding compliance procedure.

In addition, NT embarked on a project in 2007 to develop ‘Budget’ regulations, to ‘regulate’ requirements that were similar to the requirements previously issued in MFMA Circulars 28 and 42. The purpose of these regulations was to improve compliance, targeting municipalities less inclined to implement reforms voluntarily.

Part of the regulatory agenda included an elaboration of the MFMA’s expenditure ‘funding’ requirements. The ‘budget’ regulations, initially intended to be promulgated in 2008 but eventually passed in 2009, included a requirement for a ‘funding compliance’ table to be contained in budget documents. The ‘funding compliance’ table comprised a series of selected measures providing the municipalities and local communities with confidence the budget is realistic, credible and MFMA compliant. The objective was to have municipalities self-test to prevent non-compliance situations being approved by their Councils.

In Section 1.1 it was discussed that one purpose of the research proposal was to assess whether these ‘funding compliance’ measurements achieved the stated objectives of sound and sustainable financial management. This assessment is based on whether the

measurements, using the evaluation of a statistically representative sample of municipalities, highlight trends and levels of funding compliance or non-compliance.

2.3 MFMA 'Funding Compliance Measurement' initiative

The thorny problem of understanding advisory technical assistance (BPTA) successes was critical as MFMTAP came to its conclusion in May 2008. During 2007, after over six years of MFMTAP progressively providing BPTA to municipalities, and providing 'encouragement' to improve financial management practices, National Treasury (NT) decided to produce 'Budget Regulations' to support various aspects of the MFMA. A key question, as the MFMTAP ended in May 2008, was whether there was discernible improvement in budget documentation quality and financial outcomes. It would also be relevant whether there was a difference in capacity between the municipalities provided with direct advisory technical assistance and those that had not received advisory assistance. The 'funding compliance measurement' initiative provided an opportunity as an improvement assessment technique. For example, is it possible to understand the true financial performance and position of a target municipality, something the *1998 White Paper* (National Treasury 1, 1998) stated as not possible?

During a similar Hungarian local government technical assistance program, it had been observed that 'the ultimate test of this capacity-building strategy is whether one can discern an improvement in government performance' (Straussman, 2001, p.4). In the present case, it was also pertinent to ask if the 'funding compliance' performance of municipalities could be evaluated.

If financial health improvement were to be discovered it could also be argued that improvement would have occurred regardless of MFMTAP, simply by legislation enforcement, or that improvement would have occurred naturally as the restructuring program was consolidated and embedded. A controlled test would be useful. However, in the real world it was obviously impossible to create a control group of municipalities that had not received capacity-building assistance. Indeed, all municipalities received at least some assistance funding and all received the benefit of guidance circulars and other publications.

Local government managers are transient, moving between municipalities. It was observed that managers were moving from municipalities that received advisory technical assistance and provide benefit to municipalities that did not receive assistance.

However, of the 283 municipalities, only 36 directly received varying terms of a BPTA advisor and a smaller number of local authorities were provided with an advisor for a considerable period. It is also worth noting that some municipalities have had more than one advisor, and some had more than one advisor for relatively short periods, suggesting their advice and contribution may have been limited. Moreover, it is likely that there was a degree of variability in advisor ability, experience and acceptance. It was not uncommon for municipalities to resist having BPTA assistance, and these municipalities could also comprise another evaluation group due to the minimal influence of the BPTA.

MFMA sections 18 and 19, as indicated earlier, include prescriptions of budget funding; revenue must be 'realistic', spending of accumulated funds can occur only if the funds are cash-backed, and borrowing can fund only capital expenditure (or refinancing earlier borrowing for capital). These constraints are embedded in the legislation because many municipalities were previously budgeting for fictitious or uncollectible revenue inconsistent with past collection performance, or were borrowing to fund operational costs with potential dire long-term financial consequences. By contrast, other municipalities had conservatively amassed reserve funds, but were not using these funds to deal with substantial community service delivery backlogs.

Despite the guidance provided in previous budget circulars, MFMA 'questions' to the NT 'MFMA helpline' suggested there was still a lack of clarity about how a budget is 'compliant funded' in accordance with the MFMA. MFMA Circular 42,(issued in March 2007 (National Treasury 6, 2007), attempted to clarify the subject, but was issued too late to significantly influence the 2007/08 Medium-Term Revenue and Expenditure Frameworks (MTREF) that were legally required to be approved by the end of June 2007. 'MTREF' is the name of a three-year medium-term budget that municipalities are required to approve annually.

The decision to issue 'Budget' regulations provided an opportunity to further prescribe aspects of funding compliance. Guidelines issued with the regulations provided another explanatory opportunity. A sub-project of the 'Budget' regulations project was to produce a 'funding compliance procedure' to test MFMA compliance of municipal budgets. The budget format was aligned to national and provincial government budget formats, to include three prior years of audited 'actuals', the current year approved budget, comparative information adjustments, as well as a three-year medium-term budget (National Treasury 9, 2007).

The funding compliance procedure and analysis provided the basis for evaluating specific aspects of municipal financial performance, but arguably financial health improvement was

an intended outcome of MFMTAP, albeit implied rather than an explicitly stated. Accordingly, the funding measurement analysis could in turn provide an opportunity to discern evidence of BPTA success or otherwise (i.e., that if a municipality's performance improved during and after the program, then this may be evidence of BPTA success). However, this measure alone would not empirically validate the BPTA process due to the high possibility that financial health change was caused by other variables.

Put simply, can the 'funding compliance procedure' measure and assess BPTA progress? The approach proposed was to initially analyse the outcome of the procedure for one sample respected metropolitan municipality that had been a technical advisor beneficiary from mid-2003, one year prior to the MFMA applicability from the year 2003, until 2006, to develop the methodology (Dollery and Graves, 2009). The sample municipality, the City of eThekwini (formed from amalgamations with the City of Durban) therefore met one criterion of having a technical advisor for a reasonable period of time. A reasonable period had elapsed after the advisor's term to discern if change was sustained. The sample was also a recognised high performer, providing publicly available financial information that supported the quantitative analysis. Lesser-capacity municipalities were unlikely to have financial information for the full analysis period.

The methodology was then applied to a larger sample of four municipalities (Graves and Dollery, 2009) and then finally to a much larger sample, as described in this thesis.

The initial analysis focused on measuring financial performance in the two financial years prior to the BPTA (i.e., the 2001/02 and 2002/03 financial years), analysing trends during the MFMTAP, and considering the status of the 2007/08 MTREF to understand the current post-BPTA position. Financial performance includes 'format presentation' requirements (that the municipality has in fact budgeted for the next three financial years, as the MFMA requires), as well as the 'quality' and MFMA compliance of the financial information. A working hypothesis was that the sample municipality would indicate signs of performance improvement during and after the provision of BPTA, compared with the noBPTA municipalities.

The funding compliance procedure built upon advice to municipalities in MFMA Circular 42 (Funding the Budget). The aim was to provide a basis for independent analysis and municipality self-assessment of compliance with the funding requirements of MFMA sections 18 and 19. By examining components of the level of funding over time, pre- and post-BPTA for the municipalities that had been provided with a technical advisor, conclusions may be

possible on aspects of municipal financial management performance and its relationship to MFMTAP.

A contentious part of accrual accounting and budgeting, particularly related to Section 18 of the MFMA, resides in demonstrating whether a municipal budget complies with requisite legislative funding requirements (i.e., that expenditure must be funded with legitimately collectible revenue). It is contentious because of the differences between the cash and non-cash elements of the budget. A common situation was municipalities approving expenditure budgets supported by dubious claims about their ability to collect revenue and ignoring past revenue collection performance.

Municipal accounting requirements include complex 'reserve' accounting to recognise various statutory and policy commitments. The 'reserving' is predominantly 'accounting' results that need deliberate backing by cash and investments if the backing is deemed necessary. If full cash backing is not achieved, then it is possible for a municipality to report accumulated surpluses which are not cash-backed, and therefore funds are not available to 'fund' future expenditure. This is most likely where surplus cash has been transferred to fund the capital budget. Moreover, timing is a crucial evaluation element, as an ostensibly favourable cash and investment position at financial year-end may rapidly dissolve as the municipality meets its creditor obligations.

The funding compliance procedure was intended to overcome the shortcomings of other measurement approaches by testing a series of elements. The test order was deliberately sequenced from solvency to sustainability. The first test was to simply test for a positive cash/cash equivalents year-end balance, a 'negative balance' providing initial evidence that 'all may not be well'. Towards the end of the procedure the focus turned to sustainability tests, such as asset repair expenditure levels, to ensure revenue-generating assets are protected – for instance, whether electricity distribution infrastructure assets are maintained to ensure that electricity supply is not disrupted. Favourable test responses would provide confidence of overall budget funding in accordance with MFMA requirements. The Appendix F (MFMA 'funding' compliance) flowchart illustrates the entire funding compliance procedure.

The procedure drew on components of a municipality's annual and budgeted financial statements. Budgeted financial statements, required by MFMA Circular 28 from the 2005/06 MTREF onwards, were an essential input to the compliance calculations. Yet even some high-capacity 'metro' municipalities displayed deficiencies in this aspect of their budgets. A key procedure element was the proposed introduction of a requirement to include in a medium-

term budget the comparative three years of prior-year audited outcomes, a format consistent with the requirements of national and provincial budgets. Without this history it would have been difficult to analyse past municipal performance and trends and be able to conclude if the proposed budget was reasonable.

The 'seven-year view' format, consistent with national and provincial budget formats, comprised the three prior financial years of actual financial information, the details of the year in which the budget was being prepared and the three-year medium-term budget. The format provided a powerful trend analysis tool. As most 'metros' progressively introduced Generally Recognised Accounting Practice (GRAP) or Generally Accepted Municipal Accounting Practice (GAMAP) from 2003/04, some only in 2004/05, it was only for the 2007/08 MTREF those three prior years of 'actuals' became available for some municipalities. However, it was possible to undertake a reasonably accurate translation of financial performance, financial position and cash flow outcomes prior to 2003/04, using municipal financial statements that applied formats issued by the Institute of Municipal Finance Officers (IMFO), with the translation controlled by a cash flow statement reconciliation. The translations provided sufficient information to meet the funding compliance requirements.

The funding compliance procedure measures are displayed in Appendix G (Funding compliance measures).

The depreciation 'offset' referred to in the fourth measure, 'Financial Performance (operating) Surplus/Deficit excluding depreciation "offsets"', deserves explanation as it is unique to South Africa. It is the amount of depreciation attributable to assets purchased using external funds, mainly provided by national government. The National Treasury's policy position is that this expense should be excluded from analysis that supports property rate and tariff proposals because its inclusion effectively means that the community is being taxed twice for the same assets (National Treasury 13, 2008, p.6). An alternative view is that the principle of not funding externally funded asset depreciation will result in a municipality failing to generate sufficient asset replacement funds, and when the asset's life is expired the municipality may again require external funding for asset replacement (National Treasury 13, 2008, p.7). External funding is typically transfers from the national government, such as a Municipal Infrastructure Grant, and Provincial Government or developer contributions towards new infrastructure assets in land development.

A full description of the measures is described in the 'MFMA Funding Compliance Guideline' (South African National Treasury (MFMA website, (National Treasury 13, 2008), and is not repeated here.

The funding compliance procedure was initially tested as part of the development of the proposed municipal budget formats, created in conjunction with draft budget regulations, to ascertain if the measures were relevant and readily calculable from available data. When the development of the procedure had reached a reasonably robust stage, it was introduced to an investigation team within NT's 'Intergovernmental Relations Directorate', which applied the full procedure addressing all 18 items on the 2007/08 MTREFs of three of the large metropolitan municipalities. It was also agreed that all six 'metros' would be specifically analysed for funding compliance for the 2007/08 MTREF and the municipalities advised of the results, but this was subsequent to the finalisation of MFMTAP. The tool used was a part of the municipal budget 'template' developed for the budget regulation format test. This process was completed during November 2007 and Municipal Managers of the municipalities advised of the analysis outcomes (Dollery and Graves, 2009).

2.4 Key definitions and acronyms explained

The following definitions, many documented during the literature review, were useful and were applied in the research for this thesis.

Advisors – '… advisors can be distinguished on the basis of the functions they serve: high level policy neutral advisors; gap-filling advisors; condition precedent advisors; gate-keeper advisors; and specialist advisors' (Cohen, 1992, p.495). *Gap-filling advisors* have been described as, 'From a capacity building point of view, the ideal advisory team, is one that provides needed expertise while training government officers to replace its members' (Cohen, 1992, p.496). Many of the MFMTAP advisors served as gap-filling advisors due to limited management capacity at their assigned municipalities.

Apartheid – 'social and political policy of racial segregation and discrimination enforced by white minority governments in South Africa from 1948 to 1994. The term *apartheid* (from the Afrikaans word for "apartness") was coined in the 1930s and used as a political slogan of the National Party in the early 1940s, but the policy itself extends back to the beginning of white settlement in South Africa in 1652. After the primarily Afrikaner Nationalists came to power in 1948, the social custom of apartheid was systematized under law' (Robinson, 2011).

Budget – 'In management terms, budgets provide a means of achieving control over activities, a means of coordination of operations, and a device to communicate expectations to employees and other interested parties' (Kloot, 2006, p.76).

Credible budget – The previously published definition was applied: 'We apply a limited definition of budget "credibility"' (Dollery and Graves, 2009). The literature reveals other definitions that utilise broader criteria for evaluating public sector budget credibility including technical and governance perspectives. 'Credibility' is 'more than ensuring that the numbers contained in the budget document are correct and based on realistic macroeconomic foundation' (Folscher, 2006, p.5) and will include budget formulation rule and process predictability, macroeconomic frameworks, realistic revenue forecasts, transparent planning, solid budget classification and, importantly, implementation as planned (Folscher, 2006). But we deliberately narrowly concentrated on National Treasury's (NT)'s funding compliance focus of the macroeconomic and 'correct numbers' technical aspects of 'credibility', which 'has implementation elements in terms of multi-year performance comparison and performance indicators, but certainly does not measure delivery of promised services' (Dollery and Graves, 2009, p.388). Further, 'credibility' is 'more than ensuring that the numbers contained in the budget document are correct and based on realistic macroeconomic foundation' (Folscher, 2006, p.5). In other words, budget credibility must be more than simply checking the arithmetic, but involves an in-depth understanding of the past fortunes, plans and local economy by every municipality.

Creditworthiness – 'the ability of a local government to borrow … can serve as a bellwether of sorts for the local government's creditworthiness' (Boex and Martinez-Vazquez, 2006, p.181). Therefore, continuous and increasing external borrowing or otherwise by South Africa municipalities will serve as some degree of judgement about creditworthiness, although the lending causes of 2008 international financial crisis may put this theory into a different perspective and dispute considering the macroeconomic effect.

Economies of scale – 'in standard economic usage, refer to a decrease in average costs as the quantity of output rises. In reference to the optimal size for governments, the term usually refers to a decrease in the cost/person for a given amount of service as population served increases' (Pilcher, 2005, p.177). This theory/concept may be relevant to comparing municipalities of significant size variation, especially with larger municipalities experiencing the benefit of reduced unit costs.

Efficiency – 'describes how well organisations use their resources in producing services and can achieve the manner of an absolute measure of performance' (Worthington, 2003, p.178). In the present context the term 'efficiency' is used which carries the same meaning as 'productive efficiency'.

Financial condition – 'A term closely related to fiscal health is financial condition which Wenshan Lin and K.K. Raman (1998, p.96) describe as having to do primarily with fiscal effort or the relative level of taxation and spending'. They point out that 'a government could be in a good financial position (e.g. have good liquidity) but be in a poor financial condition'. According to these authors, a weak financial condition means that a government has a relatively low 'probability of being able to sustain the current level of services at acceptable levels of taxation (p.97)' (Honadle et al., 2004, p.19). National Treasury's (NT)'s funding compliance procedure partly attempts to evaluate both the financial position and the probability of sustaining service levels at acceptable levels of taxation by assessing adherence to taxation increases within national macroeconomic inflation targets (the Reserve Bank target maximum).

Financial crisis/stress – The following passage from R.G. Downing (1991, p.323) on urban country fiscal stress and the perceptions of public officials is relevant:

> *Situations perceived by respondents to have the highest validity as indicators of financial stress are (1) inability to meet payrolls when due and (2) default on repayment of bonded debt. Since these indicators obviously signify extreme conditions avoided by almost all counties, even by those in the poorest financial condition, they might be more appropriately considered signs of financial crisis, not fiscal stress.* (Honadle et al., 2004, p.20)

Searching for a sign of potential financial crisis is one of the key objectives of the National Treasury's funding compliance procedure, in particular the funding compliance measures relating to how many months in difficult revenue circumstances can a municipality meet variable cost outlays with available cash and investments. This measure indirectly deals with the payroll and borrowing repayment risks suggested by Honadle.

Fiscal health – 'Above all is an indication of the ability of local governments to provide adequate, uninterrupted services to their constituents' (Honadle et al., 2004, p.1); for example, the City of Tshwane fire at its headquarters in the 1990s, which significantly curtailed revenue collection for some months and significantly disrupted service delivery, impacted on its fiscal health.

Fiscal autonomy – 'the degree of discretion which local authorities have over their sources of finance' (Dollery et al., 2003, p.5). This may be a critical variable in explaining funding compliance outcomes; that is, a municipality that is heavily dependent on national funding for its expenditure program has a lower level of discretion, but should have an easier task at achieving funding compliance. National budgets such as South Africa's that provide three-year projected allocations to recipient levels of government afford comfort to their medium-tern budget situation. Fiscal autonomy is partially measured by the funding compliance reference to the 'borrowing' level.

Fiscal illusion – 'revolves around the proposition that the actual costs and benefits of government may be consistently misconstrued by the citizenry of a given fiscal jurisdiction' (Dollery, 2003, p.224). Local authorities or municipalities budgeting for expenditure that is not backed by realistic revenue or a reconciled cash-backed surplus are creating an unsustainable 'fiscal illusion'.

Funding compliance – the South African National Treasury's (NT) funding compliance procedure comprises 18 questions (17 questions with Question 11 having two parts). The questions are displayed in Appendix H, the initial draft proposed funding compliance Likert scales including an overall summary key performance indicator assessment question. The core objective was to measure adherence to two key budget compliance sections of the MFMA. The relevant MFMA sections are provided in Appendix D (MFMA 'funding' legal requirements). Overall, the funding compliance requirements is a relatively simple equation, to establish what funds the municipality has available or expects to 'realistically' receive, and approve a three-year operational and capital budget that does not exceed this funding limit. If a municipality keeps within this funding envelope there is a good possibility that most of the funding compliance questioning is related to unravelling this equation in a complex accrual accounting environment.[7]

Good budget document – 'an instrument that provides information on the economic, financial, social, and other activities of a community in order to facilitate decision making allocating scarce resources in an efficient and effective manner to cover prioritised expenditures' (Poghosyan, 2007, p.175). In the context of this research a good budget document will also be one that provides the information necessary to undertake the funding compliance analysis.

[7] The writer developed the funding compliance procedure when in the role of an advisor within the South African National Treasury, to be incorporated into proposed municipal financial management regulations to enforce the MFMA.

Good budgeting – 'is a broadly defined process that has political, managerial, planning, communications and financial dimensions. The budget process is not simply an exercise in balancing revenues and expenditures one year at a time, but is strategic in nature, encompassing a multi-year financial and operating plan that allocates resources on the basis of identified goals' (Tonko, 2007, p.124).

Interval data – 'Generally integer data in which ordering and distance measurement are possible' (Allen and Seaman, 2007, p.64).

Intervalness – Suppose the rank data included a survey of income measurement as $0, $25,000, $50,000, $75,000 or $100,000 exactly, and these were measured as "low", "medium", and "high". 'The "intervalness" here is an attribute of the data, not of the labels' (Allen and Seaman, 2007, p.65). This concept is relevant to some of the Likert scale items developed to measure funding compliance, which allow the translation of the value of the financial intervals to a scale.

Lawn-mower method – 'A widespread practice of financing deficits in Hungary is known as the "lawn-mower method". This means that the first draft of the budget - based on the requests of departments and institutions - expenditures are usually 5 to 10 per cent higher than revenues. In order to eliminate this deficit, many local governments give 5 to 10% less to each department' (Tonko, 2007, p.127). This technique has funding implications in an accrual budget preparation environment where some expenditure budgets comprise higher percentages of depreciation that other departmental budgets, and is especially controversial if the depreciation is related to long-life infrastructure assets. Therefore, in an 'accrual' accounting environment municipalities can be tempted to reduce non-cash depreciation to 'balance' the budget with potentially dire consequences.

New Public Management – 'A definition of NPM given by the OECD includes a "greater focus on results and increased value for money, devolution of authority and enhanced flexibility, strengthened accountability and control, a client and service orientation, strengthened capacity for developing strategy and policy, introduction of competition and other market elements, and changed relationships with other levels of government" (OECD, 1995, p.37)' (Sevic, 2005, p.588).

Ordinal data – 'Data in which an ordering or ranking of responses is possible but no measure of distance is possible' (Allen and Seaman, 2007, p.64). Ordinal data has quantitative analysis restrictions.

Productivity – is 'simply measured as the ratio provided to the resource consumed' (Worthington, 2003, p.177).

Subsidiarity (principle of) – Each function should be devolved (where possible) to the lowest level of government, where such action best serves the interest of the community (Dollery and Marshall, 2003). The reform of the national South African electricity industry (REDS[8]) which may lead to the transfer of the electricity distribution function to regional distributors, from which many municipalities purportedly make a considerable surplus, is a good case for an examination of the of the *subsidiarity* principle. The proposed REDS reform would be contrary to the principle of subsidiarity, and also potentially threaten municipal viability.

Sustainability – 'Fiscal strategy must be sustainable in the sense that it can be continued for the foreseeable future without any substantial change, and in particular without any sharp changes in tax rates or spending required to prevent a substantial deterioration in fiscal position' (Sheehan, 2005, p.65). The MFMA funding compliance procedure evaluates this factor by a measure that examines a municipality's planned revenue increases relative to national macroeconomic targets using the assumption that both too low increases and 'sharper' price changes may impact sustainability.

Systemic thinking – 'One of the most important effects of budget reforms was that city officials started to think systematically. Planning a process covering five (5) or six (6) years has become common practice. New budgets usually present the past three (3) to five (5) years in order to see trend and prospects' (Tonko, 2007, p.125). South Africa municipal reform has established a seven-year horizon as the appropriate systemic thinking; three years of actual financial history, current year performance, and a three-year medium-term budget.

Yield management - is defined as 'managing the company's existing capacity by monitoring the different market segments' demand and charging the maximum price to segments that they are willing to pay' (Avlonitis and Indounas, 2006, p.347). This concept is especially relevant to the service charges for a range of utility services, including electricity and water distribution, provided by South African municipalities.

[8] Regional Electricity Distribution Scheme

2.5 Sub-problems

This section describes seven sub-problems which collectively comprise the overall research problem. Later, after Section 2.6 describes the relevant variables, Section 2.7 describes a hypothesis for each of these sub-problems.

2.5.1 Financial 'health' measurement

Sub-problem: What is the financial health of each municipality in the representative sample? The response was to construct measures or an instrument for understanding the overall financial health of the municipal sample for the purpose of measuring the relationship between financial management reform progress and financial health.

The proposed instrument was likely to be based on similar financial health measurement tools used elsewhere, and included financial and non-financial indicators. The main purpose was to understand the underlying financial condition and financial management capacity, to better understand any trend that may evolve from the measurement of MFMA budget funding compliance (see MFMA 'Funding Compliance Measurement' Initiative in Section 2.3).

It was initially anticipated that a similar measurement tool, previously applied in New South Wales, Australia, would be adapted to the South African analysis. However, consideration was also given to resolving some negative feedback from the literature concerning that model. This has previously been referred to in the issue of a consulting review that stated, 'We have formed the opinion that the "Financial Health Check" is not a suitable vehicle for comparisons between councils; that many of the indicators are not inherently reliable; that a number of the benchmarks are inappropriate and impractical … (Maxwell & Maxwell, 2002, p.1)' in (Pilcher, 2005, p.180).

These issues were found not be an impediment to the development of the instrument for use in this research. First, it was not intended to use a similar tool as a basis of comparing municipalities, but to apply the tool individually to better understand their own financial health trend over time. But also, in adapting the instrument, an attempt was made to eliminate unreliable, inappropriate and impractical indicators to the South African situation. A group of advisory technical assistance (BPTA) advisors, led by a former New South Wales local government expert (a former Manager, Finance at the City of Sydney) had already initiated the development of this instrument during MFMTAP [the writer of this thesis was also part of a task team pursuing the project].

2.5.2 Funding compliance measurement

Sub-problem: What is the degree of funding compliance of the representative sample municipalities over the time period 2004/05 to the 2008/09 MTREF utilising National Treasury's funding compliance procedure?

The explanation of this sub-problem has already previously been dealt with extensively in the description of the research problem in Section 2.3. The funding compliance measurement instrument used by the National Treasury was the basis of the quantitative analysis.

2.5.3 Influence of political entrepreneurs and the election cycle

Sub-problem: What is the level of influence of political entrepreneurs and the election cycle on MFMA funding non - compliance? Many South African municipalities, and most probably all municipalities, had been under enormous pressure to extend free basic services, albeit with substantial National Government support. The 2006 municipal elections appeared to be held in an environment with particular dissatisfaction with service delivery improvement since the end of *Apartheid*, with some local areas witnessing civil riots and violence. The level of change had been particularly intensive since the municipal amalgamations in the year 2000. This led to substantial political change in some areas, although not consistently in all municipalities. There was also a risk that political entrepreneurs push municipal service delivery budgets beyond the level of sustainable funding compliance. The sub-problem design and analysis response was to determine the influence that political entrepreneurs and the election cycle may have on the level of funding compliance. It was originally planned to measure the degree of councillor change and mayoral committee change (key drivers) at the representative sample municipalities, to ascertain if there was any correlation with funding compliance trends before and after the 2006 election; for example, a substantial level of turnover at the mayoral committee level followed by a deterioration in MFMA funding compliance. However, data limitations resulted in a procedural change to using the executive mayor as a proxy for Mayoral Committee change.

2.5.4 Measuring and comparing funding measurement trends

Sub-problem: Are funding compliance measurement performance trends capable of being evaluated over time? The intention of the response was the development of a methodology for comparing funding compliance results, where there may be variable

improvement across the 18 item procedure. It was proposed to develop adapted Likert scales to measure the trend in funding measurement factors for a single municipality over time and comparatively with other municipalities. Moreover, it was proposed to undertake factor analysis to assess the correlation between the measurements and to select factors which predominantly explain the scoring. This may allow the funding compliance measurement for the trend analysis to be simplified into terms of an explanation of the dependent variable.

2.5.5 Quantitative analysis and factoring

Sub-problem: Can the funding compliance performance rating 'Likert-like' scale measures be reduced to a number of factors to explain the funding compliance trend variable? There were 18 measures in the funding compliance procedure, but many would likely be significantly correlated. A smaller sub-set or the measures or factors might explain the overall trend. Some of the questions within the funding compliance methodology were correlated with each other. Appropriate quantitative analysis could measure the correlation and factoring and summated scales could be considered as a technique for reducing the number of Likert scales necessary to explain the funding compliance trend. In other words, could the funding compliance measurement be factored to reduce the number of variables needed to explain the dependent variable of funding compliance outcomes to simplify the analysis? 'Summated' scales could possibly reduce the number of factor scales from 18 to 6. In accordance with the recommended factoring methodology, it was initially surmised that the factors could be:

- Cash position (positive/negative, improving/deteriorating)
- Financial Performance (result, surplus/deficit, improving/deteriorating)
- Revenue change (increase/decrease)
- Revenue collection (debtor collection rate, improving/deteriorating)
- Revenue protection (asset renewal, repairs/maintenance levels)
- Capital (investment in infrastructure)

2.5.6 Reform performance trend forecast

Sub-problem: Is the funding compliance trend capable of being extrapolated to forecast probable municipal future trends? Knowledge of the past trend towards achieving compliance as measured by the annual total Likert scale scores, if a municipality had not achieved full compliance level, would be useful to the National Treasury and other stakeholders to understand the progress of reform and a prediction when overall substantive compliance was likely to be achieved or non-compliance threatened. This would be useful from an overall local government perspective, stratified by capacity and for individual municipalities analysed. The group perspectives might assist with technical assistance capacity policy development, and individual municipality analysis could contribute to decisions regarding resource allocation and further targeted assistance.

Quantitative analysis of the annual trend in a total funding compliance measure rating score was undertaken for this sub-problem, which included incorporating trend lines into the analysis to attempt prediction.

2.5.7 South African local government uniqueness

Sub-problem: Is the funding compliance situation unique to South African municipalities as a consequence of their national legislation? This problem was related to one of the aspects of the 'so what' research credibility test that should be asked regarding the purpose of any research. One of the objectives was to have an analysis procedure that could be proven in the South African situation, but also be possibly useful for analysing progress of similar financial management reform projects in other developing countries or even financial sustainability in developed countries. But South Africa's local government legislative regime may be too unique, especially as the reform is striving for full accrual accounting and full accrual budgeting at the local government level (Dollery and Graves, 2009), despite the broader African public sector reform literature suggesting that the direction of the South African reform has similarities to other financial management reform programs. The hypothesis though presumed that fundamental financial criteria, such as necessity of sufficient liquidity and working capital, would be similar regardless of the national or other applicable legislation. Australia (in particular the Brisbane City Council and the Sydney City Council) was chosen, partly because of the writer's experience, but also because of long-established Australian local government accrual accounting reform. Melbourne, as the capital city council, was also initially considered a good candidate for application of the procedure,

because of its progressive involvement as a representative on the working group and its application to the public sector of Global Reporting Initiative (Sustainability Reporting) would suggest that it is at the forefront of reform in a global context (Global Reporting Initiative, 2005). However, there was insufficient detailed financial information to undertake the funding analysis.

2.6 Variables

The methodology applied was initially to display the variables that are displayed in a 'Trochim validity' model (Trochim, 2002) as adapted for this research and included as Appendix I. The purpose was to illustrate the validity of the independent and dependent constructs. The main purpose of the construction of this model was to visually display the constructs to assist with understanding the robustness of the logic between the variables.

The quantifiable characteristics to be analysed in this research were:

Independent variables

- Funding compliance measurements
- Financial health assessment (as at the beginning of the reform period)
- Political entrepreneurs (level of change in Council leadership between election cycles as proxy)

Dependent variables

- Financial management reform progress (Likert scales 'scored' for each of the funding compliance measures as the proxy for a measure of compliance with the MFMA)
- Financial health 'success' (Financial health measurement instrument scores and ratings).

2.7 Hypotheses

Based on relevant studies and the literature review, a number of hypotheses were formulated for the outcomes of the analysis of each of the sub-problems:

H1: There is a high correlation between **financial health**, the degree of **MFMA funding compliance** improvement and the level of financial management reform progress. It was hypothesised that poor financial health would influence financial management capacity

and constrain a municipality from meeting community demands and simultaneously meeting strict MFMA funding compliance criteria, but good financial health would support financial management reform.

H2: The **funding compliance trend** will 'generally' improve over the time period since the beginning of the reform program, for all municipalities in the sample, subject to H1, but legislative adherence will be achieved to a greater extent by municipalities that have received a substantial level of direct advisory technical assistance for an extended period (greater than two years) to advise and assist with the financial management reform compared with those that received only financial assistance and other guidance from the National Treasury (circulars, website, and email 'hotline).

H3: **Political entrepreneurs** negatively influence funding compliance.

H4: As there is a significant correlation between some funding compliance items a sub-set of individual funding compliance measures, factors or a summated scale constructed from the factors of these measures will reliably explain the trend.

H5: Trend analysis of historic or budgeted funding compliance outcomes can assist to predict achievement of MFMA funding compliance.

H6: Overall financial management reform progress can be extrapolated (forecast) by applying trend analysis of funding compliance measurement factors.

H7: South African local government legislation is ***not*** unique and funding compliance measurement can be successfully applied to local government authorities (municipalities) in any developed country that applies accrual accounting and/or accrual budgeting.

2.8 Delimitations of the scope

The delimitations of the scope of the research provide clear limits as to where the research is 'not' intended to inquire or study (Leedy and Ormrod, 2005).

The research was focused especially on the South African local government context, although one aspect was to evaluate the potential of applying the funding compliance and financial health measurement instruments to a developed country sample, at least one significant local government authority in a developed country that has implemented accrual accounting in local government; that is, Australia.

The research focused on the period of local government reform and the MFMTAP from the commencement of the first group of technical assistance advisors, commencing early in the year 2003 and concluding in May 2008. The financial analysis undertaken commenced in the 2004/05 financial year and concluded with the MTREF 2010/11 budget forecasts. The 2003/04 financial year information was also used when instrument measures related to a change between financial years, e.g. the change in debtors' collection rates in 2004/05 (compared with the 2003/04 rate).

There was no intention to directly inquire on the calibre of the 'international' experts, although indirectly the findings may have some implications for this variable. However, this variable is worthy of recognition, especially as some will believe that '… there is a question of how expert the foreign experts are. It has now become an acceptable fact, even to the donor community itself, that many foreign experts are mediocrities whose level of skills would not qualify for them comparative jobs in their own countries (Ngweno, 1986, p.2)' (Cohen, 1992, p.494).

Another key delimitation is that the analysis was not focussed on an assessment of the financial condition of individual municipalities in the broadest context of the definition of financial condition, simply because the scope of the broadest definition of financial condition is too wide for the purposes of measuring the MFMA legislation. The definition of financial condition was discussed in Section 2.1, under 'financial health assessment'. This research focussed on the financially 'technical' aspects of financial condition within the scope of existing operations. Also refer to the definition of a 'credible' budget in Section 2.4.

Funding compliance does not look beyond financial information into the realm of service delivery and the sustainability of service levels. The implication of the MFMA funding requirements is that service levels should be adjusted to take account of sustainability and affordability. However, it is recognised that there is a relationship between citizen acceptances of service levels and an ability or willingness to pay local taxes.

The affordability of existing taxes and charges, or even what is the acceptable level of taxes and charges, was examined only in a limited way. There was only an indirect implied examination for these factors; for example, tax and tariff increases above the Reserve Bank inflation target needs to be justified to local communities, or an analysis of 'revenue theory' can include indirect 'affordability' measures. For example, poor revenue collection rates can be viewed as an indicator of community affordability, but of course have other interpretations, such as a citizen willingness to pay.

2.9 Motivations/importance of study

This section discusses the key motivations and importance of the research.

2.9.1 Limitations in assessing financial condition/financial health

A key motivation was that, despite significant international advances in public sector financial management and the application of international accounting standards to the preparation of general purpose financial statements, it is still extremely difficult to assess local government financial condition and performance. This situation is not dissimilar to the misinterpretation of commercial lending and financial results that were a major contribution to the GFC, and that were exacerbated by the misunderstanding of complex borrowing instruments. The interpretation of local government financial results and financial plans/budgets can be problematical for a variety of reasons (confounding variables), including (but certainly not limited to):

- **Revenue quality and billing.** Local government revenue generally includes a substantial portion of billing/invoicing for property tax and other services, but this is mixed with varying levels of direct cash receipts, such as building permit application revenue. Revenue 'billed' is tempered by the provisioning for doubtful debts, but economic pressures on the consumer's ability to pay may arise or improve over longer periods of time than traditionally examined in commercial financial statements and financial plans.
- **Intergovernmental transfers and grants.** The degree to which a local government entity relies on transfers/grants from other governments or private sector contributions is a reliance risk and significant transactions can blur reported results. For example, a large transfer for capital expenditure purposes, as commonly seen in South African local government leading up to the FIFA World Cup in 2010 (National Treasury 16, 2008), can have a material impact on the annual result reported simply because the revenue is reported as a financial performance item, but the expenditure is capitalised and is expensed as depreciation over very long useful lives. Therefore, the 'capital' revenue improves the operating result in the year received.

2.9.2 Conflicting factors and outcomes

A major challenge, not dissimilar to when a credit rating agency, such as Standard and Poor's or Moody's, would make a credit assessment, is that there are a multitude of measurement factors to consider. However, more importantly, many factors may be conflicting; for example, financial performance may have improved due to increased growth and revenue billing, but cash position deteriorated because the population growth demanded a large increase in capital expenditure, or cash position appears comparatively poor but the local government authority has a 'no borrowing' policy so has unused financing capacity.

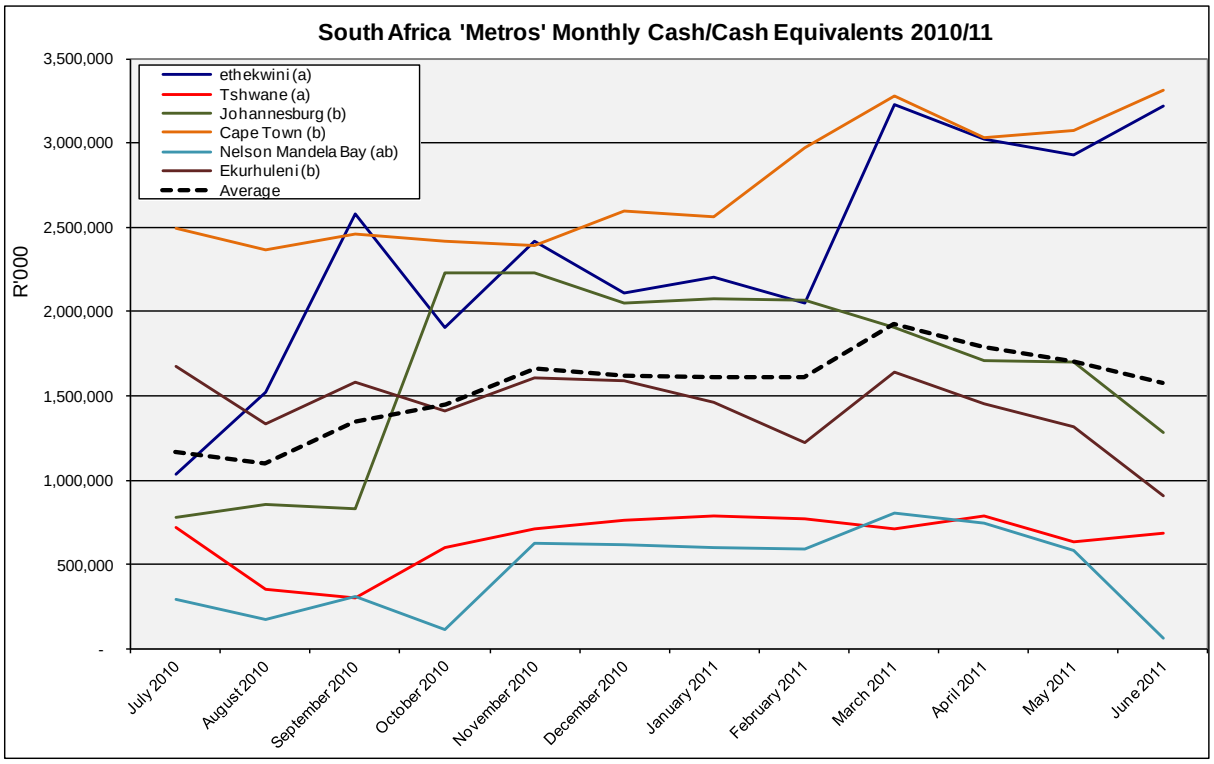


Chart 2.1: South Africa 'Metropolitan municipalities' monthly cash
Source: own compilation[9] - (City of eThekwini Metropolitan Municipality, 2011), (City of Tshwane Metropolitan Municipality, 2011), (City of Johannesburg Metropolitan Municipality, 2011), (City of Cape Town Metropolitan Municipality, 2011), (Nelson Mandela Bay Metropolitan Municipality, 2011), (City of Ekurluleni Metropolitan Municipality, 2011)

Chart 2.1, the 2010/11 monthly cash and cash equivalents balance trend of the six South African metropolitan municipalities, illustrates one of the complexities of analysing conflicting factors and outcomes. A general expectation, given the long lead times of implementing large capital expenditure projects, is that there would be increased cash outflow

[9] Chart 2.1 was compiled from the monthly budget statements (in-year) reports of each municipality.

toward the end of the financial year. Analysing cash and investment balances at the end of a financial year can be misleading, as expenditure incurred in the last month or so of a financial year might not translate to a cash outflow until the early months of the next financial year. Note that the average overall cash balance available peaked in March 2011 and then declined steadily until June. Another general trend to note is that available cash balances tended to improve steadily during the year. Obviously this would also vary depending on the particular financial condition of each individual municipality.

Another complexity affecting this trend can be the impact of the local climate on construction activity. The southern part of South Africa (including Cape Town and Nelson Mandela Bay) experience mild, wet winters and hot, dry summers, whereas Gauteng (including Ekurhuleni, Johannesburg and Tshwane) and Kwa Zulu Natal (including eThekwini) have cold or mild, dry winters. Therefore, it would be reasonable to expect that the southern municipalities would normally experience weather restrictions for capital works, constraining expenditure, towards the end of a financial year and early in the following financial year. In contrast, the northern municipalities would experience a May/June end of financial year climate conducive to accelerated capital works construction. Understanding financial year-end financial condition therefore requires an in-depth understanding of a wide range of variables.

2.9.3 Trends over time

Especially difficult to detect is where current financial health is the result of decisions long past. For example, it is apparent that a number of South African municipalities had conservatively managed relatively healthy cash positions, but these have progressively deteriorated over a number of recent years due to expanding service delivery demands. Similarly, the Sydney City's sale of assets some years ago created a borrowing elimination opportunity and a cash surplus which masked subsequent expenditure trends. South Africa, at all levels of government, has attempted to meet this challenge by presenting budgets with a seven-year horizon, being three past years of audited actual outcomes, the expected outcome of the current year in which the financial plan/budget is being prepared, and a three-year medium-term budget forecast.

2.9.4 Capital expenditure

The long useful life impact on financial performance reports was referred to earlier, but expenditure timing can also be confounding; for example, LGAs traditionally try to finalise capital expenditure plans towards the end of a financial year, creating a capital expenditure in one year, but a cash outflow in the next. Revenue receipts (especially grant funding or capital contributions) in one year give an appearance of cash position improvements at year end that are quickly offset by the payment of the commitments in the following year.

2.9.5 Financial information 'presentation'

There will be an ongoing debate on how to best present financial information to allow users to assess financial performance and condition, but despite improvement there are still challenges; for example, capital expenditure is generally a crucial component of local government authority (LGA) outputs and usually requires the presentation of detailed and separate capital 'budgets'. Yet 'capital expenditure' is usually reported with a diminished emphasis in financial statements compared with the focus of LGA budget documents, with scant and un-reconciled expenditure and cash flow information appearing in the notes to the financial statements (information reserved for those with the technical expertise to examine to greater 'depths' than the expertise of an average local politician would allow) and considered not deserving of their own core 'statement' (South Africa has addressed this as part of the budget format reforms with a capital expenditure 'statement' being presented as a core statement bridging financial performance, position and cash flow).

2.9.6 Socio-economic conditions

There can be significant lags between changes in socio-economic conditions and the impact of local government authorities' (LGA) finances, such as deteriorating or improving economic conditions impacting on revenue collection or population growth impacting on demand for services, but also a differential impact on individual LGAs, such as LGAs with higher levels of commercial or residential property possibly experiencing a different impact.

2.9.7 Reliability of financial plans and budget documentation

Financial plans and budget documentation are not subjected to the same level of independent scrutiny as financial statements that are subjected to an external audit. This limitation is further compounded by the complication of financial plan and budget information, including comparative information that has been the subject of significant audit qualification, and therefore deemed to be unreliable.

2.9.8 Other considerations

South African municipal financial management legislation is conservatively based, especially designed to address the impact of South African socio-economic conditions, and also targeted to alleviate the risk of financial mismanagement of many of the variables discussed here. The next key challenge to be addressed by the funding compliance technique was to simplify the measurement of the application of the legislation. This research attempted to extend the technique by applying a rating system designed to simplify a financial assessment, broadly address the confounding variables in the individual local government authority (LGA) assessment and allow comparative assessment amongst LGAs.

Further, local government financial management 'reform' performance in South Africa is of considerable interest to:

- Other developing countries, especially those with similar socio-economic challenges, undertaking similar reforms.
- Donors of funds, such as international aid agencies, that support local government financial management reform in developing countries. The results of this research may assist with an evaluation of the success of other targeted reform programs.
- Oversight institutions such as the National Treasury or provincial treasuries that may be interested in utilising the procedure to better understand their reform program. The funding compliance procedure is already a formal part of the South African analysis, so quantitative and trend analysis would enable a quantitative assessment for their report as well as the usual qualitative assessment.
- Prediction of municipal financial management failure, enabling oversight agencies to implement preventative action.

- Local government in developed countries, who may be able to adapt the funding compliance procedure to their particular financial management circumstances.
- Other persons researching financial management reform, especially in targeting developing countries.

With regard to the first two listed items above, it is worthwhile having an appreciation of the magnitude of the 'international advisor' industry to understand the size of the 'audience'. A somewhat dated quote provides some perspective: "Approximately 100,000 foreign advisors work in the public sectors of Sub-Saharan African countries at an annual cost of more than $4 million, nearly 35% of the Official Development Aid to the region (World Bank, 1989, p.181) … "most are less visible economic policy advisors, financial management and administration experts …" (Cohen, 1992, p.493).

Generally and importantly, the overall perception and conclusion from the literature review was that there is an absence of genuine quantitative research of financial management reform. Authentic financial reform is surely not merely about form, but also substance. Part of the essence of this is portrayed in this discussion about budget reform that 'Budget document appearance - rarely can budget format or classification reforms be achieved in isolation. If the purposes are only to change the appearance of the budget document, it will never be used for actual allocations and remain on the shelf as another trophy reform' (Guess, 2007, p.4). All stakeholders in the South Africa municipal reform process would surely like to know whether there has been more progress than mere achievement of another trophy.

'Trophy' superficial 'document format' reform is frequently discussed in the literature from different perspectives. One perspective is that the reforms should not be considered achievements on this basis, that reform success should not be based on Finance Ministries setting 'their budget reform aim on the implementation of certain instruments, such as MTEFs, financial management information systems or public expenditure reviews, but rather on what it is they seek to achieve through these instruments' (Folscher, 2006, p.6). Funding compliance attainment is potentially a genuine reform achievement. Probably of greater concern is that the genuine outcome criteria were not established at the outset of MFMTAP, but at least this aspect evolved and that the criticism that 'there is no consensus on the criteria for assessment of success or failure of reform efforts' (Monavvarian, 2003, p.579).

Finally, a related issue for the National Treasury is in reference to the mechanism used to determine funding allocations to individual municipalities. Robust funding compliance

measurement becomes a ‘fiscal condition measure’ and may partly satisfy one claim that ‘a basis for determining the allocation of equitable share transfers among local governments, one needs an objective and measurable indicator of the fiscal condition of local governments’ (Bahl and Smoke, 2003, p.229).

This research was developed to fill some of the information gaps.

2.10 The theoretical framework

This section documents existing theories from the literature that applied to the research. It was concluded that the current theoretical framework relevant to the research design included:

- Local public sector efficiency
- Normative approach
- Technical inefficiency
- Allocative inefficiency
- Political majorities
- Politicians’ emphasis
- Political entrepreneurs
- Impact of intergovernmental allocations
- Theory of efficiency measurement
- Impact of intergovernmental allocations.

Each of the existing theories is discussed below in the context of the existing research.

2.10.1 Local public sector efficiency

The theory of ‘Local government public efficiency’ recognises the complexity and complications of the local government sector. It has been previously proposed that ‘Empirical analysis of local public sector efficiency suggests that it is a unique product of complex non-discretionary inputs and outputs and constraints, multiple inputs and outputs, and inherently complicated political, institutional and cultural factors’ (Worthington, 2003, p.198).

Prior theoretical recognition of the complexity of local government is relevant to this research. Although this research focussed on financial management performance, the financial performance reporting involved assigning of monetary values to all of the activities of the sector. Therefore, the complexity of the environment is also reflected in the complexity of financial performance evaluation.

Further, financial management complexity is further exacerbated in an accrual accounting budgeting environment. Even many years after the reform was introduced in the Australian public sector, with accrual budgeting commencing at the federal government level in 1999, it still causes challenges which have been recently recognised in the Australian Commonwealth Financial Accountability Review (CFAR). CFAR describes the ongoing challenge, being '[d]espite the move to accrual budgeting and accounting, which was intended to give a more comprehensive picture of the government's financial position to aid decision-making beyond the short-term, there remains an entity-centric view in management with a focus on 'cash' and managing within an annual budget' (Department of Finance and Deregulation, 2012, p.12).

South Africa similarly embarked upon accrual budgeting reforms for local government during a time of significant national change and major management capacity challenges. It is therefore recommended that this level of local government complexity demands a performance assessment framework to enable insightful National Treasury local government oversight.

2.10.2 Normative approach

A key aim of the research was to develop practical evaluation solutions and assessment tools, responding to the complexity discussed in Section 2.10.1, to meet the needs of 'society' to effectively evaluate the financial aspects of local government performance. The theory relevant to this approach is the 'normative approach', described as '[a] theoretical, prescriptive approach to sociological studies that has the aim of appraising or establishing the values and norms that best fit the overall needs and expectations of society'(Oxford Dictionary of Sports Science and Medicine, 2008).

2.10.3 Technical inefficiency

Generally speaking, although also simultaneously pursuing other ideals such as town planning and environmental standards, local government will tend to pursue the maximum level of

services for a given level of inputs or a given level of services for the least cost or input. Services outputs are constrained by the level of inputs and therefore it is in the community's interest to generate services at maximum efficiency. The theory of 'Technical efficiency' is relevant, being '[t]o the extent an organisation fails to achieve an output combination on its production possible frontier, and falls beneath this frontier, it can be said to be technically inefficient' (Worthington, 2003, p.180).

The application of this theory to the quantification of a 'funding' frontier was worthy of investigation. It is proposed that technical efficiency is bounded by legislative constraint, that is, that municipalities should not act illegally. Therefore, an assessment of South African funding compliance is necessary to understand this technical constraint on the services production frontier.

2.10.4 Allocative inefficiency

A key component of funding compliance and financial health evaluation is understanding ratepayer willingness to pay for services, measured by various factors including revenue collection rates, change in collection rates and the level of unpaid current (current year) and non-current debtors. It is surmised that there is a relationship between municipal revenue collection rates and a willingness of ratepayers and service users (clients) to pay. Poverty and an inability to pay in South Africa are tempered by the mandated requirement to provide free basic services.

Relevant to affordable services provision is the theory that '… to the extent to which it produces some combination of goods and services on its production frontier, but which do not coincide with the wants of its clients (usually expressed in terms of prices they are willing to pay), it can be said to be allocatively inefficient' (Worthington, 2003, p.180). The theory is relevant to the research because, where funding compliance and financial health assessments depict an unwillingness of ratepayers to pay for services, it should be questioned whether the appropriate combination of services is being provided by the local government.

2.10.5 Political majorities

'Political majorities are an explanatory factor for observed inefficiencies (Vanden Eeckaut, Tulkens & Jamar 1993)" (Worthington, 2003, p.195). A question being pursued in this research is whether political entrepreneurship detracts from funding compliance achievement

by excessive expenditure. A related question is whether the extent of the political majority factor contributes to an explanation of the level of political entrepreneurship, at least to the level that large electoral majorities are connected with significant change at municipal leadership level. 'Politician's emphasis' and 'Political entrepreneurs' are also relevant in this regard.

2.10.6 Politician's emphasis

Politician's emphasis is relevant to the collective council decisions made regarding service delivery. It is possible that a large political majority allows a council to tend to economically rational[10] decisions and a small majority tends to result in a political emphasis, although it is also possible that large political majorities might encourage irresponsible decisions. The relevant theory is that a '[p]olitician's emphasis on political rather than economic rationality is likely to contribute to inefficiency (De Borger, Kerstens, Moesen and Vanneste (1994)' (Worthington, 2003, p.196). 'Political entrepreneurs' are also relevant in this regard.

2.10.7 Political entrepreneurs

This theory is included on the basis that it relates to a variable that affects municipal achievement of funding compliance and potentially to a greater extent at larger municipalities where the drive for higher office might be more pronounced. Defined as:

> *Councils can be seen conceived as breeding grounds for political entrepreneurs to not only capture the attention of political party officials at higher levels of government, but also of prospective voters in federal and state seats ... by working toward the collective goals of council, may induce the efficient delivery of public services. However, since 'allocative' inefficiency arises from the excessive provision of public goods as politicians pursue strategies designed to maximise their chances of re-election rather than politics which would further the common good (Dollery and Wallis, 1997, p.37) ... with a large number of elected representatives, the proportion of political entrepreneurs is likely to be higher at this level than any other...* (Dollery, 2003, p.227)

The key question relates to whether political entrepreneurs impact on the municipality's financial condition by accelerated unaffordable expenditure.

[10] Economic rationalism is generally regarded as market forces or the private sector, supported by limited government intervention, providing the most efficient outcome. This theory would also need to be accepted before also accepting the politician's emphasis theory.

2.10.8 Theory of efficiency measurement

When South African local government reform commenced, it involved a component of local government amalgamation, which was similar to the strategies of many developed countries including Australia. An implied objective was that the size of the municipalities would move their operations toward technical productive and allocative efficiency. Amalgamated municipalities were intended to have the resources to produce their goods and services in the most technically efficient manner by being able to afford to engage the expert resources, to achieve an efficient level of service production by minimising unit costs. The theory of efficiency has been described as:

> *There are **three main measures** of efficiency. Firstly, **technical or productive efficiency** refers to the use of productive resources in the most technologically efficient manner. Put differently, technical efficiency implies the maximum possible output from a given set of inputs or the minimum possible inputs for a given set of output. Secondly **allocative efficiency** involves selecting the mix of inputs … that produces a given quantity of output at a minimum cost. That is, allocative efficiency chooses between different ways in which a technically efficient level of output can be produced, and by taking into account the different prices of these inputs reflects the least costly combination. If a given local government uses its resources completely allocatively and technically efficiently, then it can be said to have achieved total; or overall economic efficiency. Alternatively, to the extent that either allocative or technical inefficiency is present, then the organisation will be operating at less than total economic efficiency*. (Worthington, 2003, p.179)

The theory is relevant as it could also be theorised that larger municipalities, tending to productive and allocative efficiency, would be more capable of achieving MFMA funding compliance or a higher degree of financial health. Information on this topic is presented in Chapter 6.

2.10.9 Impact of intergovernmental allocations

'The stimulatory effects of intergovernmental grants on local government expenditure might prove to be a major source of government failure at this level (local) of government' (Dollery, 2003, p.225). The South African National Government has substantially increased intergovernmental transfers to local government. A possible weakness of this approach is the acceleration of tied Municipal Infrastructure Grants (MIG) to fund services infrastructure. A key risk is that, although the capital outlay is substantially funded by the national government,

there is currently no allowance for future maintenance and renewal of these assets. Future failure is therefore a risk.

2.11 Assumptions

This research had five important assumptions:

- South African municipalities produce annual financial statements and medium-term budget information of a sufficient quality and accounting standard compliance to assess financial health and MFMA funding compliance. Preliminary testing of five municipalities during the research proposal phase suggested this was the case.
- Municipal annual financial statements are a credible measurement of financial performance, albeit that there may be a high degree of external audit qualification in the South African local government environment.
- South African municipal budgets represent genuine projected or targeted outcomes of the sample municipalities; they do not 'deliberately' include unrealistic expectations that the budgeted funds will not be collected or expended or, similarly, are not deliberately overly conservative.
- Developed country local government budgets and financial statements contain sufficient financial information to be comparable to the South African local government situation. Preliminary analysis and the writer's experience suggested this was a reasonable assumption.
- Electoral change represents community dissatisfaction with service delivery or service charges and tax levels.

2.12 Conclusion

Chapter 2 has comprehensively described the background to the problem and the overall methodology by which the research was structured. Chapter 3 deals with the next phase of the research, which is to describe the existing theories relevant to the problem and sub-problems.

Chapter 3: Literature review

3.1 Introduction

Chapter 3 commences with a short discussion on the approach used to develop, organise and guide the literature review (Section 3.2). The completed literature review was formulated and guided based on a best practice checklist (Leedy and Ormrod, 2005) which is shown in Appendix A. Section 3.3 presents the literature review itself. The literature review is categorised by the sub-problem headings. The final section of this chapter is an overall description of key resources used in the writing of two published journal papers related to this thesis (Dollery and Graves, 2009) (Graves and Dollery, 2009), as well as a summary note regarding the South African financial report resources used extensively in the compilation of sample municipal financial information.

The papers referred to in this review originated from various disciplines affecting the research subject. The core literature review focused on international public sector reform in developing countries, but also on public sector financial management reform generally.

The overall finding from the literature review was that there was little evidence of quantitative analysis of international technical assistance provided to developing countries. However, there was a wealth of literature of a qualitative nature.

Importantly, in a paper to outline a matrix framework for measuring the implementation performance of United Nations Capital Development Fund (UNCDF) projects, especially focussed on least developed countries (LDCs), McGill (McGill, 2006, p.95) indicated that '[t]here are few normative frameworks for testing performance on institutional reform'.

The following discussion includes only the most crucial material from the substantial amount of literature discovered in the literature review that is relevant to the subject of developing country financial management reform measurement.

3.2 Literature review discussion

This section describes relevant aspects of the literature, categorised by the seven sub-problems.

3.2.1 Sub-problem 1 related literature - Financial 'health' measurement

The following discussion on the analysis of financial condition was especially relevant to the research proposal. Many descriptive terms are used synonymously in the literature, including financial condition, financial health, fiscal condition, fiscal health and even financial position, to refer to the state of an organisation's finances. The term 'fiscal capacity' is also closely related. It is important to note and discuss these as this was a critical element in limiting the scope of the research.

One of the major challenges, especially relevant in the South African local government context, is that '[t]here are so many factors affecting fiscal health or condition of local governments that it is a challenge for local officials to sort them out and make sense of them' (Honadle et al., 2004, p.5). Similarly, it is a challenge for researchers to 'draw a line' around the scope of any study, as just as one element seems explainable there is another extenuating variable. Politics itself is a variable that means that the 'numbers' cannot solely be evaluated in terms of cold hard facts.

But, in saying that, Honadle also provided an excellent summary of the myriad of factors that influence financial health (Honadle et al., 2004). Honadle et al. (Honadle et al., 2004, p.1) especially emphasised the importance of the relationship between financial health and the 'ability of local governments to provide adequate, uninterrupted services to their constituents', but also accentuated local government's uniqueness and that 'as much art as there is science (is) involved in the promotion of local fiscal health and that each local government is unique' (Honadle et al., 2004, p.3). It should be stressed that the combination of local government complexity, as discussed in Section 2.10 'Theoretical framework', and the local government uniqueness described there is symptomatic of the nature of local government and poses significant evaluation challenges in terms of the transferability of financial health techniques from other sectors.

Honadle et al. also provided a summary of many useful references to key conclusions from earlier works. One simplistic assessment provided was that fiscal health could be defined as the 'extent to which its financial resources exceed its spending obligations', a conclusion by Frances Stokes Berry (1994, p.323)[11] (Honadle et al., 2004, p.18). Although attractively simplistic, the view is undoubtedly complicated for evaluation purposes. In the South African context, financial (funding) compliance is required by the Municipal Finance Management Act to include cash-backed accumulated funds. In other words, it is reasonable for a

[11] Secondary source

municipality to budget to spend funds accumulated from the past, but it is also necessary to understand the complexities of calculating cash backed funds. Similarly, in Chapter 7 it is concluded that the financial health of the City of Sydney has for some time relied on financial resources from asset sales, an example of cash-backed accumulated funds.

In addition, Honadle et al. (2004) explained that other authors had further elaborated on the concept of the relationship between financial resources and spending obligations. They referred to another perspective of the relationship between community needs and local government revenue raising capacity. Thus, rather than defining financial health in terms of actual resources and spending obligations, health was classified in terms of the community's services delivery needs and ability to pay. This concept was proposed by Reschovsky (1997, p.447)(Honadle et al., 2004, p.20). The service delivery need and revenue capacity concept is exceptionally important to the South African context, given their substantial backlog of service delivery and many households' limited ability to pay, resulting in a national requirement to provide the poor with free basic services. However, this adds complexity to understanding financial health, and is one of the primary reasons why the format of the South African municipal budget is now required to include a statement on basic services delivery and services backlogs (National Treasury 17, 2009).

Other authors have discussed a number of other different perspectives, including 'standardised fiscal health' by Helen Ladd and John Yinger (1989)[12] (Honadle et al., 2004, p.18) and revenue and expenditure mix by Lin and Raman, 1998[13] (Honadle et al., 2004, p.4). Similar to revenue 'mix' there has also been discussion regarding revenue and expenditure 'flexibility' (Honadle et al., 2004, p.79). Standardised fiscal health is a construct that has regard to financial assistance from other levels of government. A related concept is revenue mix and revenue 'flexibility', a concept intended to take into the consideration an individual local government's ability to adapt to changing circumstances including demand for changes in services. For example, if during a recession a central government reduces funding transfers, a municipality that is more reliant on such transfers will experience greater difficulty than a municipality that has a more recession-resistant revenue mix that includes more income from utility services for which demand is less probable to decline during a recession. Standardised fiscal health is an exceptionally difficult concept to evaluate as it requires an in-depth understanding of the impact of changes in expenditure provided for by funds provided by other governments.

[12] Secondary source
[13] Ibid

Another dimension to financial health assessment is that of fiscal effort. Fiscal effort is "A term closely related to fiscal health is financial condition which Wenshan Lin and K.K. Raman (1998, p.96)" (Honadle et al., 2004, p.19) and has been described as being the level of local effort to raise own revenue, compared to reliance on transfers from other governments, relative to the level of taxation and spending. It was concluded that 'a government could be in a good financial position (e.g., have good liquidity) but be in a poor financial condition' (Honadle et al., 2004, p.19). According to these authors, a weak financial condition means that a government has a relatively low 'probability of being able to sustain the current level of services at acceptable levels of taxation' (Honadle et al., 2004, p.19).

In sum, the factors that would need to be considered to evaluate a broad definition of financial health or condition include:

- Available financial resources *
- Historical and expected spending levels *
- Financial support and transfers from other levels/spheres of government *
- Revenue mix (variety and contribution of major sources)
- Levels of taxation, taxation sustainability and ability of the community to pay *
- Fiscal flexibility by being able to vary revenue to meet circumstances
- Financial liquidity levels *
- Sustainable service levels *

(* indicates that the MFMA funding compliance evaluation procedure takes into consideration this factor either directly or indirectly).

A related discussion is whether international best practice solutions were applicable or necessary at all. It has been argued that the context of the developing country should be examined before deciding to implement good practice financial management process dimensions (Andrews, 2011). A related contention is that 'many best practice ideas are "hollow" and impose a false one-best-way example' and that 'many best practice solutions … are not appropriate for developing countries' (Andrews, 2011, p.3). For example, it is suggested that medium-term budgeting, a core aspect of the South African MFMTAP reforms, is an example of a good practice that may not be applicable unless the context is appropriate, and a number of developed country examples were cited that have not

implemented the practice. This discussion is especially relevant to the research as a preliminary process. Before trying to measure the outcome of municipal financial management reform, it would useful be to ensure the context of the reforms be ascertained to gauge if the procedures being assessed were applicable to the context of that particular country. It has been argued that if the reforms were not applicable to the context it would be taken into consideration when measuring financial outcomes.

It is also especially relevant to note that base data for the good practice assessment were used to measure reform compliance by applying a Public Expenditure and Financial Accountability (PEFA) scoring methodology. However, as justified in the key reasons for this research, even this good practice assessment was based on the existence of the procedure rather than the successful impact that the existence of the procedure was having on financial health outcomes. The mere existence of good practice procedures does not guarantee good financial health or improvement, although the existence of good practice procedures may assist with an aspiration to attain and sustain management improvement. The qualitative assessment (Andrews, 2011) does highlight a core conclusion of the research that there is a lack of quantitative assessment, and that reform measurement might be best to commence with a measurement of the context and whether this supported acceptance of the reform.

3.2.2 Sub-problem 2 related literature - Funding compliance measurement

The funding compliance measurement procedure (National Treasury 12, 2008), (National Treasury 13, 2008) is used by the National Treasury (NT) and the provincial treasuries (PT) to evaluate municipal adherence to the MFMA. From the 2008/09 financial year the 'high-capacity' municipalities, under the direct oversight of the NT, were also requested to include the procedure as part of the development of their 'tabled' budgets to be submitted to their Councils for approval. Draft 'budget' regulations developed by NT made this requirement mandatory for all municipalities. PTs will have oversight of all of those municipalities not supervised by NT.

The procedure was developed by the writer of this thesis when engaged as an international finance advisor and deployed to NT (Intergovernmental Relations) until May 2008. Therefore, at the time of writing the only published literature directly on the subject was "The Evaluation of Financial Management in South African Local Government: Budget Funding Compliance Measurement to Understand Best Practice Financial Management Technical Assistance to South African Municipalities" (Dollery and Graves, 2009). The procedure is also

comprehensively discussed elsewhere (Dollery and Graves, 2009) as well as, in particular, in Section 2.3, the MFMA 'Funding Compliance Measurement' Initiative, and therefore repetition of this discussion is deliberately avoided here.

An aspect that arose during the research evaluation was the impact of the GFC on municipal financial health and funding compliance, and how to distinguish any financial deterioration. The impact of the GFC was evaluated by the Commonwealth Secretariat (Nickson, 2010), including a discussion of three important relevant considerations. First, for a number of factors, including an immobile asset base, 'property taxation is "relatively" protected from the crisis' [GFC] (Nickson, 2010, p.2), that there is a 'lower volatility of property tax in the face of economic recession' (Nickson, 2010, p.2). Second, that during economic difficulties local government's financial situation is more fragile when there is a strong degree of dependence on transfers from central government. Finally, a case was presented for local government observing the 'Barcelona Principles'[14]. The ten principles are based on the notion that local government's actions are able to influence local economic development, although this capacity would vary depending on municipal size. The factors discussed indicate the complexity of local government financial management, and the difficulties of financial health evaluation. Any measurement tool or technique developed needed to recognise that multiple influences are at play. For example, the South African National Treasury, backed by prudent legislation, would be insisting on MFMA funding compliance, yet the City of Cape Town during a global economic downturn approved a '2009 pro-poverty-alleviation budget [that] offered more support to those in need than any previous budget in the history of the city' (Nickson, 2010, p.7).

3.2.3 Sub-problem 3 related literature - Political entrepreneurs

Dollery and Wallis (1997, p.37) hypothesised 'that if a municipal political entrepreneur seeks to advance her political career at higher levels of governance, her actions are likely to be correlated with capturing the attention of voters and party officials rather than allocatively efficient provision of public goods' (Dollery and Marshall, 2003, p.226). This is likely to be important in the South African context, with local government heavily politicised and one party holding substantial majority in many municipalities. The African National Congress

[14] 'An international group of municipal leaders devised these standards at a March 2009 workshop in Barcelona, Spain, which sought to identify key issues for local government in responding to the GFC'; Nickson, A. (2010) The Global Financial Crisis and Local Government. Commonwealth Secretariat. 1-8.(p.8).

(ANC) effectively ‘appoints’ the Executive Mayors, and can ‘recall’ and ‘reassign’, just as the ANC also ‘recalled’ President Thabo Mbeki, during September 2008. There is a reasonable possibility that senior local government political appointments are seen on a ‘succeed and be promoted’ basis; that is, that success at the local level will lead to appointments in another sphere of government.

It is important to explain why this is possible in the South Africa context. The South African local government electoral system is partly based on a ‘vote for a party’, not a ‘vote for individual’ pre-selected candidates as in the United States, the United Kingdom, Australia and many other democratic countries, and partly ward-based representation. The party selects and prioritises the sitting members from its own membership. Therefore, political favours are within the party’s control. Other council members that are elected can be asked to stand aside for the party. An example of an ANC ‘appointment’ was that of Dr Gwen Ramogkopa as Executive Mayor of the Tshwane (Pretoria) Metropolitan Municipality in 2006 (City of Tshwane Metropolitan Municipality, 2006).

Dr Ramogkopa was formerly a Member of the Executive Council of the Gauteng Provincial Legislature since 1999, and prior to that an ‘ANC leader’ at the Pretoria City Council (Who's Who, 2008). Dr Ramogkopa was not part of the group of councillors proposed to be elected in the 2006 election, but an elected councillor stood aside presumably at the ANC’s request to create a vacancy into which Dr Ramogkopa was appointed. Candidates for executive mayor are elected from within the Council, but the ANC majority enabled Dr Ramogkopa to be nominated and elected as a matter of formality only. It is interesting to note that the standing executive mayor still remained a councillor and a Member of the Mayoral Committee.

Since that time there has been a significant push for Tshwane to accelerate basic service delivery spending. The details are not relevant here, but there is a possibility that this acceleration has caused difficulties for that metropolitan municipality to meet the National Treasury’s funding compliance requirements. Even time will not confirm whether this was a case of political entrepreneurship, since factional change within the ANC during 2008 may see previous political promises to entrepreneurs not being met. However, this is only an example of the hypothesis. The broader hypothesis is that spending acceleration was widespread after the 2006 election, with a potential ‘fall-out’ on legislative funding compliance.

It has also been proposed that a large numbers of elected representatives will likely result in a higher proportion of political entrepreneurs (Dollery, 2003, p.227). Whilst this related to the

Australian local government context there is an equal probability that the same would apply in the South African context. After substantial post-apartheid municipal amalgamations the numbers of municipal councillors is substantial, especially in the metropolitan and other larger municipalities. For example, at Gwen Ramogkopa's City of Tshwane there are 152 councillors. Tshwane's 'Mayoral Committee' alone would have representation of a size that would commonly be the entire council in the Australian context. Therefore, there are significant opportunities for political entrepreneurs to emerge.

A related topic is the subject of corruption, and it is proposed that political entrepreneurship is a form of corruption, with the entrepreneurs receiving personal reward for their work, although this may be for status more than financial gain. Susan Rose-Ackermann (1999) had observed that local governments in most countries are the most corrupt (Dollery, 2003, p.224). To place South African corruption into some context an international corruption perceptions index rated the country at 4.1[15] out of a rating of 10 (Australian was rated as 8.8) (Transparency International, 2011). It could also follow that the most political entrepreneurship was occurring at a local (government) level in most countries.

There are similarities between the 'political entrepreneurs' and 'local elites' discussed elsewhere. Local elite 'capture' is synonymous with the activities of political entrepreneurs and has been discussed in another African context (Tanzania public sector reform): 'Given the absence of well-functioning political mechanisms at the local level to ensure participation and accountability, the concern arises that local political elites might be able to "capture" the local decision-making process, including control over local government finances. Anecdotal evidence certainly suggests that local elite capture was a major concern in Tanzania' (Boex and Martinez-Vazquez, 2006, p.55).

3.2.4 Sub-problem 4 related literature - Measuring funding compliance/health trends

Likert scales

Likert scales have traditionally been used to obtain a survey response and were originally developed in 1932 (Allen and Seaman, 2007, p.64). Survey respondents would commonly be asked to select one of the five (or seven) descriptions that best fits their answer to the situation. Because of the imprecise nature of the data there are a number of limitations to the validity of a number of statistical tests, which will be discussed further below.

[15] Corruption Perceptions Index: between 0 (Highly corrupt) and 10 (very clean) Transparency International (2011)

This approach was adapted for this research in a manner intended to provide more precise performance comparison data. The proposed Likert-like scales are essentially self-assessment surveys of actual and budget financial information intended to be undertaken by municipalities themselves. The aim was to convert a known change in a financial measure to a 'score' by applying a financial assessment, to avoid the complexity of analysing the 'actuals'. For example, if the cash investments of a municipality increased from, say, 100 million Rand to 200 million Rand, the scale would indicate that the 'survey response' was a good improvement and therefore would warrant a high 'score'. If this increase was only to 105 million Rand, then taking into consideration price increases the 'survey response' would be 'about the same'. Likert-like scales have been used before to rate and benchmark similar financial performance measures in local government in the USA (Honadle et al., 2004).

The 'self-survey' response was ordinal data. 'Data analyses using nominal, interval and ratio data are generally straightforward and transparent. Analyses of ordinal data, particularly as it relates to Likert or other scales in surveys, are not' (Allen and Seaman, 2007, p.64). A factor to be considered is that 'the adequacy of treating ordinal data as interval data continues to be controversial in survey analysis in a variety of applied fields' (Allen and Seaman, 2007, p.64). This is partly because of using ordinal data as interval data in statistical analysis, but that '[t]reating ordinal data as interval (or even ratio) data without examining the values of the dataset and the objectives of the analysis can both mislead and misrepresent the findings of the survey' (Allen and Seaman, 2007, p.64).

The proposed application of a 'score' (of 2, 1, 0, –1 or –2) to a self-survey response designed for municipalities but completed by the researcher, based on pre-defined financial parameters about the financial indicator change, effectively transforms an ordinal response to an interval structure. It is proposed that, because this score is supported by genuine financial information, that there is high degree of validity is using interval data analysis tests.

A relevant question would be to ask: Why not evaluate the financial information itself instead of this elaborate conversion to an interval 'score'? The response is that each of the 18 funding compliance tests yielded financial information that was not directly comparable with another test. For example, cash position and surplus/deficit result may have improved by the same value, but a direct comparison of the indicator value was not valid because of the complexity of factors that underpinned those results. Moreover, it may not be possible to compare a value change for one municipality with the same value change at another, usually because of municipal size. Finally, some financial values may improve, some deteriorate and some

remain the same, so the challenge was to determine an overall assessment of performance. This would be difficult except for something that might simulate a subjective credit rating. It was proposed that conversion of the financial values to interval 'scores' enabled a valid performance comparison to be made between compliance measures and between municipalities.

Whether it is valid to 'sum' the scores as a summary 'index' was the subject of further research before the technique was applied, but this approach has been used elsewhere.

Allen and Seaman (2007) offered extensive important advice to be heeded in the quantitative analysis phase of the research. In the construction of an appropriate scale it was recommended that:

- The Likert scale should contain at least **five** categories, and Likert and others had previously recommended that the scale be as broad as possible (Allen and Seaman, 2007, p.64). However, this needs to be balanced against the practicalities of being able to distinguish between proposed categories and the complexity of a large number of scales. Therefore, it was proposed for the research that five categories were appropriate, allowing each financial measure to be generally rated in the context of excellent, good, neutral, poor and very poor.
- Normal Likert scales are ordinal data. Importantly, a general statistical analysis rule disallows mean and standard deviation techniques being applied to ordinal scales (Allen and Seaman, 2007, p.64). This is important because it is considered that the parametric tests would be stronger, and easier to interpret than the non-parametric tests allowed for ordinal data analysis (Allen and Seaman, 2007, p.64). However, these general Likert restrictions are considered offset by the rating scale being based upon accurate underlying financial measures, so that the scale differences are effectively interval or similar to what is referred to as an index. In the marketing research context, for which Likert scales were originally developed and to which the statistical analysis restrictions apply, the respondent answers would have been subjective. For example, scale responses would refer to descriptions such has 'highly likely' or 'not likely'.
- In further support of the proposed research proposal approach, it has been previously concluded that converting Likert scales to indexes justifies the use of parametric analysis tests, provided that normality assumptions have been met (Allen and Seaman, 2007, p.65).

- There is past support for analysing Likert scales where the analysed items were converted into indexes, which was a similar situation to this research study, although, as already explained, the underlying financial measure data were likely to provide less of a statistical test challenge. Ordinarily the combination of Likert scales into an index would require that 'the scales pass the Cronbach's alpha or the Kappa test of intercorrelation and validity' (Allen and Seaman, 2007, p.65).

The design of the research analysis heeded these recommendations.

3.2.5 Sub-problem 5 related literature - Quantitative and multivariate analysis

Factor analysis

The objective of factor analysis is to 'identify logical combination of variables and understand the interrelationships' (Hair et al., 1998, p.115). The extracted factors will then be translated into summated scales to simplify the representation of a number of aspects of the factor into the one measurement (Hair et al., 1998) for the purpose of the multivariate analysis. The objective will be to classify the variables for use in a multivariate technique with 'minimal loss of information' (Hair et al., 1998, p.95). Data reduction is also intended by the factoring procedure.

SPSS

SPSS (Coakes, 2005) was initially used to analyse the data of various variables, including normality and outliers where appropriate. SPSSv18 (Coakes, 2011) was later used to undertake the factoring and other quantitative analysis.

3.2.6 Sub-problem 6 related literature - Reform performance trend forecast

At the completion of the original literature review, initially undertaken to prepare the research proposal and prepare the methodology of the analysis, no relevant literature had been discovered. A related subject of reform performance measurement was investigated. The South African literature revealed a very useful study of local government financial measurement using weighting and indicator categorisation. The usefulness of this literature is discussed in Chapter 6, Section 6.3.

3.2.7 Sub-problem 7 related literature - South African local government uniqueness

There is evidence that similar budgetary challenges exist in the Australian local government context, as well as the possibility that South African financial management reforms are more advanced. National Treasury (NT) financial management reforms are simultaneously pursuing both comprehensive accruals budgeting and accrual reporting.

The literature suggests that there is ongoing Australian resistance to this concept. For example, 'The ICAA's initial research in 2001 pre-supposed that the use of accrual accounting reports in the budgeting process is a superior technology, despite the misgivings of many authors' (Kloot, 2006, p.75). Similarly, '[g]iven the many concerns raised about the uncritical adoption of accrual accounting in the public sector, it is notable that there is some evidence that the federal government is moving away from a total reliance on accrual accounting (Guthrie et al 2003)'[16] (Kloot, 2006, p.75). Finally, '[h]istory may thus record that many local governments, by not adopting accrual accounting as a basis for budgeting, achieved better outcomes for their communities that those that did adopt it' (Kloot, 2006, p.75). References to 'many' authors with misgivings and 'many' concerns suggest there is not a consensus that the financial management reforms are headed in an agreed direction.

Australian local government financial management reform is far from a perfect model. Some of the key issues and concerns have been documented (Kloot, 2006), referring to the Victorian experience, but which could very well be describing the situation in South Africa. Kloot (2006) lamented and questioned why some Victorian (Australia) local governments still require assistance with requirements as basic as budget preparation, even though financial management reforms designed to upgrade to modern business upgrade practices had been in operation for over a decade. The South African National Treasury is expressing similar concerns after nearly a decade. In 2009/10 there were still 60 municipalities receiving adverse or disclaimer audit opinions of their financial statements, and it was believed that there was a high correlation between the audit results and financial distress (National Treasury 22, 2011, p.4).

But in Australian local government there were also a number of concerns. Although the quality of financial reporting had improved the standard of financial 'management' was not necessarily enhanced (Kloot, 2006). One specific example was that, although financial reporting was meeting the new requirements, there were shortcomings in the internal management practices necessary to appropriately support reporting practices (Kloot, 2006).

[16] Secondary source

Similarly, staff did not appear to possess the requisite the skills and knowledge to undertake complex financial modelling and budgeting needed for business planning (Kloot, 2006). Also, there was evidence of poor budgeting practices, such as adjusting budgets to remove variations (Kloot, 2006).

Probably partly due to the international technical assistance, South African reforming was endeavouring to avoid some of the shortfalls discussed regarding the Australia context. This was partly by proposed accounting standard reform, but also the NT draft 'Budget' regulations (at the time of preparation of the research design the regulations were only in a draft form, but passed into law in 2009). The 'Budget' regulations permitted municipalities to do only one adjustment budget during the year, immediately after a mid-year review. Therefore, this avoided end-of-year manipulation of budgets to eliminate performance variations. The 'Budget' regulations also require performance reporting against both the 'original' and 'adjusted' budgets during a year, also preventing performance 'variance' manipulation. IPSAS Cash-based reporting also requires a reconciliation of the basis of the budget to the same basis of reporting, also obviating budget manipulation.

Reference was also made to a 2004 International Federation of Accountants (IFAC) report which suggested that cash or near-cash budgeting could be undertaken, but that the accrual basis was applied to the preparation of the general purpose financial reports. These remarks and conclusions do not appear to understand the true benefits of accrual accounting, or take account of the financial situations in developing countries. A major motivation for the MFMA is the revenue collection challenges, caused by low revenue collection levels and incomplete records and billing. South African cash budgets have traditionally shown the amount they expect to collect, avoiding transparency to communities of revenue collection relative to total amounts due. The 'accrued' approach requires total revenue billed to be budgeted as revenue, expense budgets to include debt impairment (doubtful debts) and the cash budget to include the amount of cash actually expected to be received and therefore making debt collection performance transparent. Australian practitioners interested in this subject should examine this issue.

3.3 Literature - published journal papers and financial information

3.3.1 Published journal papers: funding compliance and financial management

During the development of this research proposal, two journal papers were published that developed initial components of the research (Dollery and Graves, 2009, Graves and Dollery, 2009). The literature referenced in these journal papers, which is not directly referenced in this thesis, is listed in Appendix B1.

3.3.2 Literature - financial information

Numerous documents containing financial data, mainly municipal financial statements and budgets (MTREF), were used to compile key financial data to derive the MTREF information in the required National Treasury format, mainly where the municipality had not provided the information to their council, constituents or national government in the required format. The information was used mainly to compile the historical financial information. The documents are listed and referenced in Appendix B2.

3.4 Conclusion

The literature review has been completed now that all of the sub-problems have been examined in terms of the existing theory, and an explanation made of the sources of much of the compiled municipal financial information to be later used in the quantitative analysis. The next phase of the thesis, Chapter 4, describes the design and methodology of the quantitative analysis undertaken.

Chapter 4: Research purpose, design and methodology

4.1 Introduction

Chapter 4 describes the detailed design and methodology of the quantitative analysis undertaken. The actual analysis, outputs and outcomes are discussed in Chapter 5.

This chapter commences with an elaboration of the purpose and needs for the quantitative analysis component of the research, including a summary of the overall design and methodology (Section 4.2). Section 4.3 then describes some of the specific elements of the South African financial management reform that motivated the research and that explain the focus of the quantitative analysis. The remainder of Chapter 4 then describes in detail the key elements of the quantitative analysis, as follows:

- Sample selection (Section 4.4)
- Data collection (Section 4.5)
- Measurement instruments (Section 4.6)
- Data limitations (Section 4.7)
- Research project management: time schedule (Section 4.8)
- Research 'type' description (Section 4.9)
- Research problem wording (Section 4.10)
- Funding compliance measurement performance rating scale (Section 4.10)
- Performance rating scale development (Section 4.12)
- Identification of the dependent and independent variables (Section 4.13)
- Confounding variables (Section 4.14)
- Identification of a sufficient sample size (Section 4.15)
- Representative sample selection (Section 4.16)
- Validity (Section 4.17)
- Bias acknowledgement (Section 4.18)
- Regression choices (Section 4.19)

4.2 Purpose of the analysis

A summary of the overall design and methodology is illustrated in **Diagram 4.1**.

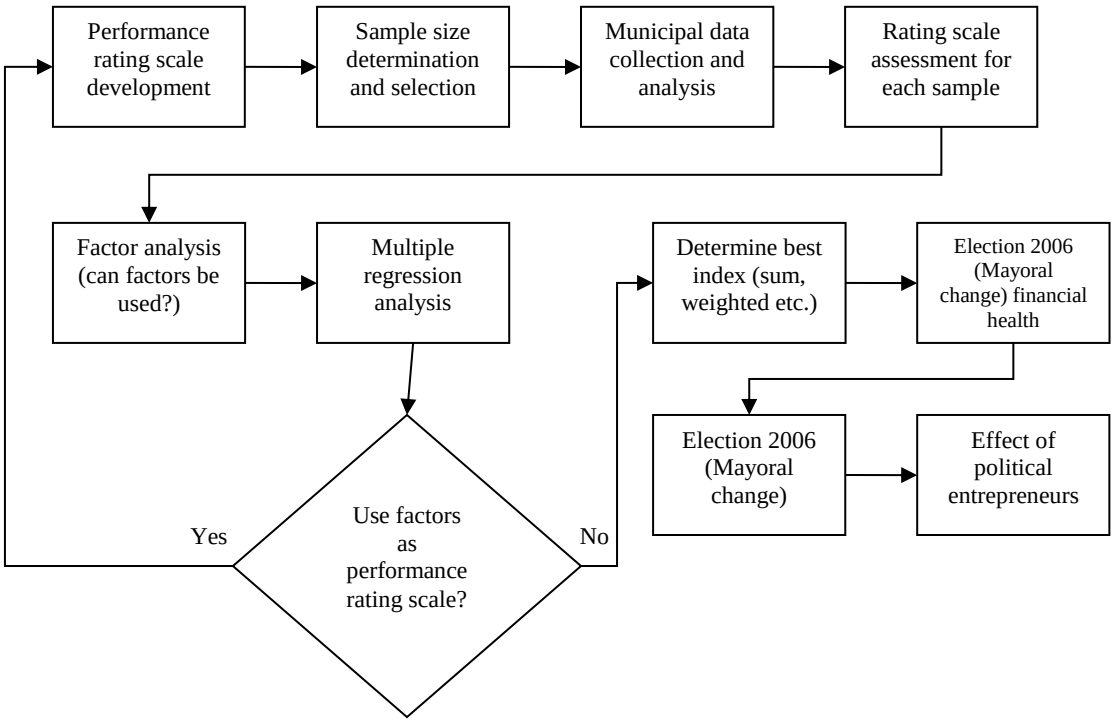


Diagram 4.1: Research Design

Diagram 4.1 illustrates that the design commenced with the development of the rating scale. The design deliberately 'loops' because it was envisaged that the quantitative analysis (QA) outcomes might lead to a limited group of factors being applied as the rating scale, rather than a rating scale being based on the full range of funding compliance measurement items. It was highly probable, based on preliminary analysis, that a performance rating scale could be developed but this was unknown at the design phase. If a factor scale solution was found not to be practical then the research analysis would have proceeded on the basis of only the base rating scale. If a factor solution was made available the analysis would also have been based on a factored performance rating scale as it could present a potential simple and practical application.

Chapter 2 discussed the weaknesses of international advisory financial accounting and measurement systems that cause users of the information to potentially misinterpret the financial health of organisations, especially public sector entities. The QA's purpose was to discover a logical, relatively simple, robust technique for improving interpretation, but

simultaneously using the QA technique to evaluate MFMTAP progress, and/or providing a basis for the evaluation of future financial management reform projects.

The substance of the applied research was a QA of the contribution made by (best practice) international technical assistance advisors to local government financial management reform progress in South Africa by comparing municipalities that were provided with a technical advisor with those municipalities that were not provided with a technical advisor, by:

- Analysing the MFMA funding compliance procedure, being municipal adherence to specific MFMA budget parameter financial requirements, of the 2008/09 MTREF compared with the financial results trend from 2003/04 until 2007/08, of a representative sample of municipalities selected from high, medium and low National Treasury (NT) financial management categories (National Treasury 3, 2004) from across South Africa.
- Developing a series of 'adapted' Likert scales for each of the 18 measure items (tests) of the funding compliance procedure, for the purpose of measuring the sample municipal compliance performance trend over the reform period.
- Undertaking quantitative analysis of the Likert scale scores for the purpose of assessing correlation between the measures for explaining funding compliance performance, and achieving factoring or reducing the number of scales that would explain funding compliance performance to enhance local government oversight simplicity and efficiency.
- Adapting an alternative existing financial health instrument for the purpose of also ascertaining if there is a correlation between financial health and funding compliance; that is, does financial health appear to be a precondition for achieving funding compliance?

When the instruments had been developed and finalised the next phase was applying all tests to the representative South African municipality sample of developing municipalities for the purpose of:

- Understanding the contribution that best practice advisory technical assistance makes to financial management reform program in developing countries.
- Measuring indirectly the benefit of the South African reform program in enabling municipalities to achieve compliance with finance reform management legislation, and thereby producing credible and realistic medium-term budgets.
- Providing a basis for evaluating the progress of similar reform programs in other developing countries.

- Potentially providing a quantitative assessment technique of local government budgets in developed countries.

Worthy of note is the recognition that 'there is a great need for applied research' (Bahl and Smoke, 2003, p.278) in the field of local government financial health analysis.

In essence, the purpose of the research was to collect appropriate municipal sample financial and ordinal/interval converted to scale data, including the design of a scale instrument and a financial health assessment, to enable the analysis of the relationship between independent variables (Likert scale scores of the funding compliance) that would explain the dependent variables of financial health (success) and financial management reform progress (with funding compliance as a significant component for financial reform progress).

It was expected that the final analysis, which was a culmination of analysis of the associated sub-problems, would provide evidence that external advisory technical assistance influenced local government financial management reform. This influence was presumed at outset of the research to be positive.

4.3 Background to the South Africa financial management reform

A major component of the financial management reform was the approval and implementation of the Municipal Financial Management Act, 56 of 2003 (MFMA). The MFMA imposes a number of strict financial conditions (criteria) within which a municipal budget should be developed and approved. Budgeted financial outcomes should be aligned to these strict financial conditions. National Treasury (NT) has progressively developed a funding compliance procedure for measuring adherence, which should be independent of service delivery outcomes and objectives in that a key focus is ensuring financial stability and financial sustainability regardless of service delivery demand.

Given that genuine reform should improve the financial outcomes, in terms of alignment to the MFMA legislation, it is reasonable to conclude that aspects of financial management reform improvement should be measureable.

Most importantly, some municipalities were provided with international expert advisors to assist with financial management reform implementation. Municipalities were also categorised by NT into high, medium and low capacity (National Treasury 3, 2004). All municipalities were provided with at least some ongoing financial assistance by way of a

financial management grant (FMG). At each level of capacity, some municipalities received advisory assistance and some municipalities did not. Consequently it was proposed that measurements of financial health and MFMA financial and funding compliance would enable a representative sample of each municipal capacity level to be compared as a basis for differentiating reform performance between those that received advisory assistance and those that did not.

The focussed funding compliance procedure used by NT was not originally intended to be a comprehensive financial performance analysis tool similar to, for example, that which would be employed by a credit rating agency. This is especially important, because the analysis attempted to measure legislative 'budget legislation and funding' adherence by municipalities with very different economic and social conditions. The 'procedure' (as much as possible) was independent of socio-economic conditions in that the MFMA requires approved budgets to be tailored to meet the circumstances in which each municipality finds itself. Regardless of the socio-economic circumstances all municipalities can comply with legal funding requirements if approved budget spending is limited to being within their true funding capacity.

The analysis involved selecting a representative sample of South African municipalities and constructing a time series of financial data that incorporated prior year actual financial results for the financial years of 2004/05, 2005/06, 2006/07 and 2007/08, the 2008/09 budget and the medium-term budget/MTREF. The 2008/09 MTREF includes estimates for 2009/10 and 2010/11. This would focus the level of compliance on the 2008/09 MTREF, nearly six years after the technical assistance advisor program commenced around early 2003 (it concluded in May 2008), and a year when substantial compliance with the budget funding aspects should have been achieved by all municipalities in accordance with the MFMTAP expectations/targets (National Treasury 3, 2004). Actual financial results prior to 2004/05 were prepared by municipalities mainly in a prior accounting format (IMFO) which therefore required translation to the new regulated format. It was expected that analysis of the performance over the five years from 2004/05 to 2008/09 should reveal a compliance and performance trend.

The 'funding compliance' analysis was intended to build on research previously undertaken (Dollery and Graves, 2009) (Graves and Dollery, 2009). It was concluded then that '[i]t is too early to conclude from this small sample of four municipalities, five including the sample from paper 1, but early signs suggest reforms are not embedded regardless of providing a

BPTA advisor or other assistance and the variable performance between the samples appears to be correlated with capacity' (Graves and Dollery, 2009, p.397). Further, '[o]n this basis, as with the analysis of the metropolitan municipality sample [previously] presented' (Dollery and Graves, 2009), there is sufficient justification for performance measurement differentiation to justify extending this line of analysis to an even larger sample of municipalities. Similar results in a larger sample would improve the credibility of the findings that the measurements can be used with complementary evidence as analysis of BPTA performance outcomes, provided the analysis was supported by quantitative analysis of the relationship between the performance rating scales used (Graves and Dollery, 2009). The analysis undertaken for this thesis incorporated the larger sample previously proposed in that published journal paper.

4.4 Sample selection

The following factors influenced the design of the selected sample of municipalities:

- National Treasury (NT) capacity categorisation (high, medium or low). NT categorised the financial management capacity of every municipality to respond to the reforms. In the same Government Gazette (National Treasury 3, 2004) the Minister also issued a series of delays and exemptions of implementing selected MFMA provisions with the implementation date dependent upon the capacity categorisation (National Treasury 4, 2004). Essentially, lower-capacity municipalities were given a longer period of time to implement some of the financial management reforms relative to the medium- and high-capacity, and medium-capacity had more restricted delays and exemptions.
- Municipalities were structured into metropolitan, local and district types, with each category having different responsibilities or providing a different range of service responsibilities; for example, metropolitan municipalities provide police services, many municipalities provide electricity and/or water/sewer services.
- All municipalities received financial assistance from the National Government to assist with implementing the reforms, by way of an annual financial management grant to spend as they wished to improve their financial management capacity (which also allowed for the opportunity to make equipment purchases such as personal computers and desks).
- All municipalities received guidance assistance from the National Government, mainly from the Intergovernmental Relations Division of the NT, but also from the Accountant-

General's office and the Department of Provincial and Local Government. NT guidance included an 'mfma@treasury.gov.za' email helpline and guidance circulars.

- Selected municipalities received the assistance of an expert financial management technical advisor to assist with the reforms. Some municipalities received this assistance for significant periods (over five years), and some for shorter periods. Some municipalities significantly resisted the use of a technical advisor and therefore likely received minimal benefit, such as the City of Cape Town which consequently had various technical advisors for short periods.

The selected municipal sample was designed to be representative of each capacity level (high, medium or low) and within each capacity selection of municipalities that either had the services of a technical advisor/s for a significant continuous period of at least two years. Appendix A lists the municipalities provided with advisors and the length of advisor assignment terms in each municipality.

No attempt was made to differentiate between metropolitan, district and local municipalities within capacity level, as this would have significantly reduced the size of the sample in each of these sub-categories to an unreliable level. The metropolitan category had a greater representation in the sample because they are all designated high capacity by the NT and represent a substantial proportion of local government by many measures, such as budget size, population, employees. No attempt was made to differentiate on 'other' technical assistance received, and it was assumed that all municipalities received a fair proportion of this assistance, either 'in-kind' or financial, even though some municipalities would have made greater use of such services as the 'help-email'. The objective was to include an equal number of technical advisor-assisted and 'without' advisor-assisted municipalities in the sample. **Table 4.1** presents the final representative sample selection that was analysed.

It should be especially noted that the sample analysed comprised municipalities selected from every province for both categories, being those municipalities provided with advisory technical assistance and an equal number that were not provided advisory assistance. There were 25 municipalities selected for each group. Appendix 2c provides sample maps of each province, illustrating the local of each sample municipality.

Table 4.1 includes information regarding the each municipality's capacity designation, its provincial location and the total length of time (years) that a technical assistance advisor was assigned to that municipality. In some instances, especially where the assistance was provided

for an extensive period, the total years would comprise multiple advisors (not concurrent). The information was derived from a NT MFMTAP management report (National Treasury 10, 2007).

Municipality by NT capacity category, location and advisor appointment term						
Ref	**Municipality with advisor**	**Province**	**Advisor years**	**Ref**	**Municipality without advisor**	**Province**
	High capacity				**High capacity**	
1	Tshwane Metro Municipality	GT	6.2	1	Breede Valley Local Municipality	WC
2	Buffalo City Local Municipality	EC	2.5	2	Hibiscus Coast	KZN
3	Cape Town Metro Municipality	WC	1.5	3	KwaDukuza Local Municipality	KZN
4	eThekwini Metropolitan Municipality	GT	2.8	4	Madibeng Local Municipality	NW
5	Johannesburg Metro Municipality	GT	4.3	5	Metsimaholo Local Municipality	FS
6	Ekurhuleni Metro Municipality	GT	2.6	6	Moqhaka Local Municipality	FS
7	Nelson Mandela Metro Municipality	EC	3.9	7	Mossel Bay Local Municipality	WC
8	Steve Tshwete Local Municipality	Mp	1.9	8	Tlokwe Local Municipality	NW
9	Mangaung Municipality	FS	3.5	9	Saldanha Bay Local Municipality	WC
10	Emfuleni Local Municipality	GT	4.1	10	uMhlatuze Local Municipality	KZN
11	Emnambethi LadySmith Local Municipality	KZN	2.9		**Medium capacity**	
12	George Local Municipality	WC	3.0	11	Sundays River Valley Local Municipality	EC
13	Govan Mbeki Local Municipality	Mp	1.3	12	Beaufort West Local Municipality	WC
14	KSD Local Municipality	EC	2.4	13	Bela Bela Local Municipality	Li
15	Maluti-a-Phofung Local Municipality	FS	1.8	14	Kareeberg Local Municipality	NC
16	Mbombela Local Municipality	Mp	5.1	15	Midvaal Local Municipality	GT
17	Msunduzi Local Municipality	KZN	4.0	16	Mookgophong Local Municipality	Li
18	Newcastle Local Municipality	KZN	2.8	17	Senqu Local Municipality	EC
19	Polokwane Local Municipality	Li	2.9	18	Swartland Local Municipality	WC
20	Rustenburg Local Municipality	NW	2.8	19	Richtersveld Local Municipality	NC
21	Sol Plaatje Local Municipality	NC	4.1	20	Lesedi Local Municipality	GT
22	OR Tambo District Municipality	EC	7.0	21	Makana Local Municipality	EC
	Medium and Low capacity				**Low capacity**	
23	Knysna Local Municipality	WC	3.0	22	Emakhazeni Local Municipality	Mp
24	Lukhanji Local Municipality	EC	3.9	23	Greater Letaba Local Municipality	Li
25	Mafikeng Local Municipality	NW	2.0	24	Greater Kokstad Local Municipality	KZN
				25	Mogalakwena Local Municipality	Li
Location code and summary		**No.**				**No.**
EC	EASTERN CAPE	5		EC	EASTERN CAPE	3
FS	FREE STATE	2		FS	FREE STATE	2
GT	GAUTENG	5		GT	GAUTENG	2
KZN	KWAZULU-NATAL	3		KZN	KWAZULU-NATAL	4
Li	LIMPOPO	1		Li	LIMPOPO	4
Mp	MPUMALANGA	3		Mp	MPUMALANGA	1
NC	NORTHERN CAPE	1		NC	NORTHERN CAPE	2
NW	NORTH WEST	2		NW	NORTH WEST	2
WC	WESTERN CAPE	3		WC	WESTERN CAPE	5
	Total sample	**25**			*Total sample*	**25**

Table 4.1: Municipal Capacity, Location & Advisor terms
Source: own compilation[17](National Treasury 3, 2004) (National Treasury 11, 2008)

The original research design objective was to progressively and randomly select municipalities to populate the 'without' advisor sample. The random selection was to be made from the total population of municipalities within each capacity category level, which initially required the Gazette notice that assigned the capacity (National Treasury 3, 2004) to be sorted. A spreadsheet tool was then developed to undertake the random selection, comprising

[17] Table 4.1 compiled from National Treasury municipal capacity data and MFMTAP advisor information

a list of municipalities and a random formula. Selection of the formula generated a random municipality reference number, which was converted to a municipality name using a formula.

Once each municipality selection was made, a search and review was then undertaken to ascertain if sufficient financial data was available from that municipality, from either their website, direct contact or available from NT. Sufficient financial data were defined as inclusive of annual financial statements for all of the years to be analysed and a minimum standard MTREF document for 2008/09. If the municipality was non-compliant with the production requirements of the 2008/09 MTREF documents, then it could not be included in the sample, although every effort was made to apply the MTREF information that was published in that year.

There were only 14 'Medium-Capacity' municipalities that did not receive advisory technical assistance, yet there were 16 'Medium-Capacity' municipalities that received assistance for two years or more.

The next step was to undertake the random selection which required four tables being assembled in the random selection spreadsheet. The tables were:

- Medium-capacity municipalities with advisors for two years or more (n=16)
- High-capacity municipalities without advisors (n=14)
- Medium-capacity municipalities without advisors (n=79)
- Low-capacity municipalities without advisors (n=108)

For each table, a random number generator function was included using the 'randombetween' function, which references a number of all municipalities in the table. A 'lookup' function read the name of the municipality from the table. Each time the spreadsheet was recalculated (F9 key) a new number and municipality was generated for each table.

It was proposed not to include any District Municipalities in the sample due to their different funding structure and relationship with the community. The total number of municipalities in each of the 'with and without advisory technical assistance' groups was proposed to be the same number although 'all' of the 'metros' would be included. Because only three local medium-capacity municipalities and two local low-capacity municipalities were provided with advisors, those municipalities were automatically included within the sample subject to financial information being available. It was initially proposed to include five high-capacity

municipalities (not including ‘metros’), but this had to be extended to a larger sample within the constraints of available financial information and analysis time.

The MFMA funding compliance outcomes of five municipalities had been previously analysed (Dollery and Graves, 2009) (Graves and Dollery, 2009). The hypothesis underpinning the later journal paper was that municipalities that had been publicly recognised or awarded for their recent financial management process would have made greater progress in achievement of financial management reforms. The municipalities from the previous analysis were automatically included in the thesis representative sample. These municipalities were Buffalo City Local, Emakhazeni Local, eThekwini ‘metro’, Steve Tshwete Local and Swartland Local.

4.5 Data collection

The purpose of Section 4.5 is to explain the data collection aspects of research design and methodology by:

1. Identifying the data required and the means by which that data would be obtained; and

2. The specific treatment of the data for each sub-problem.

Table 4.2 categorises, by sub-problem, the data which were required to be collected and the intended treatment of the data.

Chapters 4, 5, 6 and 7 describe how the data were acquired, organised, analysed, and interpreted, as well as describing the use and interpretation of the data to solve the research problem, ensuring that any conclusions are substantiated (Leedy and Ormrod, 2005). All data used in the analysis have been retained in accordance with the higher degree research requirements. Although beyond the scope of this written thesis, a separate CDRom is provided that contains all data analysed, mainly to illustrate the extensive analysis undertaken. Appendix E lists the data that are included on the separate CDRom.

One of the advantages of the NT’s reform program was a legislative and administrative objective of ensuring availability of a wide range of data and reports on municipal websites, principally to achieve transparency to the community. There has been a noticeable improvement in the general level of compliance with this MFMA requirement, which greatly assisted in obtaining the budget and financial statement information necessary to complete the

funding compliance procedure for many of the sample municipalities. Early testing proved this to be the case before proceeding with the entire sample analysis.

Sub-problem	**Data needed to address the sub-problem**	**Treatment of the data**
1. Financial health measurement	Financial and non-financial (management) measures (qualitative and quantitative)	Assign a weighted score to each municipality in the sample
2. Funding compliance measurement	Annual financial statement information and MTREF information for each municipality in the sample. There is an MFMA requirement for this information to be made available on municipal web-sites (a MFMTAP reform). Failing this direct contact was made with the municipality concerned for document availability (see further explanation below this table).	Undertake NT's funding compliance test for the 2008/09 MTREF with application to all past financial years from 2003/04.
3. Political entrepreneur impact on funding compliance	Number of new executive mayors, limited to each municipality in a limited sample: 2006 general election compared with 2001. Source: Independent Electoral Commission statistics (candidate lists and results for 2000 and 2006) http://www.elections.org.za/ Municipal budget documents or annual reports for Mayoral Committee members.	Calculate a new executive mayor member factor as a proxy for potential entrepreneurs. Analyse difference in measures to ascertain level of variance.
4. Funding measurement trend	Likert scale scores (raw and weighted factor dimensions) and summated scales.	Trend analysis of 'total' raw score and factor dimensions Also analyse trend of score as a percentage of total potential score and ascertain variance.
5. Quantitative analysis & trend	Likert scale measure results for each municipality in the sample.	Investigate 'normality' and identify 'outliers'. Evaluate variables to explain performance outcomes.
6. Financial management reform trend prediction	Likert scale scores or summated scales trend and	Trend analysis

	extrapolation.	
7. South African uniqueness	Capital cities of Brisbane and Sydney annual financial statements and budgets.	Funding compliance test and financial health analysis

Table 4.2: Data required and data treatment

Any bivariate or multivariate analysis needed to meet the minimum assumptions required, including sample size, normality of the data and linearity (Hair et al., 1998).

'Outlier' analysis was potentially an important aspect of the multivariate analysis, with the ability to identify any municipal funding compliance that was abnormal. For example, it may have identified that the achievement of MFMA reforms for one or more municipalities was extraordinary, which could lead to the exclusion of the data from further analysis or understanding the impact on the analysis if the data were to be excluded. Although this was an item identified as potential in the research design it was later decided, due to various factors, that outliers would not be excluded from the quantitative analysis. A review of the analysis conclusions later in Chapter 6 explains this decision.

4.6 Measurement instruments

The following measurement instruments were applied in this research:

1. National Treasury's funding compliance procedure (National Treasury 12, 2008) was used to assess the level of compliance with MFMA requirements of each of the municipalities in the representative sample chosen. Appendix G, Funding compliance measures, includes the names of the funding compliance measures or tests applied in that procedure.
2. A 'financial health' assessment was undertaken to understand the relationship or possible correlation between financial health and funding compliance. The instrument used was a modified instrument used in other local government financial assessments, but adjusted for the South African context. The measurement items for this instrument are listed in Appendix L and an example of their application (City of Tshwane 'metro') is displayed in Appendix M. The instrument was based upon the instrument originally developed for local government in New South Wales (Australia).
3. Likert-type performance measurement scales were adapted and developed to measure and summarise the overall funding compliance performance as part of a performance trend assessment. An initial draft of the scales is included in Appendix H. The final version of the scales with adjustments made during the research is included as Appendix S. The aim

was to produce an overall score for each financial year analysed to assess a performance trend, to deal with the situation where a municipality may improve on some measures, deteriorate on others, or just stay the same. This could possibly have been be the sum of the Likert scales, but this was later subjected to correlation analysis (factoring) between the measures to ascertain if a lesser number of scales could explain overall performance. Section 3.2 of the literature review previously discussed the use of the assessment scoring technique of local government reform in other African local government reform projects.

4. National Treasury's annual financial statement format was issued by the Accountant-General's office. No translation was required where municipalities had already converted to this format. However, if a municipality had reported in accordance with the IMFO format it was proposed to translate the information, subject to the availability of minimum information and reconciling to adjust to the 'cash and cash equivalent' position at the end of each financial year. This cash reconciliation ensured that the translation had been undertaken accurately.

5. Municipal cost index (MCI). A MCI is an index compiled to measure the price increases of the cost of resource inputs to be consumed by a municipality, mainly salaries and wages, electricity, bulk water, fuel and the cost of contracted capital infrastructure investment. The MCI was developed, encouraged by the technical assistance advisor, at the City of Tshwane (City of Tshwane Metropolitan Municipality, 2005) for the purpose of measuring the cost of inputs to assist with the setting of tax and tariff increases. The MCI was considered with other measures such as National Treasury (NT) guidance and CPIX (Consumer Price Index excluding interest payments). Because salary increases and prices such as bulk electricity purchases are set nationally, a similar input cost 'structure' applies to most municipalities, albeit many have location disadvantages. The instrument is useful in understanding affordability of municipal service price and tax increases. Percentage revenue increases can be compared with an MCI to gauge the degree of cost-push pressure on a municipal budget. One MFMA funding compliance measure uses the South African Reserve Bank's policy benchmark increase rate to partially assess the level of 'real' change, as NT policy guidance to municipalities is to constrain tax and tariff increases to this level. However, the Reserve Bank's benchmark is related to consumer price increases, which may not be closely aligned to municipal cost increases.

4.7 Data limitations

4.7.1 Financial statement quality

A potentially crucial limitation of the evaluation of the annual financial statements of previous financial years, to understand the funding compliance trend, was the quality of the published financial information of individual municipalities. In the South African environment, annual financial statements have historically been heavily qualified and disclaimers were issued to many municipalities by the Auditor-General. In this situation the data and information are unreliable. To the maximum extent possible, it was intended to make comments on the quality of financial information as discussed in the audit reports, especially where any audit qualifications would impact on the funding compliance measures. However, the problem being widespread would lead to a qualification of the research results, a matter dealt with in Chapter 8.

4.7.2 Prior year budget and actual outcomes

An analysis of the trend of past 'actuals' of reported financial information revealed that the approved budget information is not normally disclosed. This could mask situations where both the actual financial outcome was better than or unfavourable against the approved budget. This effect could be partially tested by comparing the actual outcome with the approved budget for each of the financial years. However, the complexity of this solution could also be substantial and misleading, where past financial years have variations of formats approved, most commonly excluding budgeted cash flow statements and budgeted financial position both of which are fundamental to the funding compliance analysis. This could also be the subject of separate research, analysing budget proposals compared with actual outcomes over time.

4.7.3 Sample limitations (municipal capacity)

National Treasury (NT) had focussed its technical advisory resources on predominantly larger budget municipalities, because of an objective to assist municipalities that collectively comprise a substantial economic component of local government, and providing service delivery likely to have a material impact on the South African economy. Whilst there was a mixture of high-, medium- and low-capacity municipalities that had been provided with a technical advisor/s, the significant majority were high capacity and this could limit the

validity of the analysis. It was intended to minimise the impact by the sample size having the same number of high-, medium- and low-capacity municipalities from the 'with' and 'without' technical advisor groups, and all 'metros' were separately analysed.

4.7.4 Sample limitations (selection and availability of data)

The objective was to include municipalities that had been provided with international technical assistance for at least two years, as previously discussed. District municipalities were to be excluded from the analysis, due to the limited functions they undertook and their lack of synergy with 'metro' and 'local' municipalities, but it was decided that one district municipality should be retained as it was provided with the largest amount of continuous technical assistance of any municipality during the MFMTAP. 'No advisor' municipality samples were to be selected randomly from three populations (high-, medium- and low-capacity categories). Earlier research (Graves and Dollery, 2009) and initial testing had shown that a low-capacity municipality had sufficient financial information to undertake the analysis, but where this was not the situation with other randomly selected cases then that municipality was removed from the random sample and another random selection was made until a municipality with sufficient financial analysis information was found to be available.

4.7.5 Technical assistance (TA)

All technical assistance (TA) may not be the same; there are many factors that influence effectiveness and this influences individual municipal outcomes. It has been recognised that because foreign aid is such a big business this is likely to encourage the contracted consulting firms and universities to insist that their own firms implement the technical assistance (Cohen, 1992), which has obvious limitations such as the competence of the TA provided. Moreover, there are numerous other limitations of the effectiveness of TA, including lack of genuine commitment by the bureaucracies to implement the recommended reforms and corruption (Cohen, 1991)[18] in (Cohen, 1992). Whilst Cohen was describing public sector financial management reform in Kenya, the comments equally apply to South African local government financial management reform (MFMTAP).

MFMTAP displayed a number of limitations, including advisor variability and tenure, municipal resistance and non-acceptance. Unsurprisingly, many in the South African

[18] Secondary source

bureaucracy considered that as an advanced country they were not in need of being supported by international TA. The degree to which municipal management was receptive to technical assistance was therefore a key influence. Some municipalities clearly welcomed their assigned technical advisors and effectively used their expertise, whereas others viewed the assistance as an impediment and an insult and therefore received minimal or no value from it.

The assigned advisor ideally would have been engaged as 'gap-filling advisors'. This type of advisor was defined in Section 2.4 under the definition for 'advisor'. However, depending on individual situations, especially lack of local management capacity, the advisors could drift in and out of all advisor types: high-level policy neutral; condition precedent advisors; gate-keeper advisors, and specialist advisors. The significance of variable inputs is difficult to assess and this obviously limited comparability of sample municipal outcomes.

4.8 Research project management: time schedule

A project management approach to the research was used, with a detailed schedule developed to monitor progress. A draft schedule was originally prepared specifying a target date and the estimated number of equivalent full days[19] that each activity should take. This was later revised a number of times depending on the actual length of time taken to complete some activities.

The translation of the financial information into the required format for the funding compliance analysis, especially for the medium- and low-capacity municipalities or the previous 'historic' actual financial results and information, proved far more time consuming than originally anticipated. The random sample selection of municipalities also proved to be problematic, especially when a random selection did not have sufficient financial information to enable the analysis to be completed. The random sample selection of 50 South African municipalities proved to effectively be the entire population of municipalities capable of being analysed in terms of available information. **Table 4.3** lists and describes the key activities of the research:

The key aim of the structure of the plan was to keep 'on track' and avoid the situation that '[w]hen you are up to your derrière in alligators it's hard to remember that your original objective was to drain in the swamp' (Honadle et al., 2004, p.219), although in the South African context this is more likely to be hippos and crocodiles!

[19] Full-time equivalent days output assuming 8 hours per day

List of activities and description
Prior to data collection
• Draft full research proposal to supervisor (including preliminary literature review)
• Research proposal approval and research confirmation
• Final clearance and support from supervisor for research
• Ethical clearance was not required for this type of research
• Draft design of the financial health assessment instrument
• Representative municipal sample selection
• Commence statistical and financial data collection (including municipal correspondence)
• Complete draft Literature Review and related dissertation chapter
• Draft Research Methodology chapter and approval by supervisor to proceed
Data collection
• Final financial health assessment instrument complete
• Financial health assessment data of sample municipalities
• Funding compliance data of sample municipalities
• Cities of Brisbane and Sydney (Australia) data collection
• Funding compliance data translation, where only IMFO formats were available
• Final Literature Review and Research Methodology chapters completed
Data analysis
• Data preparation and testing for completeness, integrity
• Likert scale rating of representative sample
• Exploration of the data and preliminary assessment
• Documentation of preliminary assessment
• Quantitative analysis of funding compliance
• Multivariate analysis - factoring
• Draft results and findings
Reporting
• Final version of results and findings
• Draft chapters of all remaining chapters of dissertation including conclusions
• Final manuscript and proof reading of thesis
Doctoral thesis management
• Thesis production
Doctoral dissertation completion
• Examination and final amendments

Table 4.3: List of activities

In addition to the project plan of the research, as summarised in Table 4.3, the major activities were also developed into a visual model. This is presented in Appendix I, a construct validity model adapted from the original Trochim validity model (Trochim, 2002) that displays the major activities and procedures undertaken during the research. The main aim of constructing the diagram was to visually display how the main pieces of the research 'puzzle' fitted together, and to test the validity of the logic behind the proposal. Its construction assisted with ensuring that the steps had been well thought through, and was particularly useful in ensuring

that the research plan logically and comprehensively dealt with the key independent and dependent variables.

4.9 Research 'type' description

To a limited extent the research undertaken was of a 'descriptive nature', about how things are or have been in the past. However, there was also an intention to discover whether a cause-and-effect relationship existed between an independent variables and a dependent variable (Leedy and Ormrod, 2005, p.198), as further discussed in **Section 4.13**. The research type could also be likened to an *ex-post* experimental design, *ex-post* because the effects had occurred prior to the research being conducted and there was not a 'direct manipulation of the independent variable' (Leedy and Ormrod, 2005, p.232). *Ex-post* research generally cannot include a control group, but a de facto split sample control was used which was earlier discussed in Section 2.2 and examined further in Chapter 5, Section 5.2 . *Ex-post* research is still considered a legitimate research method (Leedy and Ormrod, 2005).

4.10 Research problem wording

During the progression of the research investigation, it was recognised that the wording of the draft problem originally submitted for supervisor approval could be expanded to achieve a greater depth of analysis. The original draft proposal stated that the research was 'Quantitative analysis of international best practice technical assistance to South African local government financial management reform and capacity since 2003' (Graves, 2008, p.3). The wording was revised to include a description of the representative sample of municipalities that would be used to undertake the quantitative analysis. The problem statement would then precisely include qualifying words, in this case 'quantitative analysis of a ***representative sample*** of municipalities' (Leedy and Ormrod, 2005, p.199). The final wording was also importantly improved to limit the reference to the MFMTAP period from 2003.

4.11 Funding compliance measurement performance rating scale

A fundamental component of the research was founded on the need to convert financial measures and trends into an index format. The index would need to be a rating scale that measured both financial performance magnitude and trend.

In the social sciences, Likert scales have traditionally been used to obtain responses to survey instruments (Allen and Seaman, 2007, p.65). A scale commonly asks respondents to select one of the five (or perhaps seven) propositions. Likert scales usually produce imprecise ordinal data with consequent limitations to the validity of most standard statistical tests (Allen and Seaman, 2007, p.64), but the precise financial nature of the base research data for ratings of the application of a scale used in the research is synonymous with higher validity interval data. It is stressed that this is not the first time that Likert scales were used as an evaluation technique of public sector reform (Monavvarian, 2003).

It was therefore proposed that a performance rating scale be developed similar to the format of a Likert scale to meet the analysis needs of the research. Although '[r]ating scales were developed by Rensis Likert in the 1930s to assess people's attitudes; accordingly, they are sometimes called Likert scales' (Leedy and Ormrod, 2005, p.185) the construction of the 'Likert-like' measure performance rating scale for funding compliance measurement was concluded as an appropriate solution to meet the measurement needs.

Earlier analysis (Graves and Dollery, 2009) of National Treasury's (NT)'s funding compliance procedure revealed a challenge: How best to assess whether a municipality's 'overall' financial management performance had improved in terms of the reform objectives? The compliance procedure required NT analysts to individually examine each of 18 measures to assess MFMA 'funding' compliance. However, a common outcome was instances of improvement in some measures, deterioration in others, with the status quo maintained for the remainder. An individual assessment of each measure was useful for the analysis purposes of NT, or a provincial treasury (PT) in the case of the municipalities over which the provincial treasuries had oversight (comprising 266 entities in total), but would not provide anything other than a mere impression or overview of whether or not a municipality had improved and certainly not reveal a performance trend over a number of financial years.

It could be argued that the comparative trends (of a municipality) and local government (with other municipalities) derived from financial performance analysis would be more reliable by applying established 'fiscal health' instruments rather than constructing a new instrument. Existing instruments, such as the Ten-point Test of Fiscal Condition, the Financial Trend Monitoring System, and Fiscal Capacity Analysis, have been found to have 'fairly modest data requirements' (Honadle et al., 2004, p.139). These instruments rely on local government data collections, such as the Government Finance Officers Association (GFOA) Financial Indicators' Database. However, whilst such data collections might be readily available in

developed countries such as the United States, information of this kind is not available in South Africa. Moreover, the MFMA is highly prescriptive legislation designed specifically for the South African local government environment.

South African Local Government financial information is presently being assembled within NT's database, but it will be some years before the information is reliable and constructed consistently based on all municipalities applying stable and accepted accounting standards. In this regard, (Bahl and Smoke, 2003, p.277) have observed that 'it is essential to develop an adequate municipal information and monitoring system' since 'better information is needed about expenditure levels and needs, revenue levels and capacities, and fiscal performance'. It seems clear that this advice applies equally to South African local government or the NT's data and information objectives. However, the current policy position in South African local government is more based on the acceptance of other related advice that 'if a local government wants to use some of the more sophisticated techniques for analysing financial data, it may need to start collecting certain data' (Honadle et al., 2004, p.27), which is proceeding at the NT. Unfortunately this information was currently of insufficient quality and detail to be useful over the time period considered in this thesis.

4.12 Performance rating scale development

Based on the considerations, discussed in **Section 4.11**, Likert-like performance rating scales were constructed to assess each of the 18 performance measures of the funding compliance procedure to meet the need for an overall compliance assessment tool. The original draft of the 'Funding Measures' Likert-like performance rating scales is displayed in Appendix H. This performance rating scale proposal was developed in an earlier analysis (Dollery and Graves, 2009, p.414), and edited and enhanced during the current research. The final scale measure proposal is displayed in Appendix S (Funding compliance - weighted average financial results).

National Treasury's (NT's) funding compliance procedure was intended as a self-assessment instrument by municipalities, and similarly this type of rating instrument could also be self-assessed by municipalities' Finance departments.

Based on the theory, discussed earlier in Chapter 3, Section 3.2.4, a simple five-point scale was selected for each measure, and values of **2**, **1**, **0**, **–1** or **–2** were assigned based on a specified financial result range outcome. For example, the 'Cash and Cash Equivalent'

position of a municipality can be classified as 'Positive and improving' (2), 'Positive and stable' (1), 'Positive and declining' (0), 'Negative and stable' (–1) or 'Negative and declining' (–2). Positive available cash and investments is clearly one indication of a healthy situation, but the performance trend can be just as important. Hence an improving cash and investment situation rates more favourably than a stable or declining position.

An assigned score is shown in brackets after the scale item example in the preceding paragraph. After assigning scores for each item, the total scale item scores were then summed for a total score, although, as discussed later in Chapter 5, Section 5.2, it was recognised that individual measure item correlation and relative importance could result in a sum result giving a distorted assessment. This procedure was repeated for each financial year analysed. The total score was displayed by a line chart for each sample municipality, with a moving average trend line added to the chart to indicate overall progress. Example charts of the raw score results of the six metropolitan municipalities are shown in Appendix J (Funding compliance assessment of South African 'metros'). Charts of the entire municipal sample analysed are shown in separate tabs of the Excel spreadsheet file [named Performance Rating Scale Scores.xls] which is included on the separate CDRom. The charts for the total sample analysed, comparing the total scores for each of the capacity categorisations, are included and discussed in Chapter 6.

It was earlier conceded that in their initial form these scales required further refinement, although they had provided a preliminary basis for an overall performance assessment. Further confirmation by quantitative assessment will be required, probably after the legislated South African reforms have matured, for example, seven years from 2009/10[20] or when a larger Australian local government sample is analysed. First, it was highly probable, and was later confirmed, that there was a high degree of correlation between some of the measures used. Thus a positive score for one measure may be highly related to a positive score for another measure. Quantitative and statistical analysis were later applied, as described in Chapter 5, to measure the degree of correlation and the effect of each measure on the total score. It was thus possible to group some scales into simplified factor scores. This also potentially provided the basis of predicting municipal financial health based on the trend information, which would be useful to national and provincial departments that have municipal oversight responsibilities.

[20] Allows for an analysis of a complete seven-year medium-term budget cycle post-Budget Regulations of 2009.

There is another perspective of the validity question relating to the summing of scale rating scores to obtain a total score. A sum approach was applied in Brown's (1993) Ten-Point Test of Fiscal Condition, a similar performance 'rating' approach to that used here, which 'portrays the fiscal condition of a local government in a set of ten simple ratios' (Honadle et al., 2004, p.140). In that instrument, a score was assigned to each ratio included in the test depending on the relative relationship (quartile breakpoints) of a municipality compared with the GFOA database of all municipalities. The score was then summed for an overall score and the overall score was ranked against other municipalities. Although it would be useful to argue that another summed score approach was consistent with the accepted Ten-Point Test, and therefore valid, it also needs to be accepted that it could be argued that there is a correlation between some of those tests; for example, the Ten-Point Test ratio of 'Total Revenues/Population' would likely be highly correlated to their 'Debt Service/Total Revenues'. This matter is explored further as other research in the quantitative analysis in Chapter 5, including examining whether other studies have considered the validity of a summated score in similar circumstances.

4.13 Identification of the dependent and independent variables

A discussion on the variable structure is worthwhile here to understand the purpose of the representative municipal sample examined.

Variable research is an investigation of the influence that one ('cause') variable has on an 'effect' variable. The 'cause' variable is the independent variable and the 'effect' variable is the dependent variable. In this research the independent variable was the provision of an international technical assistance advisor to a municipality. The 'effect' or dependent variable was whether there was a change in the level of 'funding compliance' and financial management legislated compliance by a municipality. A related affect was the change in financial condition or health of each municipality.

In simple terms it was expected that those municipalities that received advisory technical assistance would improve their level of compliance to a greater extent than those municipalities that did not receive that assistance. But whilst the independent variable was defined as at least two years of advisory technical assistance, the dependent variable is not as simple, and was defined as the proxy of **funding compliance performance measurement**

rating scale results. In core complex terms the dependent variable, as measured by the rating scale, could be regarded as a municipality's financial management 'successes' (or failures?).

Both the dependent and independent variables are comprehensively discussed in far more detail in the quantitative analysis chapters 5, 6 and 7, but are worthy of a brief interim review in the context of the selection of the representative sample to understand the design of the sample selection; that is, representative of 'with advisory technical assistance' and 'without advisory technical assistance' municipalities. The dependent variable could therefore also be best practice technical advisory assistance, but this view was not included in the research as it was inconsistent with the objectives.

Whilst there was a continuum in terms of time and expertise, of the level of advisory technical assistance provided, it is argued that essentially there were only two categories in respect to the sample of municipalities, those that received the advisory technical assistance for a minimum period and those that didn't. Alternatively, the dependency could be defined as suggested previously as municipal financial success, the financial health outcome of each municipality which was improving, stable or deteriorating.

An alternative approach would be to not define dependency and interdependency amongst the variable, and undertake a simultaneous analysis of all variables, although this was concluded to be an inappropriate solution for this problem.

The dependent variable of a municipal financial outcome is akin to a commercial firm's success or failure, and therefore this terminology suggests a non-metric. A key objective was to identify the group to which the object (the municipality) belongs, which for this analysis was predicting success or predicting belonging to a group receiving advisory technical assistance. If the analysis predicted that a municipality with advisory technical assistance was also in the success 'group' then it could be hypothesised that advisory technical assistance was correlated to success.

We therefore had a categorical dependent variable and many metric independent variables. The dependent variable consisted of two groups, those provided with advisory technical assistance and those that did not receive it, suggesting a two-group discriminant analysis solution.

It has been previously observed that 'discriminant analysis involves deriving variates, a linear combination of the independent variables that will discriminate best between defined groups. Discrimination is achieved by setting the weight of the variate for each variable to maximise

the between-group variance relative to the within-group variance' (Coakes, 2011, p.244). However, normality is assumed for discriminant analysis, and logistic regression is recommended. On the contrary, 'logistic regression is much more robust' (Coakes, 2011, p.276) when normality conditions are not met. However, normality examination during the subsequent quantitative analysis proved to be problematical, although, as explained later in Chapter 5, this was possibly related to the reliability of the municipality financial information on which the scale scores were assigned. Therefore, future research that included repetition of the analysis may prove to provide a more robust solution.

4.14 Confounding variables

A confounding variable was a way in which the municipalities being studied might be different in addition to the independent variable being studied. To the extent that confounding variables exist, this would limit the degree of generalisation that can be made about effect on the dependent variable (Leedy and Ormrod, 2005).

To some extent the quantitative analysis was statistically controlled for confounding variables. However, it has previously been advised that 'controlling confounding variables statistically is no substitute for controlling them in one's research design if at all possible' (Leedy and Ormrod, 2005, p.222). The most prominent confounding variables considered in this research were:

1. The 'starting point' finances – a municipality with a higher level of financial condition or financial health or performance at the beginning of the MFMTAP would probably or likely be at a higher level of funding compliance at the end of the program. In other words, a municipality better off financially at the beginning of the analysis period would likely also be better off during and at the end of the analysis period.
2. The 'starting point' financial management capacity – a municipality with a higher level of financial management capacity at the beginning of the reform program would probably achieve a higher level of funding compliance at the end of the program. Similar to the starting point finances variable, a municipality with better capacity at the beginning of the analysis period would likely be better off during and at the end of the analysis period.
3. Political entrepreneurs – municipalities with a high level of political entrepreneurial activity may have a deteriorating impact on the level of funding compliance due to political interference.

4. Advisory technical advisor experience and capacity – variability in experience, qualifications, motivation and ability of advisors would influence the quality of the technical assistance provided.

Items 1 and 2 were partially controlled by undertaking a financial health assessment at the beginning of the reform program, with the assessment including financial capacity factors. Item 3 was evaluated by understanding the degree of political change being experienced by a sample of municipalities, with it being proposed that a higher level of change may disrupt compliance as evidence of political entrepreneurs. It was not possible to control for item 4 above, as MFMTAP had concluded, and especially as some municipalities were the recipients of more than one individual and for variable lengths of time.

In experimental research it would likely have been useful to manipulate or control the degree of advisory technical assistance provided, but in this 'post-test' research that option was not available. The degree of advisory technical assistance provision was influenced by a range of factors including advisor availability, that is, there may have been a preference to provide a greater amount of advisory technical assistance, but advisor availability was a limiting factor, such as an international advisor choosing to terminate their services or their contract expiring.

4.15 Identification of a sufficient sample size

Importantly, it has been previously evaluated that '[t]he size of an adequate sample depends on how homogenous and heterogeneous the population is' (Leedy and Ormrod, 2005, p.207). In terms of legislated structure it could be argued that there was a high degree of municipality homogeneity especially relating to services type, but in terms of size and complexity there was huge variation depending to a large extent on population size. It could also be argued that organisational complexity was relative to population size.

The total research 'population' was 283 municipalities comprising metropolitan 'metro', local and district. One statistical rule of thumb suggests that 50% of these municipalities should be sampled. However, the objectives include that the 'noBPTA' municipalities effectively be a 'control' group and that two years of advisory assistance is an approximation of a municipality that has received a significant input. Only 26 'metro' and local municipalities (it was intended to exclude district municipalities from the sample due to their very different service requirements) met the two-year-plus criteria. To ensure that the 'control group' size did not overwhelm the 'with BPTA' group in the total sample, and to some extent to offset

this ‘spectrum bias’ (Leedy and Ormrod, 2005, p.209), random selection was used in the selection of 25 ‘noBPTA’ municipalities. There were no ‘metros’ that did not receive BPTA so the entire ‘metro’ group was subjected to the funding compliance measurement, but could have been excluded or isolated from the quantitative analysis.

The municipalities were then stratified into high-, medium- and low-capacity, so the random selection was intended to involve extracting the same number of ‘noBPTA’ municipalities in each stratum.

4.16 Representative sample selection

Therefore, even though it is accepted that the representative sample may have had some distortion, a practical compromise was to:

1. Include all ‘metros’ in the analysis, and subject them to separate quantitative analysis if this is required, or for a specific sub-set of the QA.
2. Include all municipalities with greater than two years of advisory technical assistance (it was judged that less than this input may limit BPTA influence), subject to ensuring that a sample of at least 50 municipalities was used. This is a form of ‘quota’ sampling which is ‘purposive’ but somewhat convenient and non-random (Leedy and Ormrod, 2005).
3. Randomly select from a stratified sample of ‘without BPTA’ high-, medium- and low-capacity municipalities the same number of ‘with BPTA’ high-, medium- and low-municipalities so as not to overwhelm the analysis with too many ‘without BPTA’ municipalities.
4. Randomly select 16 high-capacity, four medium-capacity and two low-capacity ‘non BPTA’ municipalities equivalent to the number of non-metro municipalities in the ‘with BPTA’ municipalities in the sample.

4.17 Validity

External validity refers to generalisations that can only be made of a sample as ‘truly representative’ of an entire population if the sample is truly representative (Leedy and Ormrod, 2005, p.198).

Internal validity refers to the extent to which a research study's design and the data obtained enable a 'researcher to draw accurate conclusions about the cause-and-effect and other relationships' (Leedy and Ormrod, 2005, p.219). In this regard, the quality of the advisory technical assistance was important, but was rather crudely assumed to be of equal value to the municipalities. The other variable was that all municipalities were provided with technical assistance and advice and funding, but not an international technical advisor. The extent to which individual municipalities took advantage of the noBPTA support could significantly affect their funding compliance performance.

Conclusion bias, also known as a 'distortion', can be supported and justified as not eventuating if the sampling procedure is carefully planned (Leedy and Ormrod, 2005, p.199).

The reason for the research applying a representative sample is very well described by (Leedy and Ormrod, 2005, p.179):

> *To behold is to look beyond the fact; to observe, to go beyond the observation. Look at the world of people, and you will be overwhelmed by what you see. But select from the mass of humanity a well-chosen few, and observe them with insight, and they will tell you more than all the multitudes together*.

An analysis of all municipalities would indeed have been overwhelming in the sheer size of the undertaking, the time required and the complexity of the outcomes.

The purpose of constructing a randomness element to the sample was to strive for the maximum extent possible to achieve a 'well-chosen few' on which to assign a representative sample. The purpose of randomness was to allow that that there is an absolute probability, or as near as possible to being absolute, of an item being selected into a sample to ensure the statistical credibility of the sample being achieved (Leedy and Ormrod, 2005, p.201).

South African local government is clearly stratified in terms of municipal size (metropolitan municipalities or local municipalities), geography (province) and capacity categorisation (high, medium and low). The problem also is inherent in those municipalities that have received technical advisory assistance and those that have not. There is some justification for a 'proportional stratified sampling' (Leedy and Ormrod, 2005) and this approach was applied to a selection of high, medium and low 'no advisor' municipalities. However, the approach was not feasible for metropolitan and local groups, as all six 'metros' were provided with advisory technical assistance. Moreover, the application of a geographical nine provinces strata technique would significantly diminish the power and validity of the sample.

Proportionality was also not applied in the size of the sample. The number of ‘no’ advisory technical assistance municipalities far outweighed ‘with BPTA’. Also, all ‘metros’ were ‘with BPTA’. The number of local municipalities was far greater than ‘metros’.

Validity would also have been improved through random assignment of municipalities to both the ‘control’ group and the ‘test’ group, but random selection was not possible due to the limited number of municipalities that received a technical advisory assistance. Random selection would have meant that the sample of this group was too small.

4.18 Bias acknowledgement

It is acknowledged that the scheme devised for the ‘representative sample’ of South African municipalities has a number of bias risks, and these were taken into consideration in the strength in which any generalisations about the entire population (all South African local government) was made. For example, the sample was stratified into National Treasury (NT) capacity categorisation, yet one aspect of NT’s categorisation was that their provision of a technical assistance advisor was indicative of high capacity in most cases. To some extent the statistical analysis was utilised to measure and identify the bias.

4.19 Regression choices

The original research proposal indicated that logistic regression would be applied due to possible data constraints, but a multiple regression methodology is applied if normality of the data was indicated by SPSS tests. However, logistic regression was applied to test for groups. The subject of the analysis and explanation of the analysis results is discussed in Chapter 5 Section5.5, the ‘Multiple Regression of the Factors’.

4.20 Concluding remarks

The conclusion of Chapter 4 represents the finalisation of the foundation chapters, being chapters 1 to 4 that explained the basis and methodology of the research. Chapters 5, 6 and 7 now collectively present the results of the quantitative analysis on which the conclusions (Chapter 8) will be made.

Chapter 5: Quantitative analysis and factoring

The overall purpose of Chapter 5 is to explore whether quantitative analysis of the funding compliance performance rating scale can reduce the number of measures (variables) from 18 items by applying factoring to recognise and eliminate, to the maximum extent possible, variable correlation. Variable reduction is also considered essential to achieving analysis efficiency for the application of the factor solution.

5.1 Introduction

Following this introduction, Section 5.2 then discusses the purposes of the factoring methodology and its relevance, progresses through the extraction and interpretation of the factors, and finally using the factors to develop a summated scale. The factoring extraction and analysis follows a seven-stage methodology (Hair et al., 1998). Section 5.3 deals with the generalisability of the factor solution by analysing a split sample. Section 5.4 tests the solution for relatedness and Section 5.5 discusses the regression of factors to conclude if the analysis can identify whether a municipality belongs to a statistical group. The two groups were those municipalities that received international technical assistance and those that did not, which is intended to support a hypothesis that the technical assistance provided noticeable financial management improvements.

A key potential outcome of factoring is correlation elimination. It is highly likely that the 18 funding compliance measures are substantially correlated. The elimination of correlation reduces the likelihood that an over-emphasis on any individual financial element affecting multiple items would unduly distort the results. An example of the correlation of one of the measures is discussed in Section 5.2.1.

A related purpose of the quantitative analysis was data reduction, by simplifying the funding compliance analysis using a shortcut of reduced factor ‘dimensions’ applying a weighted summated scale approach. This technique searched for differences between the weighted summated scale outcomes constructed for the advisory technical assisted municipalities (BPTA) and noBPTA South African municipal samples, as significant outcome differences in

favour of the BPTA sample would support a conclusion that MFMTAP had been a successful program in terms of genuine relative[21] financial condition improvement.

The quantitative analysis results described in this chapter support the following conclusions:

- A **Likert-type** rating scale is capable of being applied to municipal financial management reform assessment.
- Quantitative analysis (factoring) can reduce 18 funding compliance item measures to seven dimensions (factors), although further research could likely reduce the number of factors even further.
- Two of the seven factored dimensions represented highly correlated variables that provided clear interpretations for simplifying and improving the efficiency of sample analysis and simplified independent government oversight analysis.
- It is probable that dimension interpretation would improve as financial management reform implementation matures.
- The regression analysis substantiated a conclusion that there was not a material positive funding compliance performance difference between the group of municipalities that were provided with international technical assistance and the group that did not receive such assistance, suggesting that the technical assistance did not have a material impact on the funding compliance outcomes.

The remainder of Chapter 5 now substantiates these conclusions.

5.2 Factor analysis

5.2.1 Background

The methodology discussed in this section was structured upon recommendations for including the application of a six-stage model building paradigm for administering multivariate data analysis (Hair et al., 1998), and for factoring analysis purposes applying an 'additional stage (stage 7) beyond the estimation, interpretation, and validation of the factor models' in the analysis procedures (Hair et al., 1998, p.94).

[21] Relative to external factors such as economic circumstances

Factor analysis is designed to assist with analysing the correlations between large numbers of variables. It can assist with the quantitative analysis (QA) of the funding compliance instrument measures, each of the factors which potentially represented a separate independent construct for explaining financial management improvement as a consequence of BPTA. The funding compliance measurement instrument had 18 questions, comprising 17 financial tests and a summary question related to overall key financial measure trends. The 18 tests were converted to 'Likert-like' scale items, but the assigned scale values were based upon accurate metrics so that the scale could be considered equivalent to a ratio scale with an absolute zero value. This is particularly relevant because 'all mathematical operations are permissible with ratio-scale measurements' (Hair et al., 1998, p.9).

The number of measures (variables) in the proposed rating scale with similar bases suggested a high probability that there was correlation between the variables, that each measure/variable did not explain a separate concept. For example, a measure of free cash equivalents was used to understand solvency, but another related measure used cash equivalents to understand risk by calculating the number of months that variable expenses could be paid by a municipality without receiving further cash receipts. Clearly the two variables were likely to be correlated; e.g. a low level of cash would indicate a poor solvency level, but also cause the variable expenses ratio to be low. Both explain a different 'liquidity' dimension. It would therefore be questionable to simply sum the scale scores of correlated measures, although a summed score could be an initiation base indication.

Factor analysis has two primary purposes, data reduction or data summarisation, either of which should be pursued after defining the 'separate dimensions of the structure and then determine the extent to which each variable is explained by each dimension' (Hair et al., 1998, p.90). Factor analysis methods 'do not directly provide the necessary structure for a formalised hypothesis testing' (Hair et al., 1998, p.91). Therefore, other multivariate techniques are then applied using the factors (dimensions) if factoring is deemed possible, e.g. regression analysis of the factors.

The recommended factoring methodology requires an initial guess of the dimensions solution (Hair et al., 1998). An initial 'guess' was that the funding compliance instrument variables could be grouped into six dimensions: (1) Cash position (liquidity/solvency), (2) Financial Performance, (3) Revenue change, (4) Revenue collection, (5) Revenue protection by asset renewal and repairs and maintenance expenditure levels and (6) Capital (infrastructure

expenditure). It was also obvious that correlation was probable between these dimensions; for example, the revenue performance measure and the Financial Performance result measured the correlation caused by the relationship between poor revenue performance and its impact on the Financial Performance result, which was subject to expenditure planning flexibility.

In the development of a factor solution, a number of other important requirements are especially relevant to the development of a robust factor solution (Hair et al., 1998, p.91) :

- Increasing the number of variables also increases the possibility that the variables are not all un-correlated and are representative of distinct concepts.
- Where there is a need for the factor solution to describe a lesser number of concepts, as compared with being a multi-faceted and potentially confusing multi-variable index, a factor solution can be effective in generating a smaller number of concepts without losing the original nature of the variables.
- Factor analysis is an analysis technique when variables are 'simultaneously' considered so that every variable is predicted by all others.
- The factors, otherwise known as variates, can also be used as variables themselves in other analysis techniques, such as regression analysis.

Factor analysis can be used as an exploratory or confirmatory technique (Hair et al., 1998). For this research it was proposed to apply both exploratory and confirmatory styles. The exploratory technique was applied desire to understand structure within the measurement variables, that as predicted there was a possibility that measurement items or variables could be grouped. There was also a desire to seek out a 'data reduction', that would explain the impact of technical assistance on funding compliance with a lesser number of independent variables from an efficiency and simplification perspective. The confirmatory approach was pursued after it was proven possible that a viable factor solution could be extracted.

5.2.2 STAGE 1: Factoring objectives

The main factoring objective was to condense the 18 funding compliance measurements (scale items), initially used in the scale performance index, to a smaller set of factors (also known as ***variates***) for the purpose of simplifying the analysis procedure. It is also anticipated

that ‘structure’ or grouping of like variates could be identified, potentially for the application of other multivariate techniques.

It is important that the reduced number of factors or variates still ‘retain the nature and character of the original variables’ (Hair et al., 1998, p.95). A reduced number of factors were analysed using multivariable analysis, which was intended to reduce any ‘[p]roblems associated with a large number of variables (funding compliance scale measures) or high correlations among variables’ (Hair et al., 1998, p.96). This was originally expected to be solved using the factor scores in a multiple regression, but instead logistic regression was applied.

It was also important to heed warnings about the use of the factor analysis technique. It was especially important to ensure that the application of the technique did not avoid the need for initially determining a conceptual basis, and was not used to simply discover possible correlated relationships. As discussed in Section 5.1 there was strong likelihood that some of the measures were highly correlated; for example, some of the variables had similar denominators and were likely to be grouped into the ‘guessed’ six dimensions.

A ‘no result’ from the quantitative analysis was as equally important as concluding that the variables were able to be usefully factored, as this could lead to the thesis explaining this result and discounting this potential for future research.

The key question was whether the number of variables could be reduced, but still providing a comprehensive explanation of the funding compliance evaluation. This would substantially improve the efficiency of the funding compliance procedure. The Factor Analysis (FA) examined 18 attributes of funding compliance, x^1 to x^{18}, to ascertain if the number of attributes could be grouped or reduced. Grouping the variables could enable the municipality analysis to be based on an overall view of the ‘big picture’ (Hair et al., 1998) rather than overly focus on individual financial criteria.

5.2.3 STAGE 2: Factor analysis design

The three main steps of the factor analysis involve data calculation, variable determination and selection of sample size. The key aim was to understand the correlation between the variables, as an ***R-type analysis*** would be used. Another aim was to ensure a reasonable number of variables per factor, certainly that a final solution was derived that has more than

one variable. All the variables were metric, represented by an interval scale that accurately represented a financial item.

The sample size was a generalisation risk. Overall it was considered that the sample size should be 100 or more, but the study contained 50 observations (municipalities) that represented about 20% of the entire population – a substantial proportion, which is an offsetting consideration. The municipalities included in the sample could very well be all the municipalities either supported by advisory technical assistance or municipalities that themselves were likely to make financial management reform progress.

Five was the minimum number of cases per variable in a sample. Based on this factoring criterion, dealing with 18 variables would therefore require a sample of approximately 90 cases, which was not feasible for this study or was unwarranted. This limitation is clearly noted. An offsetting credibility consideration was that the 50 municipality sample would provide detailed data for a medium-term seven-year time horizon, including four years of actual performance history and three years of medium-term budget forecasts, suggesting equivalence to a sample of 350 cases (seven financial years for 50 municipalities).

5.2.4 STAGE 3: Assumptions

Normality was initially assumed only because it was proposed to apply a statistical test to the factors. However, importantly, departures from normality can be acceptable, especially as multicollinearity is actually desirable for factor analysis (Hair et al., 1998). Factor analysis is also considered to be 'robust' to normality assumptions although normal distributions improve solutions were translated to metric scales in a range of –2 to +2, which minimised the potential of outliers.

Correlations less than 0.30 indicate that factor analysis is inappropriate. Large partial or anti-image correlations also indicate that factor analysis is inappropriate.

The Bartlett test of sphericity was to be used to indicate a significant correlation between the variables (Hair et al., 1998, p.99). The measure of sampling adequacy (MSA) was also used to quantify the inter-correlation between the variables. Factorability of the correlation matrix included an examination of the statistical significance.

5.2.5 STAGE 4: Extracting factors and assessing overall fit

5.2.5.1 Preliminary

First, the sample municipality scale data were used to develop the 'correlation matrix'. The choice then needed to be made between applying 'common factor analysis' or 'component (principal) analysis' to develop the factor solutions. It was decided to use both techniques and compare the solutions. Common factor analysis focuses on the identification of the 'dimensions' that the variables share and component analysis focuses on variable minimisation. The main objective was variable reduction, but the interpretation of the dimensions was also likely to be useful to the research conclusions.

Interpreting the three types of variance was important in the selection of the most appropriate method. The three types were common, specific/unique and error. Common variance is shared with all other variables, specific variance relates only to a specific variable and error relates to the unreliability of the data-gathering process. It is probable that the reliability of the data gathering would be relatively high, as most of the data were extracted from approved financial statements and medium-term budgets, although the audit quality of financial statements of some municipalities is further discussed in the conclusions in Chapter 8. The highest data risk existed where audited financial statements were heavily qualified or disclaimed, meaning that the data may or may not have been reliable but an audit could not attest to its reliability. Also, it is probable that financial statement quality generally improved during the MFMTAP period between 2003 and 2008.

As stated, a key aspect can be the type of factoring selected, either common factor analysis or component (principal) analysis. Common factor analysis derives factors that are based only on the common variance (Hair et al., 1998). Previous studies have illustrated complications with these techniques, with common factor analysis resulting in the widespread use of component analysis (Hair et al., 1998). Subject to the approach that provides the best solution, a component analysis approach would likely better suit this particular type of research. The procedure for factoring, therefore, also included a step that applied both techniques, to ascertain if there was a significant difference in the solution.

The 'latent root criterion' is the most common method used to determine when to stop factoring, as 'only factors having latent roots or eiganvalues greater than one (1) are considered significant" (Hair et al., 1998, p.103). It needs to be recognised that where there

are less than 20 variables, which was the situation with this research, the 'latent root criterion tends to extract too few factors' (Hair et al., 1998). An alternative is to apply the 'percentage of variance criterion', which for the social sciences has a 'rule-of-thumb' that factors should be limited to the point where they account for 60% of the variance (Hair et al., 1998).

There is also the 'scree test' criterion. This test is based on an understanding of common and unique variance. Unique variance will be substantially higher in the first factors 'extracted'. The optimum number of factors occurs when the 'amount of unique variance begins to dominate the common variance structure' (Hair et al., 1998, p.104). The scree test methodology usually provides a solution with more factors than the 'latent root' approach. Heterogeneity of the cases of the sample also needs to be considered.

An important warning is that selecting too many factors or dimensions will make interpretation difficult, whereas selecting too few factors may not reveal the correct structure or dimensions in the solution. This latter proved to be very good advice, although limited by the 'percentage of variance' minimum rule.

5.2.5.2 Initial factor extraction

An initial common factor analysis extraction, using all funding compliance variables, was undertaken using SPSS Version 18.0 Principal Factor Analysis (PAF) (Coakes, 2011). The initial solution extraction had a Measure of Sampling Adequacy (MSA) of **.604** and seven significant factors were extracted based on an eiganvalue (latent root) floor of 1.0 (less than 1.0 is considered insignificant). Two insignificant variables were eliminated and a further extraction was undertaken. The adjusted extraction solution also revealed seven significant factors with an MSA of **.625**.

The factor extraction eliminating two insignificant variables was explaining approximately 68% of the total variance. These results suggested a factor solution would be derived that had an MSA between Mediocre and Middling. **Table 5.1** summarises the extraction MSA recommendations. The implications of seven factors and likely causes of the Mediocre to Middling result are discussed further below.

MSA measures the level of correlation between variables (Hair et al., 1998). Generally, the higher the MSA the higher the correlation and the lesser the number of factors. The MSA should be interpreted based on a generalised sampling adequacy estimate. **Table 5.1** presents a general guidance for the acceptability of a factor solution. It would have been preferable

that the factor solution had an MSA measure of greater than **.80** (Meritorious), rather than both the original and then the adjusted factor solutions being in the range described as Mediocre to Middling.

MSA	Interpretation
=> .80	Meritorious
=> .70	Middling
=> .60	Mediocre
=> .50	Miserable
< .50	Unacceptable

Table 5.1: Sampling adequacy measure (Hair et al., 1998, p99)

Prior to commencing the quantitative analysis it had been anticipated that the factor solution would have a much higher MSA and possibly only six factors. Further analysis was therefore undertaken to understand why a higher MSA was not achieved, including:

- **Splitting the cases** into those municipalities that received 'BPTA' and 'noBPTA' municipalities. The expectation was that the 'BPTA' sample would have a higher MSA. It was also anticipated that as municipal budgeting and financial reporting performance improved or reformed in South Africa, the measure correlation would increase. Cash flow budgeting and financial position forecasting were in their infancy at the end of MFMTAP, so there was likely to be a relatively poor relationship between revenue/expenditure budgeting, cash flow budgeting and financial position (especially if a municipality was applying an overly optimistic revenue collection rate, which was a common local government shortcoming). It was common during MFMTAP to witness municipalities predicting cash inflow as being equivalent to the expected operating revenue, even when debtor collection rates were poor. Even worse, in contravention of the MFMA[22], are total cash inflows budgeted to be greater than debtors' revenue presumably as a consequence of an expectation that improved debt collection will allow collection of past problematical long-term debtors. Generally this is unrealistic and not achieved. The SPSS PAF and Principal Components (PC) of the 'with BPTA' sample split had an **MSA** of **0.622**, and extracted **seven factors** that explained **63.5%** of the cumulative variance.
- The next procedure was to analyse only the 'High-Capacity' cases. Higher municipality capacity could suggest that there would be higher-quality financial management, including

[22] MFMA (section 18) requires that an annual budget may be funded only from realistically anticipated revenues.

reporting and budgeting at these municipalities. However, assignment of a technical assistance advisor to a municipality was also a key factor in National Treasury (NT) deriving the capacity categorisation, so a similar MSA was expected (low- and medium-capacity would not have enough samples to analyse). The SPSS PAF and PC of 'High-Capacity with BPTA' sample split had an **MSA** of **0.649**, extracted **six factors** that explained **63.7%** of the variance. But the PAF of all 'High-Capacity' municipalities (including those without BPTA) had an **MSA** of **0.651 (and .614 for PC)**, extracted **six** factors that explained **68.3%** of the cumulative variance. The MSA difference between BPTA and noBPTA high-capacity municipalities was negligible, with noBPTA unexpectedly marginally better. It could be surmised from this that MFMTAP did not result in genuine financial improvement at high-capacity municipalities, or that the NT capacity categorisation did not genuinely reflect financial management capacity. Further research would have been necessary, but probably the opportunity is lost to assess NT criteria now that the MFMTAP has been long concluded.

- Another valid factoring approach would be to apply the analysis to an international sample in a developing country with a history of stable 'accrual' financial systems, such as Australia, New Zealand or the United Kingdom. However, it is surmised that higher-quality budgeting and reporting would translate to a higher correlation between variables forming factors, but the development of a significant international sample that meets minimum sample size requirements was well beyond the time resources of this thesis.

5.2.5.3 Further extraction procedure

To develop an improved factor solution, the next stage of the development of the factor solution involved the elimination of variables loading less than 0.5, beginning with the lowest loading. One alternative was to commence with the total municipal sample cases solution. However, it was further surmised that a factor solution produced from the sample of only all high-capacity municipalities with BPTA was likely to be more representative of an improving financial reporting/budgeting standard, and therefore would be a more logical and credible base for a factor solution for future application. However, both analyses would be applying the SPSS Principal Components (PC) procedure, only as it was likely that this would be the best approach to attempt to find the best factor solution.

Table 5.2 compares the factor solution for the group including the entire 50 municipal sample with the factor solution only based on the group of 25 municipal BPTA sample.

Solution	Factors > Eigenvalue of 1.0	MSA%	Bartlett's test of sphericity	Variance explained%
Initial – ***all cases***	7	.604	1392.2	60.8
Excluded variables				
Transfers/Grants % gazetted	7	.616	1349.7	63.5
Key performance indicators	7	.625	1303.7	66.1
Initial – ***BPTA***	7	.628	743.5	66.4
Excluded variables				
Asset Renewal/Capital Expenditure[23]	7	.628	743.5	66.4
Key performance indicators	6	.637	718.3	62.8

Table 5.2: Factor solution comparison

The 'all cases' variable elimination was ceased when remaining variables all had MSA >0.5. The *next* lowest MSA measures were the Current Debtors (.508) and Long-Term Debtors (.509) measures, which would not be appropriate to eliminate. Seven factors still remained.

Elimination of the 'Transfers/Grants % gazetted' measure needs further explanation, especially as this indicated lower correlation between having medium-term budgets containing correct National or Provincial Government transfers and other dimensions. This suggested that the intergovernmental transfer 'compliance' measure was not highly correlated to MFMA funding compliance. The measure was a check to ensure that the intergovernmental transfers provided by either the National or a Provincial Government, either untied or tied to particular purposes, were accurately budgeted. To encourage accuracy and certainty the National Government legislates annually a Division of Revenue Act (National Treasury 15, 2008), which specifies the transfers for the following three years aligned to the municipal MTREF. Provincial Governments are also required to gazette their proposed allocations. Therefore, in a final approved MTREF there is little excuse for this measure not being highly accurate and therefore the measure should correlate highly with funding compliance.

An extract of the Division of Revenue Act is shown below in **Table 5.3**. This extract is indicative only of the general revenue share allocation proposed to be made in the respective

[23] Initial excluded variable: The initial factor solution could not be found because there was not any municipality in the sample that had recorded measures for the asset renewal/capital expenditure measure. Therefore, all scored a –2 scale measure in every year of the analysis, so variance could not be computed.

financial years to a selection of municipalities. The amounts shown are in Rand thousands. The National Government guarantees that the forward estimates (Column B) are the minimum amount that will be transferred, although in the respective years the Division of Revenue Act might increase the allocation. It would be inappropriate for a municipality to budget for a different allocation. Therefore, the important question is: Why would there be a low level of compliance? One factor is that municipalities prepared draft MTREFs before the Division of Revenue Act was finalised and the MTREF was based on an earlier indicative estimate, but municipalities failed to update the amount in their MTREF based on the latest available information. Alternatively, municipalities budgeted for a forward estimate of the previous year, which was invariably subsequently adjusted for real growth, and then the municipality failed to amend their MTREF to coincide with the adjusted amount. What is more problematical is that the Provincial Treasuries were not meeting their transfers gazetting obligations.

DETERMINATION OF EACH MUNICIPALITY'S EQUITABLE SHARE OF THE LOCAL GOVERNMENT SPHERE'S SHARE OF REVENUE RAISED NATIONALLY

			National Financial Year		
			Column A	Column B	
Number		Municipality	2008/09 Allocation	Forward Estimates 2009/10	2010/11
GAUTENG					
A		Ekurhuleni	1 672 510	2 031 013	2 452 495
A		City of Johannesburg	3 038 829	3 655 318	4 259 464
A		City of Tshwane	1 303 064	1 499 852	1 723 285
B	GT02b1	Nokeng tsa Taemane	17 106	21 508	26 839
B	GT02b2	Kungwini	42 270	53 114	66 245
C	DC46	Metsweding District Municipality	21 173	23 546	25 645
Total: Metsweding Municipalities			80 549	98 169	118 729
B	GT421	Emfuleni	292 538	368 995	461 628
B	GT422	Midvaal	23 640	29 811	37 287
B	GT423	Lesedi	29 280	36 664	45 602
C	DC42	Sedibeng District Municipality	186 955	202 955	213 850
Total: Sedibeng Municipalities			532 412	638 425	758 367
B	GT481	Mogale City	101 826	129 269	162 546
B	GT482	Randfontein	45 594	57 374	71 641
B	GT483	Westonaria	45 210	56 882	71 018
C	DC48	West Rand District Municipality	123 421	143 368	151 903
Total: West Rand Municipalities			316 051	386 893	457 109
Total: Gauteng Municipalities			6 943 416	8 309 669	9 769 449

Table 5.3: Equitable revenue share
(National Treasury 15, 2008, p.28)

In continuing the factoring, the 'BPTA' sample variable elimination procedure was ceased before eliminating the 'Service Charge Increase' measure (.481) and Current Debtors percentage (%) change, even though that variable had a loading of .492 (marginally less than 0.5). It was considered an inappropriate path to a factor solution to eliminate a key measure such as 'Service Charge Increase', which was likely to display a much higher correlation level as the financial management reforms mature, but to retain Current Debtors % change measure, without also eliminating Long-Term Debtors, which had a much higher MSA. The resultant rotated factor matrix had a logical structure worthy of further exploration, suggesting this was the best solution.

5.2.6 STAGE 5: Factor interpretation

The interpretation and selection of the final factor solution comprised three steps; (1) computation of the unrotated factor matrix for a preliminary set of factors, (2) an examination of factor loadings and (3) an assessment of the need to re-specify the factors. The objective of 'rotation' (unrotated solutions are often insufficient) was to 'obtain theoretically meaningful factors and … the simplest structure' (Hair et al., 1998, p.109). Rotation requires making a solution simplification by making as many values in a row as close to zero as possible.

The alternative rotation methods include Quartimax, Varimax, Equimax and various Oblique rotation methods. Equimax apparently does not have widespread acceptance. Variable reduction and factors to be used in regression are considered to be best achieved by an 'orthogonal' solution, which therefore refers to either Quartimax or Varimax. Whilst Quartimax is considered to be simpler, Varimax has proven to be very successful[24], which was also proven to be the case here.

Factor loadings indicate that the larger the size, the more important the factor. The 'factor loading is the correlation of the variable and the factor, the squared loading is the amount of the variable's total variance accounted for by the factor' (Hair et al., 1998, p.111). **Table 5.4** explains the factor loading significance.

[24] Confirmed by the analysis that Varimax generated a more logical solution

Loading description	Description	Variance
Greater than +- 0.30	Minimal	= 10% of variance
Greater than +- 0.40	More important	= 11% to 24% of variance
Greater than +- 0.50	Practically significant	= 25% of variance
Greater than +- 0.70	Significant	= 50% of variance

Table 5.4: Factor loading significance

The larger the sample size, the smaller the loading that is significant, so in this case with a relatively small number of cases the factor loading needed to be high.

The procedure for interpreting a 'factor' matrix is:

1. Examine the factor loadings, paying attention to the recommended cut-off point.
2. Identify the highest loading for each variable.
3. Assess variable communalities, being variables with a spread across the dimensions.
4. Label the factors or dimensions, based on logic and experience.

Factors were extracted in the order of their importance. The proposed cut-off point of factor loadings used was ±0.50, achieving practical significance, so that a substantive interpretation was based on the significant loadings. Therefore, all extractions less than 0.50 were to be excluded. Consideration of alternative solution extraction would be equivalent to validation for solution similarity. Note that in **Table 5.5** the 'dimensions' extracted using SPSS are labelled as 'components'. **Table 5.5** shows **possible factor solution 1** (rotation method Varimax, pre variable elimination).

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
Cash Flow	.925						
Cash & Investments	.914						
Months of cash spending	.770						
Financial Performance Result		.929					
Surplus or Deficit excl deprec offsets		.922					
Repairs Expenses % PPE			-.754				
Service Charge Increase			.706				
Financial Position		.342	.374				
Revenue Collection Rate				.639		.351	
Debt Impairment Increase				.617			
Cash/Investments less Applications				.593	.334		
Capital Payments					-.717		
LT Consumer Debtors % change					.661		
Asset renewal % capital budget						.727	
Curr. Consumer Debtors % change						.630	-.334
Borrowing level							.849

Extraction Method: Principal Component Analysis.

Table 5.5: Possible factor solution 1

Notes to the components (eliminations)

Component/factor 1 - all three variables are > 0.50 loading, so all variables proposed to be used in solution
Component/factor 2 - Financial Position variable .342 to be excluded
Component/factor 3 - Financial Position variable .374 to be excluded
Component/factor 4 - all three variables are > 0.50 loading, so all variables proposed to be used in solution
Component/factor 5 - Cash/Investments less Applications variable .334 to be excluded
Component/factor 6 - Revenue collection rate .351variable excluded
Component/factor 7 - Current Consumer Debtors % change -.334 excluded (note only 1 variable remains, which is a strict violation of the factor extraction rules previously discussed, i.e. a dimension should not be only one variable. However, it was retained as a dimension due to its high value and logical relationship to the eliminated variable, that borrowing is related to consumer debtors' change, and also that it could be related to a capital expenditure level measure not included in the funding compliance procedure.)

Table 5.6 shows the *adjusted* factor solution 1.

Variable	Component (factor)						
	1	2	3	4	5	6	7
Cash flow	.925						
Cash & Investments	.914						
Months of cash spending	.770						
Financial performance result		.929					
Surplus/deficit excl. offsets		.922					
Repairs Expenses % PPE			-.754				
Service charge increase			.706				
Revenue collection rate				.639			
Debt impairment increase				.617			
Cash/Investments less appl.				.593			
Capital payments					-.717		
LT consumer debtors change					.661		
Asset renewal % capital bud.						.727	
Curr. Consumer debtors % ch.						.630	
Borrowing level							.849

Table 5.6: Adjusted factor solution 1

The adjusted factor solution excluded the 'complex' variables, as their loadings were spread across dimensions making interpretation difficult (Coakes, 2011). For example, note in **Table 5.5** how the rotated solution had 'Financial Position' loaded nearly equally to two dimensions, being an example of a complex variable that has been excluded from the adjusted factor solution.

Table 5.7 shows possible factor solution 2.

Possible factor solution 2 (High Capacity - rotation method is Varimax):

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
Cash Flow	.927					
Cash & Investments	.911					
Months of cash spending	.810					
Financial Performance Result		.917				
Surplus or Deficit excl deprec offsets		.906				
Revenue Collection Rate			.771			
Debt Impairment Increase			.712			
Capital Payments				.710		
Cash/Investments less Applications				-.580		
Financial Position		.385		.400		
Service Charge Increase					.748	
Repairs Expenses % PPE					-.707	
Borrowing level						.714
Asset renewal % capital budget			.315			.599
LT Consumer Debtors % change				-.456		.479

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 5.7: Possible factor solution 2

Notes to the components (eliminations)
Component/factor 1 - all variables > 0.50, to be used in solution
Component/factor 2 - Financial Position .385 to be excluded
Component/factor 3 - Asset renewal % capital budget .315 to be excluded
Component/factor 4 - Financial Position .400 and Long-term consumer debtors change % -.456 excluded
Component/factor 5 - all variables > 0.50, to be used in solution
Component/factor 6 - Long-term consumer debtors change % .479 to be excluded

Table 5.8 shows the *adjusted* factor solution 2.

Variable	Component (factor)						
	1	2	3	4	5	6	7
Cash flow	.927						No variables extracted
Cash & Investments	.911						
Months of cash spending	.810						
Financial performance result		.917					
Surplus/deficit excl. offsets		.906					
Revenue collection rate			.771				
Debt impairment increase			.712				
Capital payments				.710			
Cash/Investments less appl.				-580			
Service charge increase					.748		
Repairs Expenses % PPE					-.707		
Borrowing level						.714	
Asset renewal % capital bud						.599	

Table 5.8: Adjusted factor solution 2

The analysis in **Table 5.9** discusses and compares the factors or dimensions that are evident from the two solutions. Note that the explanation for some dimensions (1 and 2) is identical under both the solutions.

Dimension	**Solution 1**	**Solution 2** (refer following table)
Dimension 1	**Cash performance** (liquidity/solvency) features very highly in both solutions comprising cash flow, investments and monthly cash spending. The relationships are highly practically positive significant, positive cash flows translate to positive investment change and higher levels of solvency which is measured by the number of months of cash reserves for fixed expenditure.	
Dimension 2	**Operating/Financial Performance Result** also features very highly in both solutions. The relationships are highly practically positive significant, with improving financial performance related to financial performance excluding depreciation offsets, suggesting that depreciation offsets have a marginal impact on the measure ratings.	
Dimension 3	**Key operating items** of R&M and Service Charge increases appear in solution 1. Note that there is a negative relationship suggesting that where municipalities comply with National Treasury advice on limits based on Reserve Bank % increases in service charges that the impact is negative on R&M expenditure which is logical (constraints on revenue increases therefore limits funds available for repairs and maintenance expenditure).	**Debtor collection** - the correlated items in this solution comprise revenue collection rate, and a debt impairment increase. The relationship is logical, that good revenue collection rate relates to controlled debt impairment, except that revenue collection is a measure of the current year compared with long-term debtor collection performance having a key impact on debt impairment and therefore would be highly correlated

(Table 5.9 continued overleaf)

Dimension	Solution 1	Solution 2 (refer following table)
Dimension 4	**MFMA funds** usage suggests that correlated items in this solution comprise Cash/Investments less Applications (of funds, being the net available funds measure of MFMA funding compliance), revenue collection rate, and debt impairment increase. The relationship is logical, that a good revenue collection rate, controlled debt impairment (debts not increasing out of control) would likely be highly correlated to overall MFMA funds compliance.	**Capital funds** - In Solution 2 the variables that load on the dimension are Capital Payments and Cash/Investments less Applications (of funds). The relationship is logical, that mature capital expenditure management would be correlated to mature and MFMA compliant funds management.
Dimension 5	**Capital funds** displays a correlation of the Capital Payments measure (negative value suggesting poor cash management techniques being applied) with an improving Long-Term Consumer Debtors' change. The dimension is difficult to interpret and is not obvious in terms of a cause and effect as there is not a logical relationship between the variables.	**Key operating items**. This dimension is the same as Dimension 3 of solution 1, being high loading R&M and Service Charge increases. The relationship is logical, that service charge increase compliance constrains R&M.
Dimension 6	**Debtor funds expansionary benefit to Asset investment** - In Solution 1 the Asset Renewal and Current consumer debtors' change items are paired, suggesting that improved funding from improving Debtor collection is a benefit to expanding the amount of funds deployed to asset renewal. This would be supported by the perception that Councils (elected body) normally have a political preference for capital expenditure on new assets rather than renewal of existing assets, but when there are good or improving collection outcomes asset management discipline improves.	**Capital funds** pairs, unlike Dimension 5 of Solution 1, Borrowing is associated with Asset Renewal/Capital Expenditure %. The dimension portrays a possible cause and effect, that mature capital expenditure management would be correlated to mature Borrowing management.
Dimension 7	**Borrowing** level is the only variable included, and whilst this is an important aspect to measure it is not related significantly to other variables in this extraction. This could be explained because 'funding compliance' analysis does not include an examination of the total value of capital expenditure outcomes directly (only indirectly by ensuring affordability). It is possible that inclusion of a capital expenditure change measure would be highly correlated to borrowing level, and therefore justification for practically including the dimension.	Solution 2 extraction was limited to only six dimensions.

Table 5.9: Solution comparison

As originally discussed in Section 5.2.1, the original research design, prior to seeking the rotated solution, 'guessed' based on the knowledge of the expected relationship between the variables, that the funding compliance instrument factors would contain six dimensions:

- Cash performance (liquidity/solvency/risk)
- Financial Performance
- Revenue performance (tax/tariff change)
- Revenue collection
- Revenue protection (repairs and maintenance expenditure, debt impairment)
- Capital (infrastructure expenditure).

5.2.6.1 Criteria applied for the number of factors

Originally it was hypothesised that six dimensions would be the factor solution, suggested by prior financial management knowledge of the likely correlations between the variables. The two solutions discussed above suggested seven or six dimensions should be extracted. Latent root criterion was applied to these possible solutions, which also limited the number of factors extracted to seven or six. The 'Scree test' procedure was not used to guide the final solutions, as the shape of the Eigenvalue plot in both alternatives suggested a much larger number of factors, which would not meet the 'practicality' test.

The 'Scree Plots' presented in figures 5.1 and 5.2 clearly indicate that the first two factors (dimensions/components) account for a significant portion of the variance explained. Note also that the next variables, represented by the dots, lie above the Eigenvalue minimum rule of 1.0, but that the plot also illustrates a line flattening out, indicative of the minimal increase in additional variables would make on explanatory power. Note also that the scree plot line in Solution 2 conservatively lunges down after variable 6 is extracted but then is heading on a slightly reducing trajectory, suggesting that if six factors were extracted then there would be justification for expanding, which was not the case in the initial solution.

Factor Solution 1

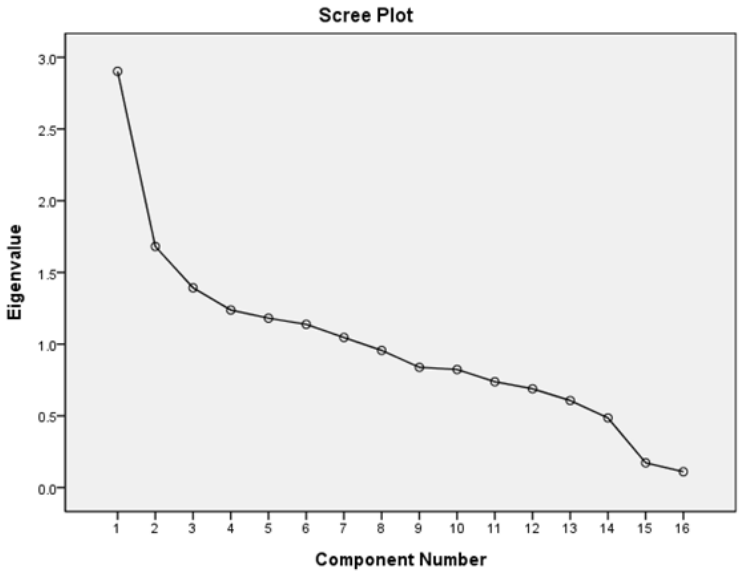


Figure 5.1: Solution 1 Scree Test

Factor Solution 2

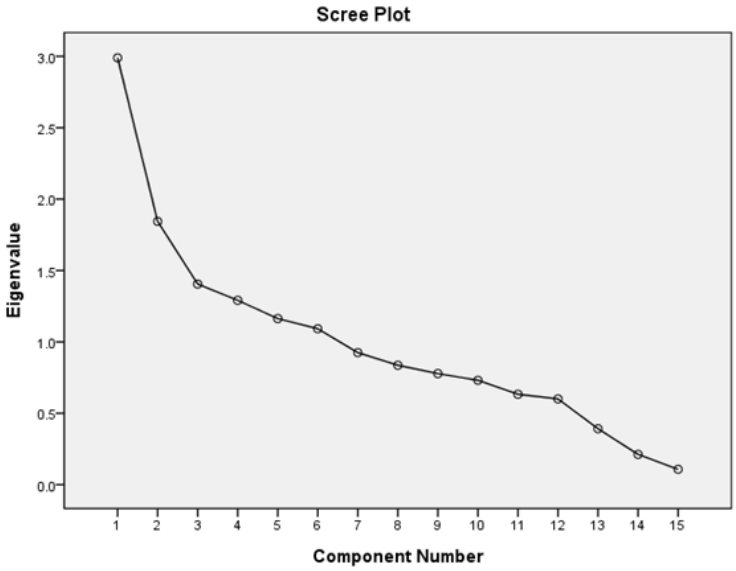


Figure 5.2: Solution 2 Scree Test

The key question is: How many factors should be extracted? Too many dimensions makes interpretation difficult and too few factors extracted means that the correct structure may not be revealed (Hair et al., 1998). An original objective was to reduce the number of variables (18 funding compliance measure items) to a much smaller number of dimensions and

relationships to expedite and simplify analysis. Six factors were originally considered to be practical, but six factors would only explain 57% of the variance, which would be rated only as a 'miserable' solution in accordance with the rules described in **Table 5.2** (Hair et al., 1998). Six factors increased the explanatory power to 60% and seven factors to 66%, with 66% being closer to achieving practical significance (for Solution 1). For Solution 2, a five-factor extraction explained only 58% of the variance, which would also be deemed to be a 'miserable' solution, but six factors increased explanatory power to 65%.

In terms of the preferred solution interpretation, dimensions 1 and 2 were identical to both solutions. Solution 1's Dimension 5 interpretation was weak, but overall the explanations for the entire sample approach were concluded to be marginally stronger in Solution 1 and also theoretically stronger and with one more factor.

It would probably be very useful to undertake similar quantitative analysis in approximately six years to ascertain if the relationships still remain at a later and more mature phase of the local government financial management reforms. It is predicted that the trend would be towards a more mature factor Solution1. Solution 1 achieves the key data reduction objective, reducing 18 variables to seven factors.

Another important outcome, not initially predicted, is the possibility that a simple preliminary applied solution could be condensed to only two dimensions with just a small loss of total explanatory power, with the advantage that a South African National Treasury and provincial treasuries would have a much simplified preliminary analysis model, especially in the earlier years of the reforms. This would involve only having to initially analyse dimensions 1 and 2 (Cash Performance and Operating Performance), as the correlations with other measures suggest that if a municipality achieves best practice outcomes in measures of these dimensions it is probable that all other dimensions would be similarly good practice. This would save a substantial amount of analysis resources, time and effort.

5.2.7 STAGE 6: Factor analysis validation

This stage assessed solution generalisability. Factoring results replication using a split or new sample is a recommended technique, but only the control group was possible in this research. A new sample would be invalid containing insufficient 'without BPTA' municipalities, as

there would be an insufficient number of other municipalities with sufficient financial information available to analyse and a split sample would be too small.

It was initially suggested that Solution 2, being sample of all BPTA municipalities, was actually a valid split sample compared with the 'all cases' solution, and especially that there was similarity in the resulting factor extraction. An alternative split would be to compare a BPTA and NoBPTA (Solution 3) comparison (**Table 5.10**).

Solution	Factors > Eigenvalue of 1.0	MSA%	Bartlett's test of sphericity	Variance explained%
Technical assistance provided				
Excluded variables				
Asset Renewal/Capital Expenditure[25]	7	.628	743.5	66.4
Key performance indicators	6	.637	718.3	62.8
No Technical assistance provided				
Excluded variables				
Asset Renewal/Capital Expenditure[20]	8	.557	814.8	72.4
Transfers/Grants % gazetted	7	.575	781.9	69.5
LT consumer debtors change	6	.589	765.4	66.9
Current consumer debtors change	6	.601	740.6	70.0
Borrowing level	5	.609	715.6	65.8

Table 5.10: Split sample solution comparison

Table 5.11 shows the Varimax rotated solution.

It is important to especially note the similarity between dimensions 1 and 2 to solutions 1 and 2 discussed earlier. In Dimension 3 the relationship between decreasing R&M and Service Charge Increase compliance was evident but weaker. Dimensions 4 and 5 were not theoretically sound, but it is probable that this outcome was reasonable to expect in a noBPTA sample, but sufficient generalisability existed as it is probable that financial reform maturity would increase correlation.

[25] Initial excluded variable: The initial factor solution could not be found because there was not any municipality in the sample that had recorded results for the asset renewal/capital expenditure measure. Therefore, all scored a –2 scale measure in every year of the analysis, so variance could not be computed.

Rotated Component Matrix[a,b]

	Component				
	1	2	3	4	5
Cash Flow	.928				
Cash & Investments	.912				
Months of cash spending	.724				
Financial Performance Result		.938			
Surplus or Deficit excl deprec offsets		.934			
Repairs Expenses % PPE			-.780		
Capital Payments			.589		
Financial Position			.554	.335	
Cash/Investments less Applications				.712	
Revenue Collection Rate				.690	
Service Charge Increase			.408	.431	
Key performance indicators					-.794
Debt Impairment Increase					.673

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Technical advisor = No advisor

b. Rotation converged in 6 iterations.

Table 5.11: Varimax rotated solution

Alternative rotation

Alternatively an ***oblique*** rotation can be performed instead of an ***orthogonal***, which would be recommended if the constructs (variables) are known to be highly correlated. Correlation was likely to be the case here, so the solution for all cases was explored to ascertain differences. The question is: Is oblique rotation a better factor solution and does the solution similarity validate the factor analysis? An oblique rotation produces both a **pattern** and **structure** solution. There was little difference between pattern and structure, but pattern was used here as it had slightly more explanatory power.

The 'pattern' solution is shown in **Table 5.12**.

Loading	Component (factor)						
	1	2	3	4	5	6	7
Cash flow	.938						
Cash & Investments	.929						
Months of cash spending	.763						
Financial performance result		.944					
Surplus/deficit excl. offsets		.939					
Repairs Expenses % PPE			-.768				
Service charge increase			.710				
Revenue collection rate				.727			
Debt impairment increase				.592			
Capital payments					-.710		
LT consumer debtors change					.666		
Current Consumer debtors % change						.722	
Asset renewal % capital budget						.637	
Borrowing level							.854

Table 5.12: Oblique pattern solution

The next step was to compare the rotated oblique with orthogonal. The variables and loadings for the all seven factors were virtually identical to the Varimax orthogonal solution, except for some minor differences in loadings which caused a variable to be listed in a different order in the dimension. It was therefore concluded that the oblique rotation alternative did not improve the solution. The similarities of the solution also contributed to the validity and generalisability of the first solution.

5.2.8 STAGE 7: Applying the FACTOR ANALYSIS results

If better understanding of the relationship between variables were the objective, then Stage 6 interpretation would suffice. However, an aim was to use the factors in other quantitative analysis to ascertain whether there was a significant difference between BPTA and noBPTA municipalities. The choices available were a surrogate variable for each factor/dimension, a summated scale to reflect all variables in each dimension or a factor score. Summated scales have been increasingly used in applied and managerial research as they allow complex concepts to be included in a single measure, a key aim of this exploratory aspect of the research (Hair et al., 1998).

5.2.8.1 Surrogate and factor score

The two key dimensions were 1 and 2. Inspection revealed that each had variables that were loaded similarly and would be difficult to select a surrogate. Further, surrogacy was not particularly relevant to the solution, as the relationship between the variables was more

important than representativeness. **Factor scores** was another option, similar by including all variables loading on a factor, but it was also considered inappropriate for the research design to include 'excluded' low loading variables in a composite score that would make interpretation more difficult.

5.2.8.2 Summated scale

A summated scale was a more appropriate solution, which required creating a composite that represented the multiple aspects of the dimension in a single measure (Hair et al., 1998). Uni-dimensionality should exist, that items loaded highly on the factor. *Cronbach's* alpha was used to test the reliability of the dimensions to be used in the summated scales. The lower limit should be 0.7, although 0.6 can suffice in exploratory research and still remain theoretically sound. The test results are presented in **Table 5.13**. Dimensions 1 and 2 exceeded the lower limit of the test requirements.

Dimension	*Cronbach's* alpha	Conclusion/Comments
1	.856	If 'Months of Cash Spending' excluded alpha is .935, but .863 justifies inclusion of all variables developed in the factor analysis
2	.902	2 variables, >0.7
3	.331	Transform negative scale, only 2 items in dimension
4	.309	3 variables, Cronbach's alpha does not improve if any variable excluded
5	.249	Transform negative scale, only 2 items in dimension
6	.048	2 variables
7	Single	1 variable only

Table 5.13: Dimension's reliability test

A summated scale was calculated by each dimension including all practically significant variables weighted for their loading on that factor. The summated scale was calculated and applied for every municipality in the sample. The basis of the calculation was multiplying each individual municipality raw score for each factor dimension by the factor solution variable loading, as well as summing the individual weighted scores. The summed score was intended to represent a summated scale. The same calculation was repeated for each financial year from 2003/04 to 2010/11. The full calculations are included in the file on the separate CDRom named 'Performance Rating Scale Scores.xls' in the 'Statistics Correlation Summated' tab. The municipality names are coded. For example, 1 1 represents Tshwane and

1 2 represents Buffalo City. An extract to illustrate the calculations is displayed in **Table 5.14**.

Summated Scale Calculations																		Summated Scale							
	TA	Cap	Yr	CI	CIA	CM	SDO	SC	CR	DI	CP	BW	CCD	LCD	RM	AR	FPR	CF							
Dimensions:				D1	D4	D1	D2	D3	D4	D4	D5	D7	D6	D5	D3	D6	D2	D1	D1	D2	D3	D4	D5	D6	D7	Total
Loadings:				0.914	0.593	0.770	0.922	0.704	0.639	0.617	-0.717	0.849	0.630	0.661	-0.754	0.727	0.929	0.925	3	2	2	3	2	2	1	
1 1	1	1	-3	2	-1	0	1	-2	-2	1	-2	0	-2	-2	1	-2	2	2	1.23	1.39	-1.08	-0.42	0.06	-1.36	0.00	-0.18
1 1	1	1	-2	0	2	0	1	-2	2	1	0	2	-2	2	0	-2	1	1	0.31	0.93	-0.70	1.03	0.66	-1.36	1.70	2.57
1 1	1	1	-1	2	2	0	0	-2	2	2	1	-2	1	-2	1	-2	1	2	1.23	0.46	-1.08	1.23	-1.02	-0.41	-1.70	-1.29
1 1	1	1	0	0	0	-1	2	-2	0	2	1	2	-2	2	2	-2	2	1	0.05	1.85	-1.46	0.41	0.30	-1.36	1.70	1.49
1 1	1	1	1	2	-2	0	2	-2	2	2	1	1	2	-2	0	-2	2	2	1.23	1.85	-0.70	0.44	-1.02	-0.10	0.85	2.55
1 1	1	1	2	2	-2	0	2	1	2	1	1	2	1	-2	0	-2	1	2	1.23	1.39	0.35	0.24	-1.02	-0.41	1.70	3.48
1 1	1	1	3	2	2	1	2	1	2	1	1	2	1	-2	0	-2	2	2	1.48	1.85	0.35	1.03	-1.02	-0.41	1.70	4.98
1 2	1	1	-3	2	1	1	1	-2	1	1	-2	-1	-1	2	1	-2	2	2	1.48	1.39	-1.08	0.62	1.38	-1.04	-0.85	1.90
1 2	1	1	-2	2	2	2	1	-2	2	2	-2	2	-1	2	0	-2	2	2	1.74	1.39	-0.70	1.23	1.38	-1.04	1.70	5.70
1 2	1	1	-1	2	2	2	0	2	2	1	-2	-2	0	2	0	-2	1	2	1.74	0.46	0.70	1.03	1.38	-0.73	-1.70	2.88
1 2	1	1	0	0	1	2	1	2	0	2	2	2	-2	2	1	-2	1	1	0.82	0.93	0.33	0.61	-0.06	-1.36	1.70	2.97
1 2	1	1	1	1	-2	1	0	-2	-2	0	2	2	-2	-1	1	-2	1	1	0.87	0.46	-1.08	-0.82	-1.05	-1.36	1.70	-1.28
1 2	1	1	2	1	-2	1	0	-2	-2	0	2	2	-2	-1	1	-2	1	1	0.87	0.46	-1.08	-0.82	-1.05	-1.36	1.70	-1.28
1 2	1	1	3	1	2	1	1	-2	-2	1	2	2	-2	-1	2	-2	1	1	0.87	0.93	-1.46	0.18	-1.05	-1.36	1.70	-0.19

Table 5.14: Summated scale calculations (extract only)

5.3 Generalisability - split sample factoring

The aim of this analysis was to further understand the generalisability of the total sample factor solution, by examining the difference of the total municipal sample with a split sample containing municipalities without advisory technical assistance. **Table 5.15** compares the solution statistics and excluded variables for determining a factor solution for each sample. Especially note that for the noBPTA split sample the factoring extracted only five dimensions, a different result to the seven factors extracted for the total sample and the six factors extracted for the BPTA sample discussed in Section 5.2.5. A solution that only extracted five factors was inconsistent with the hypothesis.

Measure/item	Total sample	NoBPTA split sample
MSA[26]	.625	.609
Bartlett's Sphericity	1303.67	715.56
Excluded variables (<.5 loading)	Transfers/Grants % Gazetted , KPI	Asset renewal [Refer Note], Long-term Consumer Debtors % Change, Transfers/Grants % Gazetted, Current Consumer Debtors % Change, Borrowing
Cumulated variance explained by extracted sum of factors	66.12%	65.83%
Number of Dimensions (factors extracted)	7	5

Table 5.15: Split sample factoring comparison

[Note] excluded variable asset renewal: An initial factor solution could not be found at all because there was not any municipality in the sample that had recorded measures for the asset renewal/capital expenditure measure. Therefore, all scored a minus 2 scale measure score in every year of the analysis, so variance could not be computed. Variable exclusion enabled a solution to be pursued.

[26] MSA = Measures of Sampling Adequacy

Table 5.16 compares the rotated solutions for each sample after confounding variable elimination. The extraction values highlighted in yellow indicate a negative correlation.

Rotated Varimax factor solutions														
Loading	**Component (factor) extracted**													
	1		**2**		**3**		**4**		**5**		**6**		**7**	
	Total	**noBPTA**	**Total**	**noBPTA**	**Total**	**noBPTA**	**Total**	**noBPTA**	**Total**	**noBPTA**	**Total**	**noBPTA**	**Total**	**noBPTA**
Cash flow	0.925	0.928												
Cash & Investments	0.914	0.912												
Months of cash spending	0.770	0.724												
Financial performance result			0.929	0.938										
Surplus/deficit excl. offsets			0.922	0.934										
Repairs Expenses % PPE					-0.754	-0.780								
Service charge increase					0.706									
Revenue collection rate							0.639							
Key performance indicators										-0.794				
Debt impairment increase							0.617			0.673				
Cash & Investments less Appl.							0.593	0.712						
Capital payments						0.589		0.710	-0.717					
LT consumer debtors change									0.661					
Asset renewal % capital budget											0.727			
Curr. Consumer Debt. Change %											0.630			
Borrowing level													0.849	

Table 5.16: Rotated solution values

It should be noted from the solution comparison presented in **Table 5.16** that:

- **Dimension 1** in both solutions was a very similar correlation between three variables.
- **Dimension 2** in both solutions was also a very similar correlation between two variables.
- **Dimension 3** had a quite different composition between the factors. The Total sample solution focused on the relationship between the 'Service charge increase' measure compliance with National Government prescribed limitations and repairs/maintenance expenditure. This is a logical relationship. The noBPTA solution suggested a negative dimension relationship between repairs/maintenance expenditure and the capital payments item. Recall that the capital payments item only measured differences between accrued capital expenditure and capital payments cash flow. The issue that this measure was to address was municipalities failing to adequately plan for cash flow management by not recognising that there could be significant timing differences in invoiced and accrued expenditure and the cash payment. The repairs/maintenance expenditure item was intended to indicate revenue protection by adequate asset maintenance. The noBPTA relationship of this dimension was therefore difficult to interpret.
- **Dimension 4** in the total sample represented the relationship between the measures for revenue collection, debt impairment and cash and investments (less cash applications).

This is a logical relationship. The noBPTA sample related cash and investments (less cash applications) with the Capital Payments measure. The noBPTA was also a logical but different interpretation, suggesting funded cash budget positions were related to improving basic cash flow management, as evidenced by recognising the difference between capital expenditure invoice and payment timing.

- **Dimension 5** in the total sample displayed a correlation of the Capital Payments measure (negative value suggesting poor cash management techniques being applied) with an improving Long-Term Consumer Debtors' change, which was concluded to be difficult to interpret and an illogical relationship between the variables. In the noBPTA solution the variable relationship extracted was a negative Key Performance Indicator variable and a positive Cash and Investments (less cash applications) variable. The Key Performance Indicator measure is a scale score based on a series of key performance indicators. It would be unusual that an overall deterioration in key performance measures was related to an improving Cash/Investments position. The noBPTA relationship of this dimension was therefore difficult to interpret and illogical.
- **Dimensions 6 and 7** were represented only in the total sample solution.

There are a number of conclusions regarding the split sample and generalisability:

- The noBPTA solution overall was not as robust as the total factor solution, as would be reasonable to predict in municipalities not supported by advisory technical assistance.
- There was a robust and virtually identical result for the first two dimensions, which in both solutions represented a substantial proportion of the explanatory power of the factor solutions. This is further discussed in the conclusions in Chapter 8, but as already indicated a preliminary conclusion is that analysis of the first two dimensions provides a simplified 'first pass' oversight analysis of all municipalities, enabling a focus on municipalities performing poorly on these dimensions and variables.
- The noBPTA solution was simpler reflecting only five dimensions, but dimensions 3 and 5 were difficult to interpret, suggesting that the solution was not robust.

5.4 Chi-square test for relatedness

The purpose of this analysis was to use the non-parametric chi-square test to ascertain if there was relatedness/independence between each of the factor dimensions, being the summated scales weighted to the factor loadings. The hypothesis would be that there should be 'relatedness' between BPTA and noBPTA and the dimensions. **Table 5.17** presents the results of the test. Dimensions D1, D4, D5 and D7 indicated significance. However, only D7 had a cell frequency of less than five and the other dimensions violated a key assumption. Dimensions D2, D3 and D6 did not indicate significance and had a cell frequency less than five. The chi-square test result would suggest relatedness, but also rejected the hypothesis.

Factor chi-square: Dimensions weighted to loadings							
	D1	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**
Pearson Chi-Square	57.593	16.289	27.142	80.441	36.160	12.224	15.996
Significance (<.05 is ***significant***)	0.001	0.092	0.250	0.022	0.040	0.201	0.003
Significant?	Yes	No	No	Yes	Yes	No	Yes
Minimum expected count (1)	0.50	0.50	0.50	0.50	0.50	0.50	6.50
Expected count <5	32	8	34	88	26	10	0
Violates chi-square assumption?	Yes	Yes	Yes	Yes	Yes	Yes	No
(1) Minimum cell frequency to be >5							

Table 5.17: Factor chi-square

It is concluded that these tests should be repeated on a factor solution developed from a more mature financial sample. This is further discussed in the conclusions presented in Chapter 8.

5.5 Regression of the factors

A further step was to utilise the summated scale in the Dimensions using Regression in an attempt to predict group membership from the samples. The groups would be a BPTA municipality and non-BPTA municipality. The hypothesis was that an above-average score in funding compliance measurement would be associated with BPTA, where TA was a nominal variable and funding compliance were all scale measures (representing 18 scales reduced by factor analysis to seven dimensions and used to create summated scales and summated data).

Logistic regression (LR) was used to predict the probability of an event, in this case the probability of belonging to the BPTA group. If the BPTA sample possessed a high probability

of belonging to the BPTA group, based on the dimensions developed in the factor analysis, this would provide support to the hypothesis that the funding compliance measures were improved at BPTA during MFMTAP. In other words the ability to predict which group a municipality belonged to would provide evidence that the group of municipalities provided with advisory technical assistance could be clearly differentiated from those that did not receive the assistance. LR used a *likelihood value*; by fitting a logistic curve to the data it was necessary to assess the logistic relationship between each independent variable (dimension).

SPSS was used to analyse the seven dimensions created. Table 5.18 displays the output results, which is a comprehensive rejection of the hypothesis. In other words it is not possible to predict membership of a group applying the summated scale to a logistic regression. This would suggest that the BPTA and noBPTA samples were not displaying any significant differences in funding compliance measurement outcomes.

Logistic regression (LR) - probability of belonging to the BPTA group Hypothesis test summary (SPSS)							
Factor	**Factor description**	**Normal**	**Mean**	**Standard Deviation**	**Test**	**Significance**	**Decision**
D1	Cash performance	Y	0.880	0.892	(1)	0.000	Reject the null hypothesis
D2	Operating performance	Y	0.834	1.048	(1)	0.000	Reject the null hypothesis
D3	Key operating items	Y	-0.364	0.845	(1)	0.000	Reject the null hypothesis
D4	Funds use	Y	0.095	0.633	(1)	0.024	Reject the null hypothesis
D5	Capital funds	Y	0.460	0.841	(1)	0.000	Reject the null hypothesis
D6	Debtor funded asset investment	Y	-0.807	0.573	(1)	0.000	Reject the null hypothesis
D7	Borrowing	Y	0.935	1.270	(1)	0.000	Reject the null hypothesis

Asymptotic significance are displayed. The significance level is .05
(1) One-sample Kolmogorov-Smirnov

Table 5.18: Hypothesis test summary

However, further examination of the summated scale was required before finalising the conclusion. The summated scale was a weighted summed overall score of the seven-year time horizon represented in the 2008/09 MTREFs as an approximation of the MFMTAP period. The summing of the weighted scores was used to derive a simple measure of the overall performance, accepting that there would be some volatility during the MFMTAP.

An alternative approach would be to analyse a summated scale constructed to measure the funding compliance performance difference between the beginning and end of MFMTAP. Due to the high level of variability of reform implementation between high-, medium- and low-capacity municipalities, especially reflected in lower quality financial information in the earlier MFMTAP years of 2004/05 and 2005/06, it would be questionable to simply compare

a summated scale for the MFMTAP's beginning year after the MFMA was promulgated, that is, 2004/05, with the first year of the 2008/09 MTREF. It might be possible to construct a weighted summated scale for the actual financial information of the three years from 2004/05 to 2006/07, but given the impact of the phased MFMA implementation it is also more likely that the validity would be questionable.

Therefore, the regression analysis was concluded at this point. Further complimentary research could apply to the summated scale to a period where the initial year of a seven-year MTREF commenced after all capacity municipalities had fully implemented the financial management reforms and the 2009 'Budget' regulations, that is, the first year of the analysis should be no earlier than 2011/12.

This chapter has described the factor analysis. Chapter 6 discusses this funding compliance analysis in the context of a separate examination of comprehensive financial health.

Chapter 6: Financial Health, Funding Compliance and Political Entrepreneurs

The overall purpose of Chapter 6 is to explain the funding compliance and financial health quantitative analysis results, the funding compliance results applying the factor solution described in Chapter 5, and especially to provide an insight into the similarities and differences between the two measurement instruments. Chapter 6 also investigates whether an analysis of local government financial health revealed if political entrepreneurs are having a detrimental impact.

6.1 Introduction

Section 6.2 describes the challenge of measuring fiscal/financial health, including the difficulty of understanding financial health when service delivery levels change, and the complications caused by progressive financial management reform and its impact on the quality of available data. Section 6.3 describes the financial health instrument used in the analysis, and outlines the background to its development. Then Section 6.4 discusses how the financial health instrument was adapted and enhanced based upon earlier research of South African local government financial health (Scott, 2002).

Section 6.5 examines whether funding compliance can be used as a proxy for financial health measurement, comparing the funding compliance status of a small sample of South African municipalities at the beginning and end of the MFMTAP. Section 6.6 explores the results of the quantitative analysis of funding compliance described in Chapter 5, for the purpose of understanding the effectiveness of advisory technical assistance during the MFMTAP. Section 6.7 examines the efficacy of the rating scheme used, and assesses the effectiveness of the technical assistance provided.

Section 6.8 then explores another application of the analysis regarding the potential impacts of political entrepreneurs (Dollery, 2003) on their municipality's funding compliance and financial health, applying both a raw score funding compliance measure and the factored score discussed in Chapter 5, to understand if political entrepreneurs cause an acceleration in expenditure programs to the detriment of a municipality's financial health and funding compliance.

One base of a funding compliance measure, related to the level of revenue increases, is the Reserve Bank inflation target maximum. An alternative base is proposed and discussed in Section 6.9, being the potential impact on the funding compliance assessment of applying a Municipal Cost Index (MCI) to the measure instead of the Reserve Bank's inflation target.

Section 6.10 postulates whether the funding compliance instrument is useful for local government financial health prediction. Specifically it questions whether it is possible to predict likely future funding compliance outcomes based on measurement trends, for the purpose of improving the effectiveness of central government oversight.

Finally, Section 6.11 provides some summary remarks.

6.2 Fiscal/Financial health challenge

The major challenge, as evidenced by the literature review in Chapter 3, was to be able to successfully and comprehensively measure local government (municipal) financial health or condition. This challenge was exacerbated by the contra impact of service delivery expenditure potentially causing fiscal deterioration. In other words, a municipality delivering more services incurs higher expenditure. Yet without a basis for understanding financial health in current time, historically and likely future trends, it is difficult to assess overall municipal performance. A municipality unrealistically expanding services and expenditure programs may receive short-term favourable feedback from constituents, but suffer constituent dissatisfaction if the expenditure causes high property tax and service charge increases.

Undertaking any form of financial health measurement at least partly involves some financial analysis. Two major challenges exist in the South African context. Firstly, MFMTAP included accounting standard reform to financial reporting with a progressive implementation of IPSAS based GRAP accounting standards. At the beginning of MFMTAP municipalities applied 'IMFO' requirements that were inconsistent with International Public Sector Accounting Standards (IPSAS). Progressive and inconsistent implementation of the financial management reforms meant reporting non-comparability between municipalities and historically, until all municipalities had adopted the reforms not required by law until 30 June

2008 for low-capacity municipalities[27], although financial statements can be restated to approximate GAMAP/GRAP requirements.

However, more importantly, many municipal annual financial statements were either qualified, with material impacts caused by critical issues identified by the Auditor-General (AG), or so deficient that the AG was not even prepared to form a financial statement opinion[28]. This could seriously limit the credibility of any analysis at this time, although as the financial management reforms implementation progresses and audit outcomes improve, the analysis could be later repeated to improve credibility. To illustrate the current financial information limitations, in 2004/05 of the six metros as well as Buffalo City (a very large local municipality that was later changed to a 'metro' classification), six had been issued with qualified financial statement audits. Only two municipalities had their financial statements audit qualified in the 2008/09 financial year at the end of MFMTAP, but there were also some local government managers that contended to the NT that there were provincial AGs were not consistently applying GRAP accounting requirements, causing inadvertent and inconsistent qualifications, itself an analysis concern.

Similarly, any MTREF sourced values for both instruments that contained budget forecasts and estimates that are not audited, except for the comparison that is made between actual results compared to the budget presented in the audited financial statements, could be concluded as being less credible. This at least indicates that both the financial statement information and MTREF are challenged by similar conditions.

6.3 Financial health measurement instrument

As described previously in Section 2.5.1, in 2007 and 2008 a group of technical assistance advisors (including the writer) were involved in the development and adaptation of a municipal financial health measurement instrument for National Treasury (NT) and the MFMTAP. The instrument's purpose was to measure the financial health/condition of the pilot municipalities during MFMTAP. One key limitation was that a baseline had not been established at the beginning of the MFMTAP, so although the instrument might have been useful for a point-in-time analysis it would have been exceptionally difficult to determine a

[27] MFMA s122 GRAP implementation: low-capacity municipalities until 30/6/2008, medium-capacity 30/6/2007, high-capacity 30/6/2006

[28] Known as issuing a disclaimer

baseline prior to 2003, given the limited financial information available in budget reformed GAMAP/GRAP format. As also noted previously, this instrument was based on a previous investigation testing for local government in New South Wales, Australia, so it needed adaptation to South African conditions.

The financial health measurement instrument development was not actually finalised during MFMTAP. It was originally hypothesised that it would be possible to develop and finalise the draft financial health instrument to determine the financial health of the sample municipalities at the beginning and end of the analysis period[29]. However, it became apparent during the research that the draft instrument contained complexity, subjectivity, high measure correlation and a weighting system that had not been theoretically justified. The draft instrument contained the factors listed in Appendix L (Financial health instrument measurement items). The basis of the instrument was to score each of the items, determine a total score as a percentage and rank the total score with ranges (>75% = Excellent, >60% = Good, >50% = Marginal, or Poor). A change in the total score would indicate an overall improvement or deterioration in municipal financial health, and individual item scores would assist with understanding the cause for the change.

Appendix L contains unique measures that, compared with the measures contained in the funding compliance measurement instrument, would assist in an improved financial health measure. Further, many of the financial health unique measures were qualitative or 'subjective', requiring a broader interpretation that was not necessarily indicative of financial health; for example, a popular South African measure is employee cost percentage (%) ratio of total (operating) expenditure. That ratio is intended to be an efficiency measure but, given the diverse use of contractors in the industry, and broad variation in services delivered, it is probably more a measure of risk and output diversity than financial health. Although there were weaknesses, the financial health instrument had a number of strengths, including:

- Historical financial performance measures of the past three financial years 'actuals'; and
- Financial forecasts comprising the three-year medium-term budget/framework; and

[29] Analysis period being deemed to be the 2004/05 MTREF (first year of GAMAP/GRAP) and the 2008/09 MTREF (MFMTAP end).

- Qualitative measures, such as audit outcomes, Chief Executive Officer (CEO) and Chief Financial Officer (CFO) qualifications and experience, financial management policies and principles, and risk management principles.

Some of the measures were similar to those used in the funding compliance (FC) instrument, such as financial performance results and budget, repairs and maintenance expenditure ratio, cash and investments balance, and revenue collection rate. The FC instrument also evaluated the change in a series of key supporting financial measures or benchmarks as one collective measure, but which provided similarities to the financial health instrument – such as current ratio, liquidity ratio, debt/equity ratio and employee costs ratio– but these benchmarks had less impact on the weighted scoring. The final completed electronic version of the financial health template is included on the separate CDRom.

Because of the financial health weaknesses, the research included a component of investigating changes to overcome the instrument's weaknesses to develop a coherent solution that could be tested on a municipal sample. This aspect included the development of a more user-friendly, semi-automated template.

A key objective was to be able to compare the funding compliance assessment results with the financial health results. The original hypothesis was that both instruments would identify equivalent assessment outcomes.

6.4 Financial health measurement instrument adaptation

The incomplete draft MFMTAP 2008 financial health instrument was cumbersome to complete and suffered from a lack of coherence in the scoring and weighting, and the questionnaire arrangement was illogical. The literature review importantly revealed a prior financial health indicator study of South African municipalities (Scott, 2002). Although that study had weaknesses, including the likely high correlation within a number of the recommended measures and especially its development in local government conditions prior to financial management reform that commenced in 2003, Scott usefully recognised the need to:

- Measure item categorisation (financial, institutional and environmental indicators and trends).

- Use a weighting and scoring system that applied trend weights to historic and forecast data based on progressively reducing the indicator score impact based on uncertainty, which is similar to the concept of undertaking discounted cash flow analysis.

The financial health instrument was then further improved by adding trend weights for historic actual outcomes and budget predictions. Similar to Scott (2002), a current year budget score was discounted by 5%, a previous year actual result and next year budget result were discounted by 15% and actual year (–2) and budget year (+2) scores were discounted by 30%. The discounting therefore took into consideration the reduced reliability of future year forecasts and the reduced relevance of historic data, similar to a present value calculation. This weighted score was considered a more reliable measure of the components of current financial health.

Coherence and logic was also improved by:

- Rearranging and changing the question raw scores proportions.
- Translating the total maximum total raw score to 500 points.
- Categorising the items into the same categories used by Scott, which improved credibility by displaying that each category was reasonably represented: financial (14 items), institutional (13 items) and environmental/externalities (5 items) indicators, and trend (14 items).

The financial health analysis and findings are presented in Section 6.5.

6.5 Analysis: financial health pre and post MFMTAP

The financial health questionnaire (City of Tshwane example) is presented as Appendix J**.** The example illustrates that during the 2008/09 financial year Tshwane's total weighted score was 316 points from a 500 point maximum, or **63.2%**. The range 60 < 75% represented a 'Good' financial health grading. Tshwane scored poorly in terms of a qualified audit, critical audit issues, the proportionate level of repairs and maintenance expenditure relative to assets, cash/investments levels, collection rate and debtors' balances outstanding. Since the MFMA's commencement in 2004/05 the measure had deteriorated from a score of **68%**. The debt collection rate had improved, but the cash/investment situation had further deteriorated and

the municipality then had a relatively inexperienced Municipal Manager and Chief Financial Officer compared with 2004.

The instrument was successfully applied to six 'metropolitan' municipalities and Buffalo City Local Municipality. The total scores are summarised in Appendix N, which illustrates the 2004/05 financial health scores, the first financial year after the MFMA was passed into legislation, and the financial health score for the 2008/09 MTREF after the end of MFMTAP. Appendix O provides various graphical illustrations of the financial health trends. The summary outcomes are presented in **Table 6.1**.

Municipality	2004/05		2008/09	
	Total % score	Rating	Total % score	Rating
Tshwane	68%	Good	63%	Good
eThekwini	67%	Good	77%	Excellent
Joburg	68%	Good	64%	Good
Ekurhuleni	68%	Good	74%	Good
Cape Town	68%	Good	74%	Good
Nelson Mandela Bay	47%	Poor	58%	Marginal
Buffalo City	69%	Good	60%	Marginal

Table 6.1: 'Metro' financial health assessment

The financial health 2004/05 analysis indicated that six municipalities rated as in 'Good' financial health, and only one 'Poor', whereas in 2008/09 one was 'Excellent', four were 'Good' and two were 'Marginal'. Four municipalities improved their total weighted scores and three deteriorated. The colour highlight code indicates change, yellow being financial health score deterioration during MFMTAP and green indicating a score improvement. The sample size was insufficient to be conclusive about the correlation to MFMTAP. However, it is possible to suggest that there had been mixed financial health outcomes amongst the largest South African municipalities, and this provided a baseline for further quantitative analysis. Due to financial management reform being in its infancy, it was unreasonable to extend the analysis to other local municipalities as insufficient reform program progress had occurred in 2004 (the baseline year).

It was possible to evaluate if the trend weighting had a material impact on the financial health results or if a simple raw score approach would have achieved the same outcomes. **Table 6.2** presents the raw scores without the trend weighting/discounting.

Scores (without weighting) and Ratings				
Municipality	2004/05		2008/09	
	Total % score	Rating	Total % score	Rating
Tshwane	70%	Good	59%	Marginal
eThekwini	61%	Good	74%	Good
Joburg	65%	Good	58%	Marginal
Ekurhuleni	65%	Good	72%	Good
Cape Town	65%	Good	73%	Good
Nelson Mandela Bay	44%	Poor	52%	Marginal
Buffalo City	64%	Good	62%	Good

Table 6.2: Unweighted financial health assessment

Comparing results with the previous trend weighted table (**Table 6.1**) supports a conclusion that the trend weighting had sufficient impact on the total weighted score to justify its future inclusion and use. The ratings were the same as the weighted trend for 2004/05. Although the financial health change indication was similar (the same four municipalities' financial health improved and the same three deteriorated) but the overall unweighted rating was different (four 'Good' and three 'Marginal'). In the unweighted analysis both Tshwane and Johannesburg deteriorated to a 'Marginal' financial health rating, compared with remaining as a 'Good' financial health in the weighted trend calculations.

6.6 Quantitative analysis - budget funding compliance instrument

6.6.1 Quantitative analysis of funding compliance (raw scores by municipality)

Section 6.6.1 applies the quantitative analysis (QA), including the factored dimensions discussed in Chapter 5, to understand if advisory technical assistance (TA) provided to a municipality had financial health or funding compliance benefits, an improvement in compliance that was originally hypothesised.

Appendix P (Funding compliance instrument - Total raw score), displays the summary raw funding compliance (FC) scores for the sample of 25 municipalities that were provided with a minimum level of TA during the MFMTAP as well as the 25 municipalities that did not receive advisory TA. A summary of the results is displayed below in **Table 6.3**.

Municipality by capacity category (average)	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	∑
High capacity advisor	7	7	6	5	2	2	4	**33**
Medium/low capacity with advisor	9	1	8	7	0	7	7	**39**
High capacity 'no' advisor	7	5	8	8	6	3	4	**41**
Medium capacity 'no' advisor	7	6	2	5	-1	0	-3	**16**
Low capacity 'no' advisor	6	11	5	6	1	6	3	**38**
Average total sample	**7**	**6**	**6**	**6**	**2**	**3**	**3**	
Benchmark funding compliant	**18**	**18**	**18**	**18**	**18**	**18**	**18**	
Economic (NAT) situation rating	**10.0**	**13.0**	**18.0**	**13.0**	**0.0**	**-10.0**	**3.0**	

Table 6.3: Summary funding compliance raw score by capacity

Table 6.3 displays the average 'raw' FC score of sample municipalities in each category, as well as the average overall FC. The scoring scale item rules are provided in Appendix S.

Although a total summed score of 36 was the maximum scale score for 18 items, this would be unrealistic to sustain given that the higher scale scores were attributable to substantially improving annual item outcomes which would not be likely to re-occur over medium or longer periods of time. Therefore, a compliant level score was derived for each scale which resulted in an ongoing 'benchmark funding compliant' total benchmark score of 18. A municipality consistently achieving a total raw score of 18 annually could be assumed to be fully MFMA compliant.

No municipal capacity category averaged or achieved over 18, although some individual municipalities occasionally achieved a total rating score greater than 18 (**Chart 6.1)**.

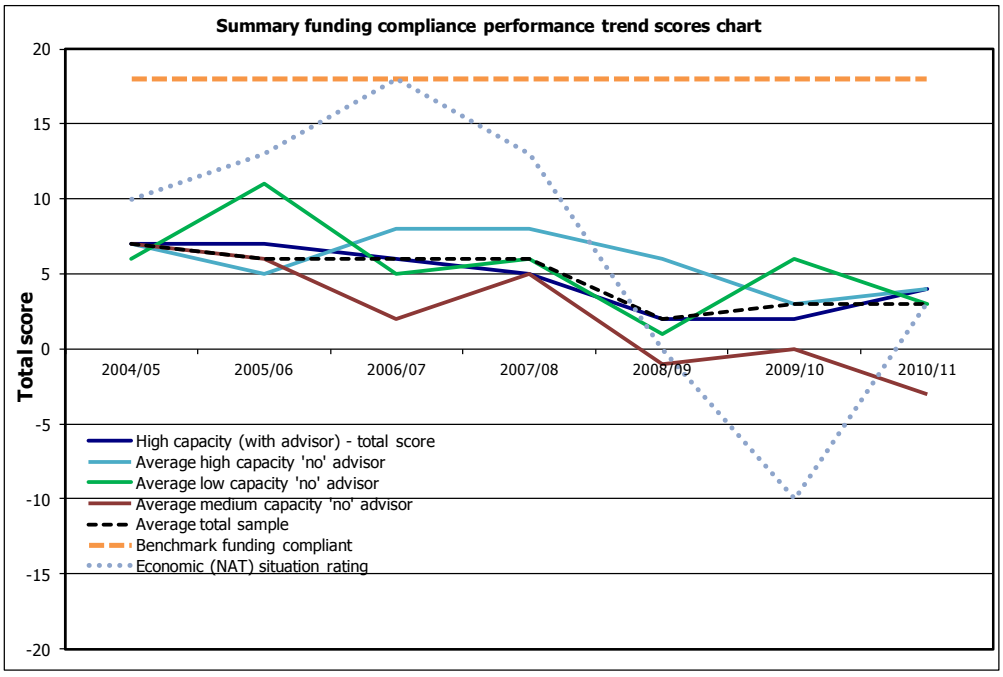


Chart 6.1: Funding compliance trend by municipality capacity

Chart 6.1 illustrates that the total sample of 50 municipalities' average score was stable during the MFMTAP, with a slight deterioration in the 2008/09 MTREF. The most discernible performance difference was the deterioration from 2008/09 projections of the MTREF medium-capacity sample without advisory technical assistance (TA). The other capacity categories performed close to the average with a bias towards a deteriorating performance projections from 2008/09. This deterioration could be partially attributed to economic conditions.

An economic rating was derived from four indicators: trend in real GDP, household consumption, fixed capital formation and the Consumer Price Index excluding interest (CPIX). The rating was constructed in a similar manner, for consistency and comparability, as the funding compliance scale by applying a Likert scale methodology. The scale calculations table is included on the separate CDRom. It should be concluded from the chart that the most favourable economic conditions peaked during 2006/07 and deteriorated sharply through 2008/09 and 2009/10, and no doubt placing municipal financial situations under pressure.

However, the total raw scores masked what was happening within the 18 individual measures that comprised the total FC instrument. To reveal the trend in the individual measures, tables were prepared that summed the scores for each measure and averaged the sum by the sample total of 25. The tables represented the sample of 25 municipalities that received MFMTAP BPTA (**Table 6.4a**) and the sample of 25 that didn't receive TA (**Table 6.5a**). The total score calculations are also available on the separate CDRom, file 'Performance Rating Scale Scores.xls' on the 'Total by FC item' tab. **Tables 6.4b** and **6.5b** display the total raw scores prior to averaging.

Although the MFMTAP 'baseline' commencement year was a poor score of average 6.7, this further deteriorated over time and the 2008/09 Medium-Term Budget was a noticeably worse score than the actual outcomes of previous years of an average score of 1.2. This worsening was most likely attributable to a combination of the deterioration in the economic situation and the aggressive 'spending and service delivery improvement' adopted by virtually all municipalities.

Total: BPTA municipalities/all capacity	Total: BPTA municipalities/all capacity (Average)						
Financial Year:	2004/05	2005/06	2006/07	2007/08	Budget Year 2008/09	Budget Year +1 2009/10	Budget Year +2 2010/11
Funding measures title	Audited Outcome	Audited Outcome	Audited Outcome	Audited Outcome			
Cash/cash equivalents at the year end	1.2	1.0	1.2	1.4	1.0	0.8	1.1
Cash equivalents + investments less applications	0.4	-0.1	0.4	-0.4	0.0	0.0	0.1
Cash at the year end:% of monthly employee/supplier payments	0.7	0.7	0.8	1.1	0.7	0.6	0.6
Surplus/(Deficit) excluding depreciation offsets	1.0	1.1	0.8	1.0	0.9	0.8	0.9
Service charge revenue % change - macro CPIX target exclusive	-0.9	-1.2	-1.4	-1.6	-2.0	-1.1	-0.7
Cash receipts % of Ratepayer & Other revenue	-0.1	-0.3	0.3	-0.6	-0.6	-0.2	-0.2
Debt impairment expense as a % of total billable revenue	0.6	0.5	0.5	0.3	0.2	0.4	0.4
Capital payments % of capital expenditure	-1.5	-0.8	-0.9	-0.6	-0.5	-0.3	-0.6
Borrowing receipts % of capital expenditure (excl grants)	0.9	1.2	0.9	1.1	0.6	0.8	1.1
Transfers/Grants % of Govt. legislated/gazetted allocations	1.9	1.8	1.9	1.9	-0.8	-0.2	-0.2
Current consumer debtors % change - incr(decr)	0.0	-0.6	-0.6	-0.7	0.3	-0.2	0.0
Long term receivables % change - incr(decr)	0.8	1.0	0.6	0.7	0.3	0.4	0.5
Repairs & Maintenance % of Property Plant & Equipment	0.0	-0.2	-0.1	-0.4	-0.2	-0.3	-0.3
Asset renewal % of capital budget	-2.0	-1.8	-1.9	-1.8	-1.9	-1.8	-1.9
Financial Performance Budget result (surplus/deficit)	1.2	1.0	1.2	1.0	1.2	1.0	1.0
Financial Position Budget	1.1	0.9	1.5	1.5	1.2	1.3	1.2
Cash flow budget	1.3	1.2	1.3	1.6	1.3	1.0	1.2
Other key performance measures	0.1	0.0	-0.1	-0.4	-0.5	-0.2	-0.2
Total score	**6.7**	**5.4**	**6.4**	**5.1**	**1.2**	**2.8**	**4.0**
Total score as percentage of maximum score (Max =)	**19%**	**15%**	**18%**	**14%**	**3%**	**8%**	**11%**

Table 6.4a: TA FC raw scores average

Total: BPTA municipalities/all capacity								
Financial Year:	Measure Number	2004/05	2005/06	2006/07	2007/08	Budget Year 2008/09	Budget Year +1 2009/10	Budget Year +2 2010/11
Funding measures title		Audited Outcome	Audited Outcome	Audited Outcome	Audited Outcome			
Cash/cash equivalents at the year end	1	30	26	31	36	24	21	28
Cash equivalents + investments less applications	2	10	-2	9	-10	-1	-1	2
Cash at the year end:% of monthly employee/supplier payments	3	17	17	20	28	18	15	14
Surplus/(Deficit) excluding depreciation offsets	4	25	28	20	24	22	20	23
Service charge revenue % change - macro CPIX target exclusive	5	-22	-29	-36	-39	-50	-28	-18
Cash receipts % of Ratepayer & Other revenue	6	-3	-8	8	-16	-14	-6	-5
Debt impairment expense as a % of total billable revenue	7	15	12	12	8	4	9	9
Capital payments % of capital expenditure	8	-37	-19	-23	-15	-13	-8	-14
Borrowing receipts % of capital expenditure (excl grants)	9	23	29	23	27	15	20	28
Transfers/Grants % of Govt. legislated/gazetted allocations	10	47	46	47	47	-19	-4	-6
Current consumer debtors % change - incr(decr)	11a	0	-15	-16	-17	8	-6	0
Long term receivables % change - incr(decr)	11b	21	25	16	17	8	11	13
Repairs & Maintenance % of Property Plant & Equipment	12	1	-4	-3	-11	-6	-8	-7
Asset renewal % of capital budget	13	-50	-46	-48	-46	-48	-46	-48
Financial Performance Budget result (surplus/deficit)	14	29	25	30	25	29	25	25
Financial Position Budget	15	27	23	38	38	31	33	31
Cash flow budget	16	33	29	33	39	33	26	31
Other key performance measures	17	2	0	-3	-9	-12	-6	-4
Total score		**168**	**137**	**158**	**126**	**29**	**67**	**102**

Table 6.4b: TA FC raw scores total sample

However, it is also noticeable that macroeconomic decline was having an impact, evidenced by the stability in many of the measures over time compared with the deterioration in the 'service charge % change measure', which relates municipal service charge increases to the national CPIX, the decline in revenue collection performance and a negative influence in other key performance indicators. This decline would be expected in deteriorating economic conditions.

Surprisingly, as it would have been expected that the municipalities with advisory TA would have achieved higher relative compliance, the difference between the overall raw score results

with ‘noBPTA’ municipalities was *immaterial and insignificant*. Noticeable differences were the healthier debt impairment, suggesting a greater debt collection challenge in the larger higher-capacity municipalities, and the measure of borrowing relative to capital expenditure, suggesting a higher propensity to borrow at the higher-capacity municipalities.

Total: No BPTA municipalities/all capacity	Total: No BPTA municipalities/all capacity (Average)						
Financial Year:	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**Budget Year 2008/09**	**Budget Year +1 2009/10**	**Budget Year +2 2010/11**
Funding measures title	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**			
Cash/cash equivalents at the year end	0.9	1.3	0.9	1.2	1.0	0.8	0.7
Cash equivalents + investments less applications	0.6	0.1	0.6	0.4	0.1	0.5	0.3
Cash at the year end:% of monthly employee/supplier payments	0.6	0.8	1.0	1.1	0.6	0.6	0.3
Surplus/(Deficit) excluding depreciation offsets	0.8	0.8	0.5	1.0	0.3	0.6	0.5
Service charge revenue % change - macro CPIX target exclusive	-1.5	-1.7	-1.7	-1.2	-1.3	-1.4	-1.0
Cash receipts % of Ratepayer & Other revenue	-0.4	-0.1	-0.3	-0.4	-1.0	0.5	-0.2
Debt impairment expense as a % of total billable revenue	0.8	0.6	0.8	0.3	1.2	0.6	0.7
Capital payments % of capital expenditure	-0.6	-1.2	-0.8	-0.2	-0.1	-0.7	-0.7
Borrowing receipts % of capital expenditure (excl grants)	1.3	1.2	1.1	1.3	1.3	1.2	1.3
Transfers/Grants % of Govt. legislated/gazetted allocations	2.0	2.0	2.0	2.0	-0.4	-0.8	-0.9
Current consumer debtors % change - incr(decr)	-0.2	0.4	-0.9	-0.4	-0.6	-0.1	-0.6
Long term receivables % change - incr(decr)	0.9	0.8	1.3	0.3	0.8	0.3	0.4
Repairs & Maintenance % of Property Plant & Equipment	0.4	-0.1	0.1	-0.6	-0.3	-1.0	-0.7
Asset renewal % of capital budget	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Financial Performance Budget result (surplus/deficit)	1.0	1.0	0.6	1.2	0.8	1.0	0.8
Financial Position Budget	0.9	1.2	0.7	1.1	0.8	1.2	0.9
Cash flow budget	1.0	1.3	1.0	1.4	1.2	1.2	1.1
Other key performance measures	0.0	0.0	-0.1	-0.3	-0.3	-0.1	-0.2
Total score	**6.5**	**6.4**	**4.8**	**6.2**	**2.1**	**2.4**	**0.7**
Total score as percentage of maximum score (Max =)	**18%**	**18%**	**13%**	**17%**	**6%**	**7%**	**2%**

Table 6.5a: noBPTA FC raw scores total average

Total: No BPTA municipalities/all capacity								
Financial Year:	**Measure Number**	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**Budget Year 2008/09**	**Budget Year +1 2009/10**	**Budget Year +2 2010/11**
Funding measures title		**Audited Outcome**	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**			
Cash/cash equivalents at the year end	1	22	32	22	30	25	19	18
Cash equivalents + investments less applications	2	15	2	14	9	2	12	7
Cash at the year end:% of monthly employee/supplier payments	3	16	21	24	28	14	14	7
Surplus/(Deficit) excluding depreciation offsets	4	21	20	13	26	8	15	13
Service charge revenue % change - macro CPIX target exclusive	5	-37	-42	-42	-31	-33	-34	-24
Cash receipts % of Ratepayer & Other revenue	6	-10	-3	-7	-11	-26	12	-5
Debt impairment expense as a % of total billable revenue	7	19	15	19	8	31	15	17
Capital payments % of capital expenditure	8	-16	-30	-19	-5	-2	-17	-17
Borrowing receipts % of capital expenditure (excl grants)	9	33	30	28	32	33	31	33
Transfers/Grants % of Govt. legislated/gazetted allocations	10	50	50	50	50	-9	-20	-22
Current consumer debtors % change - incr(decr)	11a	-5	10	-23	-10	-16	-3	-14
Long term receivables % change - incr(decr)	11b	23	21	33	7	19	8	10
Repairs & Maintenance % of Property Plant & Equipment	12	9	-3	2	-15	-7	-26	-18
Asset renewal % of capital budget	13	-50	-50	-50	-50	-50	-50	-50
Financial Performance Budget result (surplus/deficit)	14	26	26	16	30	20	26	21
Financial Position Budget	15	22	29	17	28	20	29	22
Cash flow budget	16	25	33	25	36	29	29	27
Other key performance measures	17	0	1	-3	-8	-8	-3	-4
Total score		**163**	**162**	**119**	**154**	**50**	**57**	**21**

Table 6.5b: noBPTA FC raw scores total sample

However, as described in Chapter 5, the significant correlation between some of the funding compliance (FC) measures, such as cash/investments, cash/investments less applications (of

funds) and cash/monthly employee/supplier payments, justified the development of the factor solution to eliminate the correlation to the maximum extent possible. Factor measure BPTA/No BPTA comparisons would therefore be more credible, and the QA results are explained further in **Section 6.6.2**.

6.6.2 Quantitative analysis of funding compliance (factored dimension scores)

The purpose of this further analysis was to compare the funding compliance (FC) results under a raw score and factor score basis. **Table 6.6** contains an example of the quantitative analysis (QA) results. The QA of the entire 50 municipal sample is included in Appendix Q (Funding compliance - Raw score v Factor dimensions). The main QA purpose was to understand whether a factor score approach, a more complicated and resource-intensive QA solution, indicated different performance outcomes. The basis of analysis was to compare whether the results of the raw score analysis (2004/05 to 2008/09, being the MFMTAP period) provided a different result under the factor score approach. The output tables compare the total weighted factor scores and highlights performance change and direction.

The output table displayed in Appendix Q is colour coded: green represents a weighted or raw score that improved between 2004/05 and 2008/09 funding compliance, and a red score represents a reduction in FC. Yellow represents that the trend change in performance was different under the raw score and factor score measures.

In sum, the factor score results illustrate that five municipalities (20% of the sample) that received BPTA and four municipalities (16% of the sample) that did not receive advisory technical assistance (a total of nine municipalities or 18% of the total sample) indicated a different performance trend compared with the raw score QA. A key question was whether this outcome trend difference would substantiate the significant investment in the complexity of a factor-based QA evaluation system, or whether the simplicity of a raw score system would suffice at least as the basis of preliminary investigation. Appendix Q includes the summary analysis for each municipality, but also a summary (all sample municipalities) total for both the BPTA and noBPTA samples.

The total TA sample raw score results indicated that total raw score measures deteriorated 68% between 2004/05 and 2008/09, but the factor score was a 34% deterioration. The noBPTA result were quite different, that the total raw score measures deteriorated 69%

between 2004/05 and 2008/09 (which was very similar to the BPTA sample), but the factor score was only a 16% deterioration. Applying a raw score FC measurement solution only would therefore have a high risk of overstating the performance outcome change. The total sample results (BPTA and noBPTA amalgamated for the MTREF) are presented in **Table 6.6**.

Total BPTA and noBPTA sample	Total	
	ALL SAMPLE (50)	
	2004/05	2008/09
FUNDING COMPLIANCE (FC)		
Factor/Dimension 1	42.20	42.26
Factor/Dimension 2	46.81	36.52
Factor/Dimension 3	-24.56	-24.40
Factor/Dimension 4	9.17	-1.12
Factor/Dimension 5	33.60	14.31
Factor/Dimension 6	-38.03	-38.26
Factor/Dimension 7	47.60	40.80
	116.79	70.11
Total weighted factor score:	**21.16**	**15.50**
FC RAW TOTAL SCORE	**337**	**105**
% change - Factor score: Raw score	**-27%**	**-69%**

Table 6.6: Weighted factor score 04/05–08/09

It is especially important to note from Table 6.6 that:

- Dimensions 1, 3 and 6 total raw scores were virtually identical when comparing 2008/09 results with 2004/05.
- Dimensions 2, 4 and 5 warrant further investigation regarding the cause for the deterioration in the score.
- The total weighted factor score (all dimensions) deteriorated 27%, yet the Raw factor score deteriorated by 69%.

It is also important to note that factor dimensions 1 and 2 accounted for only 9% of the total scores deterioration for the TA sample, with those factor scores in total comprising 43% of the overall score. However, the noBPTA sample dimension 1 was 5% improvement, but dimension 2 demonstrated a 26% decline. The variations in performance of the factor dimensions 3–7 (the TA sample) and dimensions 2 and 3 for the noBPTA sample would justify a central government oversight focus, as it was performance on these specific dimensions that appeared to make the most difference to funding compliance measurement

outcomes. In other words, rather than having a complex measurement instrument tool for a comprehensive analysis of municipal performance, an oversight organisation could focus on limited dimension/s, because the analysis conclusions suggested that there was a causal correlation. There is logic in the causal correlation finding, in that, for example, a municipality faced with deteriorating economic conditions and declining revenue collection rates might consider reducing asset renewal and repairs expenditure.

Similarly, deterioration in cash collection, debt impairment and asset repairs expenditure would affect the Financial Performance result, so simply selecting municipalities with poor Financial Performance results for oversight analysis would be cost effective and efficient scrutiny. So whilst an oversight agency might deploy resources to scrutinise all funding compliance measures or all factors, it is probable that it could simply focus on a factor such as the revenue collection rate or financial performance result with the knowledge that there was a good probability of the consequential impacts in the related change in other measures.

The summary results for the sample of municipalities provided with advisory technical assistance are shown in **Table 6.6a**.

Technical Assistance	% of variance explained by factor	Total ALL SAMPLE (25) 2004/05	Total ALL SAMPLE (25) 2008/09
FUNDING COMPLIANCE (FC)			
Factor/Dimension 1	18.14	23.68	22.11
Factor/Dimension 2	10.51	25.04	23.59
Factor/Dimension 3	8.71	-8.11	-15.32
Factor/Dimension 4	7.74	4.43	-2.36
Factor/Dimension 5	7.38	20.25	7.32
Factor/Dimension 6	7.11	-18.23	-14.97
Factor/Dimension 7	6.54	19.55	12.75
	66.13	66.61	33.12
Total weighted factor score:		**12.13**	**7.96**
FC RAW TOTAL SCORE		**174**	**55**
Same performance trend		**-34%**	**-68%**

Table 6.6a: TA weighted factor score 04/05–08/09

The summary results for the sample of municipalities that were not provided with advisory technical assistance are shown in **Table 6.6b**.

No Expert Technical Assistance	% of variance explained by factor	Total	
		ALL SAMPLE (25)	
		2004/05	2008/09
FUNDING COMPLIANCE (FC)			
Factor/Dimension 1	18.14	18.52	20.15
Factor/Dimension 2	10.51	21.77	12.93
Factor/Dimension 3	8.71	-16.44	-8.99
Factor/Dimension 4	7.74	4.74	1.24
Factor/Dimension 5	7.38	13.35	6.99
Factor/Dimension 6	7.11	-19.80	-23.29
Factor/Dimension 7	6.54	28.05	28.05
	66.13	50.19	37.08
Total weighted factor score:		**9.03**	**7.55**
FC RAW TOTAL SCORE		**163**	**50**
Same performance trend		**-16%**	**-69%**

Table 6.6b: NoBPTA weighted factor score 04/05–08/09

It is also important to observe that the funding compliance level rating for municipalities that were provided with advisory technical assistance deteriorated during MFMTAP by a slightly greater rate than where no advisory technical assistance was provided. It also needs to be noted that the two dimensions that accounted for the greatest explanation of the variation, dimensions 1 and 2, displayed a slight deterioration between 2004/05 and 2008/09, whereas the sample that was not provided with technical assistance sample displayed an improvement for dimension 1 and a marked deterioration for dimension 2. The total average score change for each sample municipality, between 2004/05 and 2008/09 is plotted in **Chart 6.2** (municipalities provided with advisory technical assistance) **and Chart 6.3** (no advisory technical assistance provided).

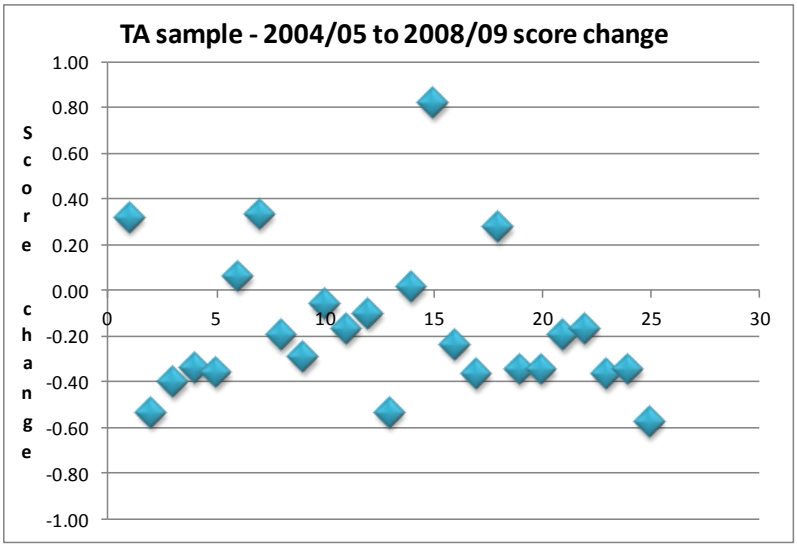


Chart 6.2: TA average score plot 04/05–08/09 change

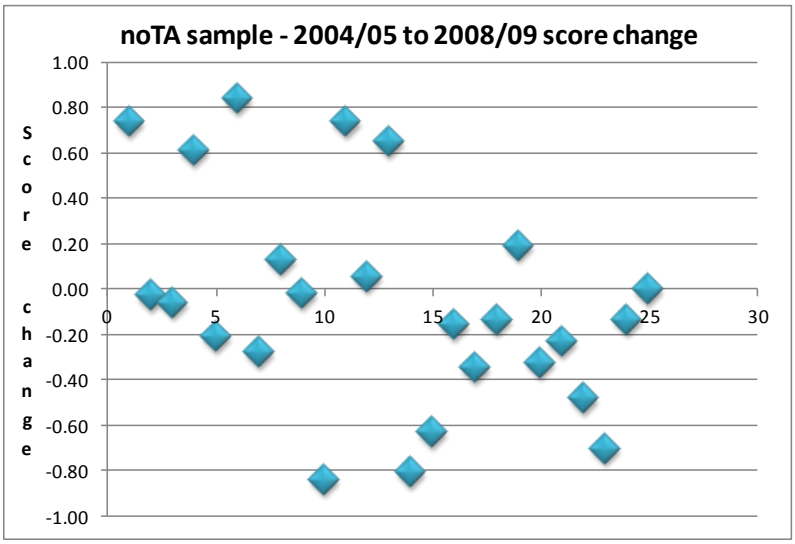


Chart 6.3: NoBPTA average score plot 04/05–08/09 change

Although the summary averages were closely aligned between the two samples, the data plots illustrate some significant differences. Clearly the noBPTA results displayed in **Chart 6.3** indicate more volatile characteristics, noting that **Chart 6.2** data plots are more closely gathered together and display lower volatility. However, some of the municipalities that were not provided with advisory technical assistance displayed higher levels of improvement than the sample scores of municipalities that were provided with advisory technical assistance. The noBPTA sample displayed municipal examples of higher rates of compliance deterioration. Therefore, although there was little evidence to suggest that advisory technical assistance provided a better average result, it could be concluded that the volatility of the results reflected a greater degree of outcome risk regarding the noBPTA sample municipality results.

Another consideration was that individual municipalities achieved substantial funding compliance improvement during the MFMTAP period. This was especially evident when examining the individual results for every municipality. For example, the local municipality Maluti-R-Phofung score improved by 0.82 from a negative result of –0.03 to positive 0.79. Similarly, Moqhaka Local Municipality (noBPTA) improved from –0.17 to positive 0.67 (an improvement of 0.84). These could be deemed to be outliers, but a reasonable supposition could also be that the more volatile noBPTA results represented higher risk and were partially an indicator that the expert advisory technical assistance had provided an overall more certain outcome for the BPTA sample. The volatility could also be representative of lower pre-

MFMTAP management capacity, which could also be assessed by a financial health evaluation. High community expectations of improvements in service delivery, and the subsequent expenditure demands during the MFMTAP period, may also have had a destabilising impact on some or possibly many municipalities.

Another perspective relates to examining the trend over the MFMTAP period rather than just comparing the beginning and end outcomes. **Table 6.7** presents this trend at a summary level. The detailed data are available, but due to its volume these are not presented as an appendix, but are included on the CDRom provided (file 'Performance Rating Scale Scores.xls on the 'FC Factor Trend' tab).

Financial year:	2004/05	2005/06	2006/07	2007/08	2008/09
Total sample	116.80	118.98	92.56	110.37	70.20
Total weighted factor score:	**21.16**	**22.03**	**18.53**	**23.14**	**15.51**
FC raw total score	**337**	**308**	**279**	**286**	**105**
% change: weighted factor FC score		**4%**	**-16%**	**25%**	**-33%**
% change: raw FC score		**-9%**	**-9%**	**3%**	**-63%**
TA sample	66.61	55.68	52.87	51.32	33.12
Total weighted factor score:	**12.13**	**10.40**	**10.63**	**11.26**	**7.96**
FC raw total score	**174**	**146**	**160**	**132**	**55**
% change: weighted factor FC score		**-14%**	**2%**	**6%**	**-29%**
% change: raw FC score		**-16%**	**10%**	**-18%**	**-58%**
noTA sample	50.19	63.30	39.69	59.05	37.08
Total weighted factor score:	**9.03**	**11.63**	**7.89**	**11.88**	**7.55**
FC raw total score	**163**	**162**	**119**	**154**	**50**
% change: weighted factor FC score		**29%**	**-32%**	**51%**	**-36%**
% change: raw FC score		**-1%**	**-27%**	**29%**	**-68%**

Table 6.7: FC score trend 04/05–08/09

What is especially evident from this analysis is the significant decline in average raw scores relating to the actual results scored in 2007/08 (and preceding years) to the budgeted outcomes predicted in 2008/09, in both the factor dimensions technique and the raw FC score approach. For example, the average FC raw scores from 2004/05 through to 2007/08 were 337, 308, 279 and 286, suggesting a steady decline and then stabilising, yet the 2008/09 score then declined 63% compared with 2008/09, to 105. One interpretation is that municipalities were overly optimistic about expenditure plans or pessimistic about revenue collection targets, or both, during MTREF preparation, but that actual outcomes achieved – less expenditure, more revenue collected – were conducive to better financial outcomes. An alternative explanation is that the significant decline in the national economy through the 2008/09 period might have had a material impact on municipal finances. The outcome could

be clarified by repeating the analysis over a period when the national economy was not in decline, especially over another five-year period after the budget reforms had had a longer opportunity to stabilise at municipalities, that is, five years commencing 2010/11.

The results presented in **Table 6.7** also show that the weighted factor FC score was less volatile that the raw FC score, under all sample conditions (BPTA, noBPTA and Total sample), suggesting that the correlation eliminated by the factoring quantitative analysis reduced the volatility by duplicating the effect of the measures. This provides some justification for future research to re-apply the factored dimensions and the effort required to repeat the analysis for a later financial period of a comparable term of five years.

Table 6.8 (together with **charts 6.4** and **6.5**) summarise the weighted factor FC score for the BPTA and noBPTA samples. It should be noted that the municipalities without advisory technical assistance had a lower average rating in 2004/05, higher in 2005/06 and 2007/08 and slightly lower by 2008/09. Further details of the calculations are provided in **Table 6.10** and the conclusions are explained in **Section 6.6**.

Total weighted factor score	2004/05	2005/06	2006/07	2007/08	2008/09
Technical assistance sample (25 munis.)	12.13	10.40	10.63	11.26	7.96
No Technical assistance sample (25 munis.)	9.03	11.63	7.89	11.88	7.55

Table 6.8: TA & noBPTA weighted factor scores summary

Chart 6.4 illustrates a comparison of the weighted factor scores (dimensions) of the 25 municipality TA sample with the 25 municipality noBPTA sample. **Chart 6.5** displays a comparison of the raw (18 measures) FC score of the 25 municipality BPTA sample with the 25 municipality noBPTA sample. Note that there was no significant difference between the results of the BPTA and noBPTA samples in either chart, although there is a suggestion that the raw scores were more closely correlated. However, also especially note that the raw score measure appeared to overemphasise the funding compliance measures' deterioration in 2008/09 in both samples, probably because the correlated measures within the scales appeared to compound the impact of the weakening.

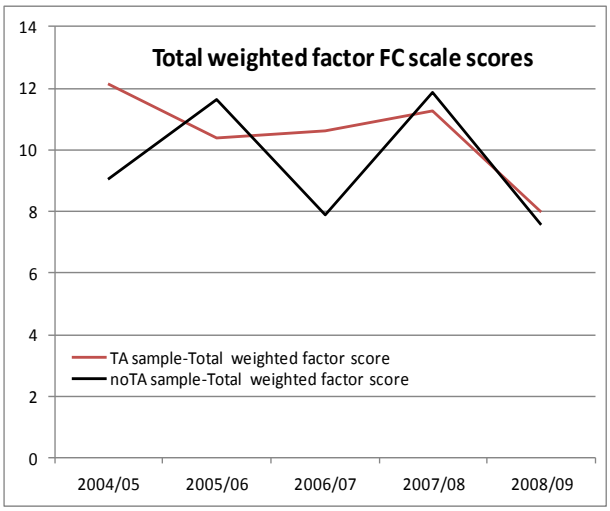


Chart 6.4: Total weighted factor FC scale scores

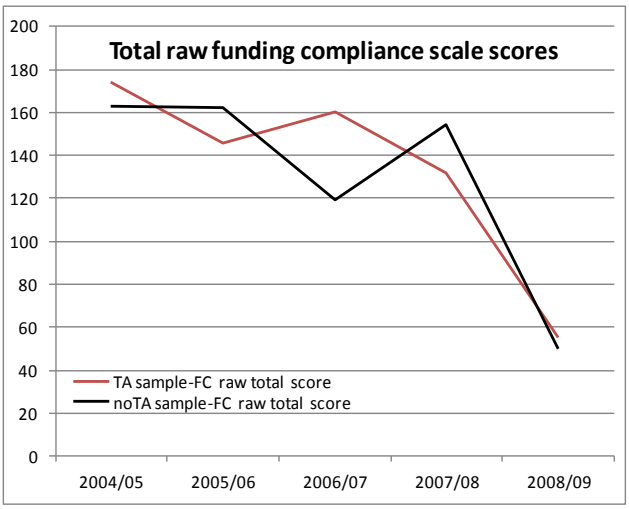


Chart 6.5: Total raw FC scale scores

Chart 6.6 displays a comparison of the *percentage change* in the weighted factor scores (dimensions) of the 25 municipality BPTA sample with the 25 municipality noBPTA sample, as well as the combined sample score. **Chart 6.7** displays a comparison of the *percentage change* of the raw (18 measures) FC score of the 25 municipality BPTA sample with the 25 municipality noBPTA sample, and also the combined sample outcome. The results of the noBPTA sample appear more volatile than the BPTA sample in both charts. However, also note that the raw score measure appears to overemphasise the FC deterioration in 2008/09 (**Chart 6.7**), probably because the correlated measures compound the impact of the weakening.

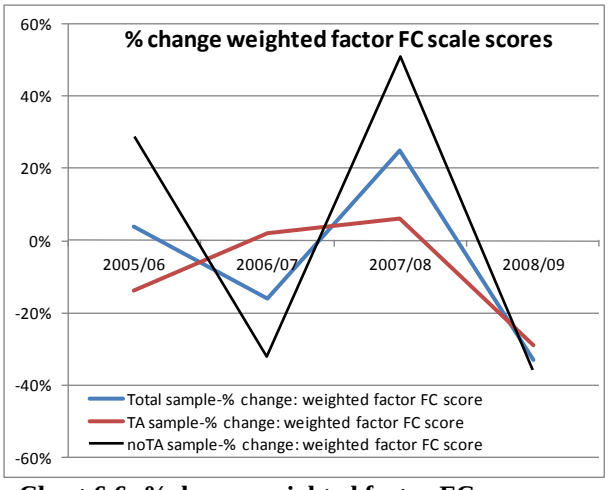


Chart 6.6: %change weighted factor FC scores

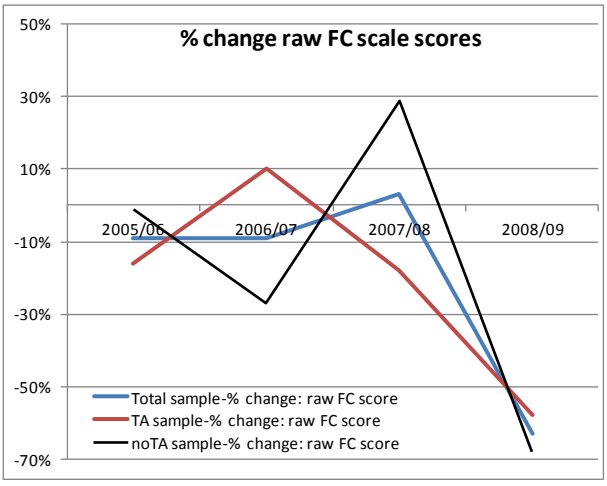


Chart 6.7: %change raw FC scores

The trends displayed in the charts do not provide any evidence to suggest that advisory technical assistance during MFMTAP improved funding compliance outcomes. However, an appropriate baseline control of 'what would have happened' at these large municipalities without advisory technical assistance is now being made available here. In other words, especially during a period of higher community expectations for service delivery improvements, would the performance outcome have deteriorated at a greater rate had the technical assistance support not have been provided?

Section 6.5 'Analysis: financial health pre and post MFMTAP' examined the change in the financial health instrument measures applied to seven large municipalities. The research problem identified a need to compare these results with the funding compliance measurements, to ascertain whether there was a correlation between financial health and funding compliance. **Table 6.9** compares the trend weighted financial health results with the factored dimension funding compliance results for the same seven large municipalities. **Table 6.9** also displays the reported financial statement audit findings from the Auditor-General (AG).

	% of variance explained by factor	Tshwane Metro Municipality HCA1 1		Buffalo City Local Municipality HCA1 2		Cape Town Metro Municipality HCA1 3		eThekwini Metropolitan HCA1 4		Johannesburg Metro Municipality HCA1 5		Ekurhuleni Metro Municipality HCA1 6		Nelson Mandela Metro Municipality HCA1 7	
		2004/05	2008/09	2004/05	2008/09	2004/05	2008/09	2004/05	2008/09	2004/05	2008/09	2004/05	2008/09	2004/05	2008/09
FUNDING COMPLIANCE (FC)															
Factor/Dimension 1	18.14	1.23	1.23	1.48	0.87	1.48	0.57	0.57	0.57	1.48	1.23	1.74	0.57	0.05	0.61
Factor/Dimension 2	10.51	1.39	1.85	1.39	0.46	1.39	0.93	1.85	1.85	1.85	1.85	0.46	0.46	-0.93	0.93
Factor/Dimension 3	8.71	-1.08	-0.70	-1.08	-1.08	-1.08	-0.70	-0.70	-0.70	0.05	0.05	-1.08	-0.70	-1.08	-0.70
Factor/Dimension 4	7.74	-0.42	0.44	0.62	-0.82	0.62	0.44	-0.43	0.41	-0.19	-0.03	-0.24	-0.42	0.62	0.24
Factor/Dimension 5	7.38	0.06	-1.02	1.38	-1.05	1.38	0.33	0.06	0.06	1.38	1.38	1.02	1.05	1.38	-0.03
Factor/Dimension 6	7.11	-1.36	-0.10	-1.04	-1.36	-1.36	-0.41	-0.41	-1.36	-0.10	-1.36	-1.36	-0.41	-1.36	-1.04
Factor/Dimension 7	6.54	0.00	0.85	-0.85	1.70	0.85	0.00	1.70	-1.70	0.00	-1.70	-1.70	0.85	1.70	1.70
check	*66.13*	-0.18	2.55	1.90	-1.28	3.28	1.16	2.64	-0.88	4.47	1.42	-1.16	1.40	0.38	1.71
Total weighted score:		**0.23**	**0.55**	**0.52**	**-0.02**	**0.65**	**0.25**	**0.44**	**0.10**	**0.83**	**0.47**	**0.18**	**0.24**	**-0.03**	**0.30**
FC RAW TOTAL SCORE		**-1**	**8**	**9**	**0**	**10**	**5**	**7**	**15**	**8**	**-1**	**3**	**-2**	**2**	**4**
Same performance trend			**YES**		**YES**		**YES**		**NO**		**YES**		**NO**		**YES**
FINANCIAL HEALTH															
Total weighted score:		**340**	**316**	**344**	**301**	**338**	**370**	**334**	**386**	**341**	**318**	**340**	**368**	**235**	**292**
Same performance trend			**NO**		**YES**		**NO**		**NO**		**YES**		**YES**		**YES**
AUDIT		Qualified	Qualified	Qualified	Qualified	Qualified	Unqualified	Unqualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified
2006 municipal elections Mayoral change:			**Change**		**Change**		**Change**		**No change**		**No change**		**No change**		**Change**

Table 6.9: Trend weighted financial health scores

Further, the weighted financial health scores for these large municipalities could be compared with the factored dimension weighted scores. **Table 6.10** compares the trend results. The yellow highlight indicates score deterioration between 2004/05 and 2008/09, and green highlight indicates score improvement. **Table 6.9** also indicates which municipalities experienced a change in executive mayor, but the analysis of the impact of this change in governance is discussed in **Section 6.8**.

The FH=FC column in **Table 6.10** enables a conclusion as to whether the trend was the same under FH as it was with FC or not. In summary, four of the municipalities were the same trend under FH as FC, and three were different trends. The small sample, albeit important municipalities, does not allow a conclusion that there is a correlation between the instruments. It is therefore possible to have a change in financial health and a contra change in funding compliance, possibly explainable by financial health qualitative factors; for example, changes in Municipal Manager, Chief Financial Officer or Audit results would change the financial health score, but not necessarily have any impact on the MFMA funding compliance results. This also suggests that governments responsible for oversight should consider using both instruments, and that the Financial Health measurement could be applied as a leading indicator.

Municipality	Financial Health				Funding Compliance		FH=FC
	2004/05		2008/09		2004/05	2008/09	
	Total % score	Rating	Total % score	Rating	Total weighted score:	Total weighted score:	
Tshwane	68%	Good	63%	Good	0.23	0.55	NO
eThekwini	67%	Good	77%	Excellent	0.44	0.10	NO
Joburg	68%	Good	64%	Good	0.83	0.47	YES
Ekurhuleni	68%	Good	74%	Good	0.18	0.24	YES
Cape Town	68%	Good	74%	Good	0.65	0.25	NO
Nelson Mandela Bay	47%	Poor	58%	Marginal	- 0.03	0.30	YES
Buffalo City	69%	Good	60%	Marginal	0.52	- 0.02	YES

Table 6.10: Trend financial health v funding compliance

6.6.3 Quantitative analysis of funding compliance (raw scores weighted to financial result)

This section applies an alternative perspective to the data analysis by calculating and analysing the total weighted financial results for each sample strata. In other words, instead of applying a performance rating to each funding compliance item, for every municipality in the sample, the total weighted average financial result for the sample was determined and then that total financial result was rated. The key question was whether a rating score based on the 'collective' municipal financial result (for each funding compliance item) would produce a different outcome compared with rating individual municipal results. The objective was to obtain a total rating for the sample rather than the sum of the individual ratings of each municipality. This is important from a South African National Treasury perspective because,

whilst it has an interest in the individual performance of each municipality, it is also concerned with overall local government financial management performance and local government's impact on the South African economy.

In addition, some individual municipalities make a far greater contribution to the economy, such as the metropolitan municipalities, simply due to their size. Accordingly, an MFMA funding compliant or non-compliant metropolitan municipality would be having a much greater favourable or detrimental impact on the economy compared with a smaller local municipality. The sample of municipalities that were provided with advisory technical assistance overall were much larger organisations than those that did not receive the assistance. By way of illustration, the total combined 2008/09 revenue budget for the 25 municipalities which received advisory assistance was Rand 104.7 billion and their combined net assets were Rand 86.8 billion[30].

Appendix R, **tables R1 and R2** shed light on the total revenue of each municipality in the samples. The sample of 25 municipalities that did not receive advisory assistance had only a sum total of Rand 7.7 billion and net assets of Rand 9.7 billion. The sample with advisory assistance was therefore more than 10 times the revenue budget and net assets of the smaller sample. It must be concluded from this relativity that there would also be significant national government interest in the collective performance rating of the larger value municipal sample as being indicative of the economic impact of municipal funding compliance and financial health.

The design of this analysis was to determine a 'weighted' result for each of the funding compliance evaluation items. The weighting was undertaken according to the size of each municipality and the proxy for size was the total 2008/09 revenue budget for each municipality. The weighted result for each funding compliance item would therefore represent an overall financial result for each total sample, effectively averaging and offsetting good, average and poor results by individual municipalities.

For example, Appendix R, **Table R1** presents the calculations applied to the Cash/Cash Equivalents funding compliance item for the 25 municipalities in the sample that was provided with advisory technical assistance. The audited or budgeted Cash/Cash Equivalents balance at financial year end was weighted proportionate to the total budget revenue for 2008/09,

[30] Net assets having a book value of less than one year's revenue is indicative of the relatively precarious financial position of South African local government.

budgeted revenue being a proxy for the approximate size of each municipality. The total weighted result was then rated according to the same funding compliance scale that had earlier been applied to the individual municipality results, (e.g. a rating of 2 was scored in 2005/06 because the Cash/Cash Equivalent had improved substantially since the previous year, but in 2008/09 the rating was 0 because the Cash/Cash Equivalent level declined and still remained positive). The average rating over the seven-year period analysed was a respectable **1.43**.

Appendix R, **Table R2** contains the equivalent Cash/Cash Equivalents funding compliance item for the 25 municipalities in the sample that were not provided with advisory technical assistance. The average rating over the seven-year period analysed was **1.29**. The lower average rating for this sample, compared with the other sample, was as would be expected for municipalities that were not provided with advisory technical assistance.

Appendix R**, Table R3** presents the ratings applied to all of the funding compliance items for the 25 municipalities in the sample that were provided with advisory technical assistance. Appendix R, **Table R4** presents the ratings applied to all of the funding compliance items for the 25 municipalities in the sample that were not provided with advisory technical assistance. The total data are available in the file named 'Funding compliance sample analysis summary.xls' on the CDRom. **Table 6.11** summarises the results presented in Appendix R.

All municipalities/all capacity - rating of weighted average result								
Financial Year:	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**Budget Year 2008/09**	**Budget Year +1 2009/10**	**Budget Year +2 2010/11**	**Ave.**
Funding measures title	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**				
Total score - BPTA municipalities/all capacity	7	7	13	4	5	7	18	8.7
Total score - no BPTA municipalities/all capacity	7	17	15	8	2	11	5	9.3
Difference	**0**	**-10**	**-2**	**-4**	**3**	**-4**	**13**	**-0.6**
All municipalities/all capacity - rating of individual municipalities average sample result								
Financial Year:	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**Budget Year 2008/09**	**Budget Year +1 2009/10**	**Budget Year +2 2010/11**	**Ave.**
Funding measures title	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**				
Total score - BPTA municipalities/all capacity	7	6	6	5	2	3	4	4.7
Total score - no BPTA municipalities/all capacity	7	6	5	6	2	2	1	4.1
Difference	**0**	**0**	**1**	**-1**	**0**	**1**	**3**	**0.6**

Table 6.11: Funding compliance weighted result rating v individual municipalities rating

The unexpected results can be explained by:

- The ratings based on the summated, collective weight financial results were considerably higher, explained by larger municipalities in both samples having better funding compliance than smaller municipalities. This would provide the South African National Treasury with

some comfort from an economic impact perspective (e.g., possible lower risk of financial default by the larger municipalities).

- The summary ratings of both samples were far more volatile under this procedure. The 'BPTA' sample had a rating low of only 4 in 2007/08 and a rating high of 18 for the 2010/11 Budget. The '*no*BPTA' sample had a different year rating low of only 2 for the 2008/09 Budget and a rating high of 17 previously in the 2005/06 budget.
- The overall average for the sample municipalities provided with advisory technical assistance and applying the collective weight financial results was **8.7** and marginally less than the **9.3** for the municipalities that were not provided with advisory technical assistance. This can be related to a higher **4.7** compared to a lower **4.1** score for the average of the individual municipal ratings.
- The overall weighted average for the sample municipalities provided with advisory technical assistance peaked at a respectable rating of 18 in 2010/11. A score of 18 on an ongoing basis would be considered MFMA funding compliant. This also provides some comfort to the South African National Treasury in that the larger municipalities were budgeting for improved funding compliance performance as the economy was improving. On the contrary, the smaller municipalities were rating at an average of only 5 for that year.

The results are displayed and compared in **charts 6.8** and **6.9**. These charts also indicate that the ongoing funding compliance rating score of 18 and the maximum total score of 36. Municipalities rating considerably lower than 18 in any one year would need to rate higher than 18 for a number of years, which is indicative of rating 2 for one or more items. Yet even the weighted average result rating did not ever exceed a score of 18 and frequently was well below that amount. This would suggest that there was little confidence that local government was moving to compliance with the funding requirements of the MFMA.

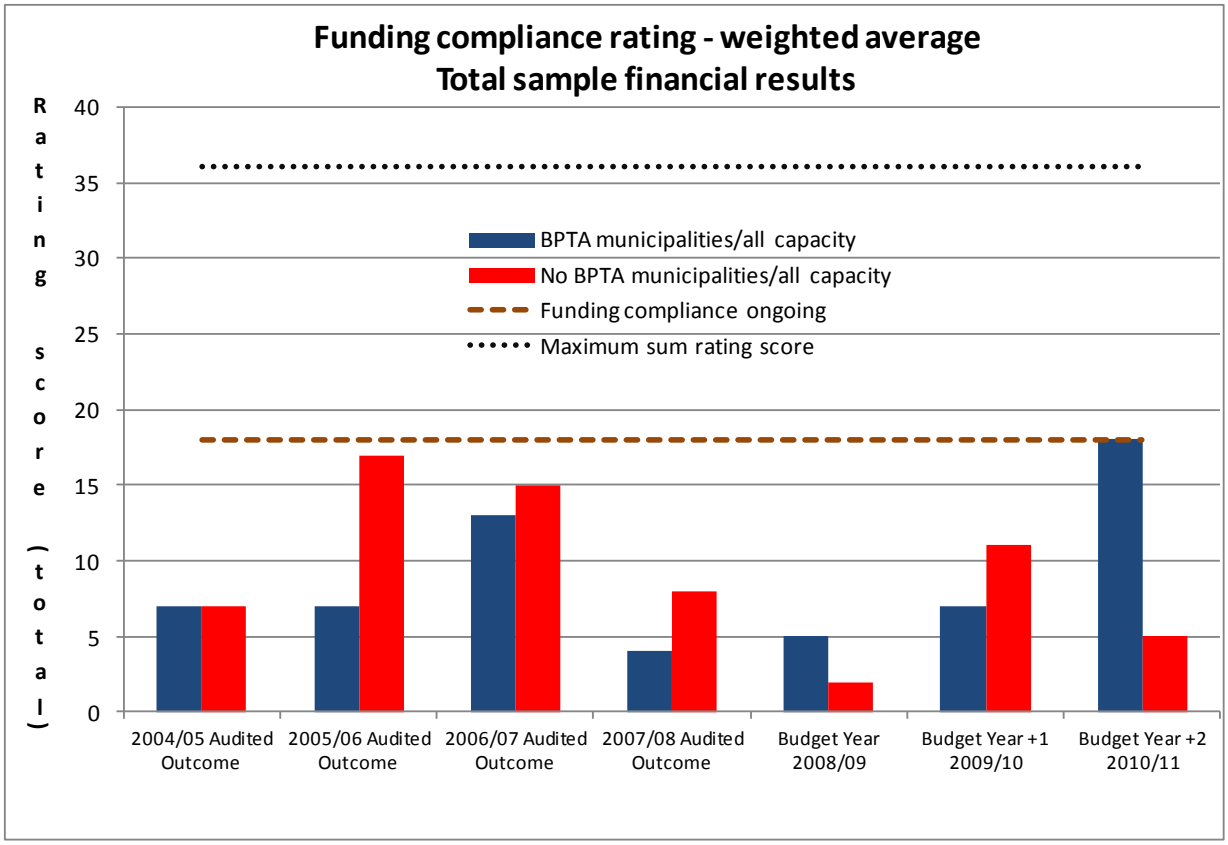


Chart 6.8: Funding compliance weighted average result rating

However, comparing **Chart 6.8** with **Chart 6.9** does reveal that the collective weighted rating approach provides far more confidence with regard to the level of funding compliance by South African local government. It is important to note that all average scores fell well below the score of 18 required to be achieving legislative funding compliance. Although the deteriorating world and South African national economy no doubt had an impact on the 2008/09 to 2010/11 medium-term budget, this does not explain the steady if not slightly deteriorating trend in prior years.

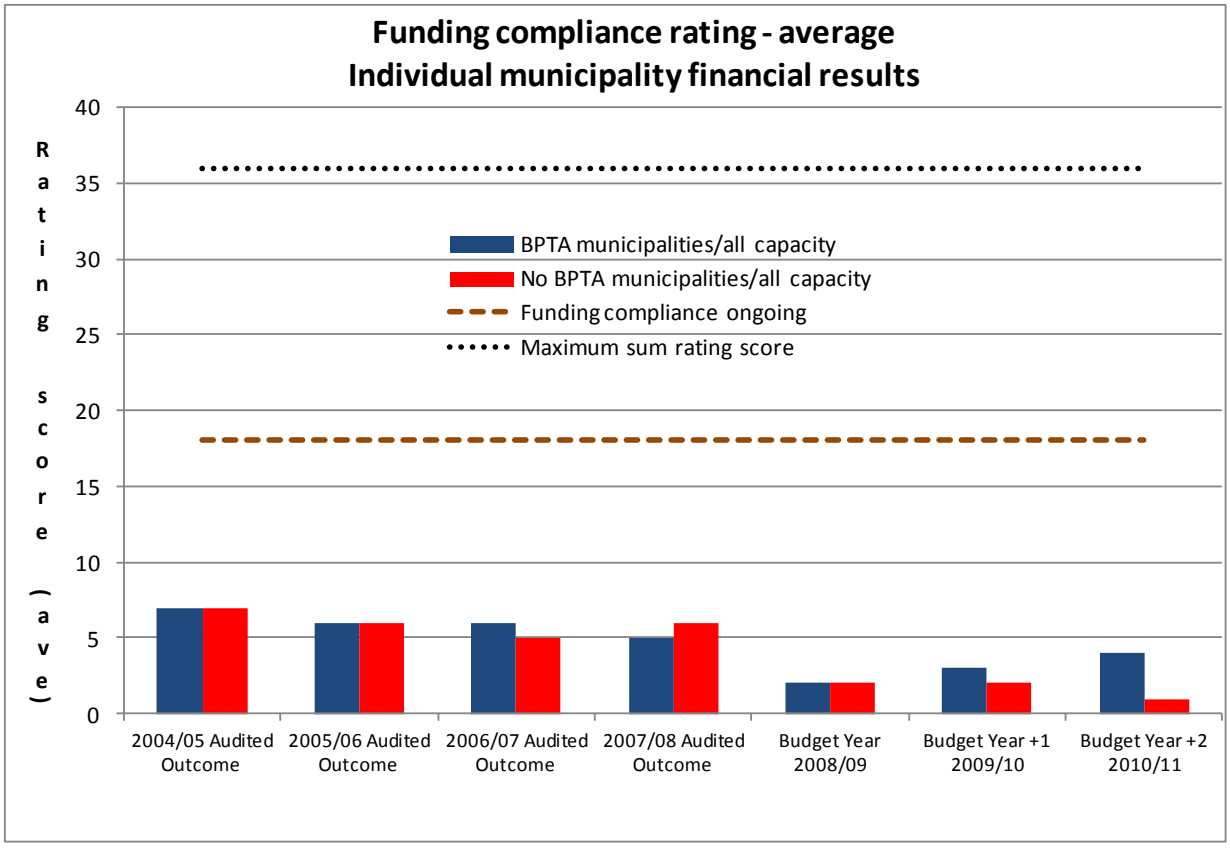


Chart 6.9: Funding compliance average individual result rating

Another key purpose of this analysis was to understand overall funding compliance outcomes relative to the size of municipalities. It is concluded that the significant difference in the results of this analysis suggests that both the summary weighted result rating and the individual municipality rating methodologies should be applied in any repeated analysis of rating funding compliance, to understand the overall local government rating and individual municipality ratings.

6.7 Advisory technical assistance benefit conclusions

Table 6.12 summarises the factored dimension scores, based on the substantiated conclusions in **Section 6.6.2** that this would be the better method for assessing the advisory technical assistance (BPTA) benefits. Note that the municipal sample provided with BPTA commenced near the beginning of MFMTAP in 2004/05 with a marginally better total weighted factor score of **12.13**, compared with the noBPTA sample of **9.03**. Both samples declined to near identical average scores of **7.96** and **7.55** by the end of MFMTAP in 2008/09. Therefore, during

MFMTAP, the municipalities that were provided with BPTA sample had average FC scores that declined to a greater extent than the noBPTA sample.

It is possible to argue that the decline in economic conditions, combined with the pressures of the capital expenditure infrastructure programs driven by the soccer World Cup in 2010, placed greater financial pressure on the larger municipalities in the BPTA sample. However, these economic conditions did not exempt them from MFMA funding compliance, so failing to adhere to MFMA funding compliance requirements is still inexcusable financial planning performance.

On the basis of the empirical evidence there is little overall support for the hypothesis that the international expert advisors (TA) assisted to improve MFMA compliance. Another possible hypothesis would be that the FC might have deteriorated at an even greater rate if the TA had not been provided but, as discussed in the previous section, without a control sample in a real life situation this is an impossible hypothesis to assess.

Total BPTA and noBPTA sample	**Total**				
	ALL SAMPLE (50)				
Financial year:	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**
Total weighted factor score	**21.16**	**22.02**	**18.52**	**23.13**	**15.50**
% change: weighted factor FC score		**4%**	**-16%**	**25%**	**-33%**
BPTA sample	66.60	55.63	52.85	51.28	33.05
Total weighted factor score	**12.13**	**10.39**	**10.63**	**11.25**	**7.95**
% change: weighted factor FC score		**-14%**	**2%**	**6%**	**-29%**
noBPTA sample	50.19	63.28	39.66	59.03	37.06
Total weighted factor score	**9.03**	**11.63**	**7.89**	**11.88**	**7.55**
% change: weighted factor FC score		**29%**	**-32%**	**51%**	**-36%**

Table 6.12: Weighted factor FC score: BPTA v noBPTA

Another aspect to emphasise is that the average scores are indicative of compliance well below what is acceptable. An ongoing weighted factor score in the vicinity of 18 would indicate compliance maintenance, but to achieve that level it would be expected that average score would need to be maintained well in excess of 18 over a number of years. This reasoning is based on scale scores for performance 'improvement' usually being a score of 2 for 18 items. Therefore, to attain the maximum score of 36 would require every measure to improve, which of course is not sustainable in the long term. The total raw score for a municipality that had achieved compliance and was continuing to comply would be approximately 18.

To understand individual municipality score variation, the value change of the entire sample between 2004/05 and 2008/09 for each dimension was plotted on a scatter graph. The BPTA and noBPTA samples were colour coded. The aim was to visually inspect the variation. The dimension that made the largest contribution to explanatory power is displayed in **Chart 6.10**.

A visual inspection of **Chart 6.10** does not reveal whether the change was materially different between the samples. Two datum outliers did not significantly impact on the solution. It is possible to view the trend displayed as marginally suggesting that Dimension 1 was a more favourable result for the noBPTA sample, further supporting a conclusion that there is little support for the hypothesis.

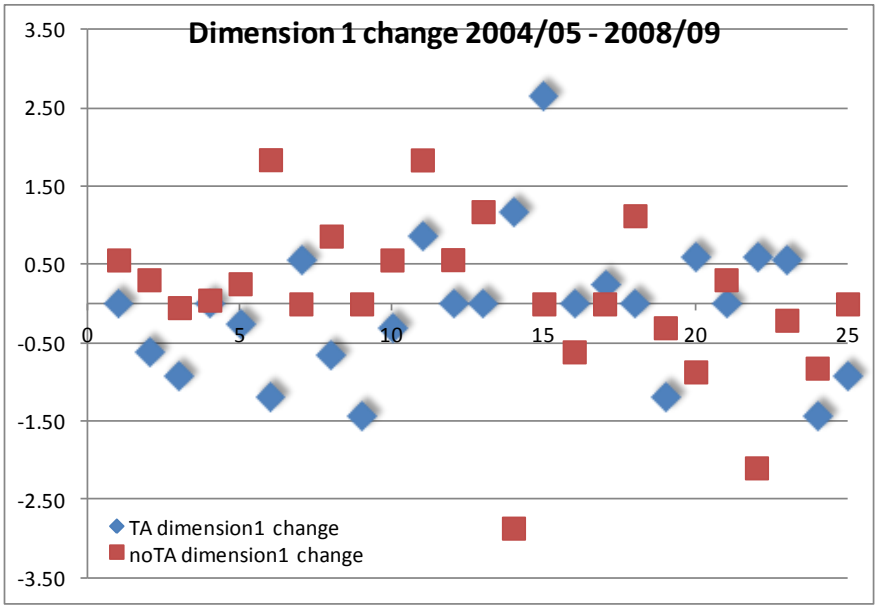


Chart 6.10: Dimension 1 change plot

The plots for dimensions 2–7 are displayed in Appendix T (Factor dimensions scatter plots). Only the scatter-plot for Dimension 3 significantly differentiates between the BPTA and NoBPTA samples. A visual inspection of the Dimension 3 plot confirms the average arithmetic analysis, that the BPTA sample marginally improved compliance over the MFMTAP period, further adding to the conclusion that the hypothesis that advisory technical assistance improved MFMTAP outcomes cannot be supported.

6.8 Political entrepreneur impact on funding compliance and/or financial health

The importance of understanding the impact of political entrepreneur (PE) is best appreciated by policy departments (e.g., national and provincial government departments in South Africa). Material impacts could be potentially obviated by quality and timely governance programs so that the PEs are fully aware of the risks of change.

Political entrepreneurs in South African local government are likely to be members of mayoral committees, and most probably even the executive mayor (EM). Mayoral committees comprise councillors from the majority ruling parties and are allocated 'portfolios' by the executive mayor similar to the National Government 'ministers' being allocated portfolios, such as Education, Health and Defence.

A key mayoral committee portfolio is usually 'Finance' or similar nomenclature such as 'Treasury'. A metropolitan municipality 'Metro' executive mayor is unique as the appointments in African National Congress (ANC) majority municipalities are made directly by the National Government President. The informal procedure is that an elected ANC councillor resigns to allow for a presidential nominee to be directly appointed and nominated as EM. Although it is a formality, due to the majority of ANC Councillors, the EM is then 'elected' by the council.

Table 6.13 displays the executive mayor status at the 21 'high-capacity'[31] municipalities before and after the 2006 local government election, the only election during the MFMTAP period:

There were 13 new EMs at the 21 municipalities after the 2006 local government election. The yellow highlights in Table 6.13 indicate a 'metro' municipality, of which three of the six 'metros' acquired a new EM after the 2006 elections.

It was originally hypothesised that the new EMs, that is, the new EMs elected at the 2006 Election, were political entrepreneurs, and that their drive to improve service delivery increased expenditure outcomes and subsequently caused deteriorating financial health. If this hypothesis was supported at the 'metros' it would have been expected that the financial health of Cape Town, Nelson Mandela Bay and Tshwane 'metros' would have deteriorated between the 2004/05 baseline and the 2008/09 measure. **Table 6.1** in Section 6.4 and **Table 6.13**

[31] Metropolitan municipalities (6) are highlighted in yellow.

combined indicated that only the City of Tshwane had both a change in executive mayor and a subsequent deterioration in financial health, which does not support the hypothesis. In addition, given that the three new EMs (Tshwane, Cape Town and Nelson Mandela Bay) had two financial years during the measurement period until 2008/09 to influence expenditure and financial outcomes, and that two of these EMs that actually presided over 'metros' that displayed an improvement in financial health, these factors also do not support the hypothesis.

No.	Municipality	Executive Mayor (Political Entreprenuer?)		
		Pre 2006 election	2006 election	Change
1	Tshwane	Smangaliso Mkhatshwa	Gwen Ramokgope	Y
2	Buffalo City	Sindisile Maclean	N.C. Peter	Y
3	Cape Town	Nomaindia Mfeketo	Helen Zille	Y
4	eThekwini	Obed Mlaba	Obed Mlaba	N
5	Johannesburg	Amos Masondo	Amos Masondo	N
6	Ekurhuleni Metr	Duma Moses Nkosi	Duma Moses Nkosi	N
7	Nelson Mandela	Nceba Faku	Nondumiso Maphazi	Y
8	Steve Tshwete	Mahlangu	Mahlangu	N
9	Mangaung	Mothupi	Caga	Y
10	Emfuleni	Thabane	Mshudulu	Y
11	Emnambethi	Mazibuko	Mazibuko	N
12	George	Swart	Petrus	Y
13	Govan Mbeki	Mdibanisi Tsheke	S.S Nkosi	Y
14	KSD	D. Mkatshwa	FRS Ngcobo	Y
15	Maluti-a-Phofung	B E Mzangwa	B E Mzangwa	N
16	Mbombela	Mhaule	Nsibande	Y
17	Msunduzi	GH Zondi	Zanele Hlatshwayo	Y
18	Newcastle	FL Duma	Phumzile Mbatha-Cele	Y
19	Polokwane	Thabo Makunyane	Thabo Makunyane	N
20	Rustenburg	Thabo Mabe	J Dibetso-Nyathi	Y
21	Sol Plaatje	TP Lenyibi	T P Lenyibi	N

Table 6.13: Municipal executive mayor changes

However, before being conclusive on this issue, a more in-depth analysis of all 'metro' and local high-capacity municipalities was then undertaken. This analysis compared the mayoral status (2006 election EM change or no EM change) with the financial health change between the 2004/05 financial year and 2008/09, the MFMTAP period, using both the raw score and factor score versions of funding compliance measurement. For the hypothesis to be supported it would be expected that a significant number of the municipalities would show a deterioration in their financial health as a consequence of political entrepreneur driven expenditure increases. **Table 6.14** displays the results, including an overall summary at the foot of the table.

No.	Municipality	Executive Mayor (Political Entreprenuer?)			Funding compliance raw score				Funding compliance factor solution			
		Pre 2006 election	2006 election	Change	2004/05	2008/09	Decline	C	2004/05	2008/09	Decline	C
1	Tshwane	Smangaliso Mkhatshwa	Gwen Ramokgope	Y	-1	8	N	YN	-0.2	2.5	N	YN
2	Buffalo City	Sindisile Maclean	N.C. Peter	Y	9	0	Y	YY	1.9	-1.3	Y	YY
3	Cape Town	Nomaindia Mfeketo	Helen Zille	Y	10	5	Y	YY	3.3	1.1	Y	YY
4	eThekwini	Obed Mlaba	Obed Mlaba	N	7	15	N	NN	2.6	-0.9	Y	NY
5	Johannesburg	Amos Masondo	Amos Masondo	N	8	-1	Y	NY	4.5	1.4	Y	NY
6	Ekurhuleni Metr	Duma Moses Nkosi	Duma Moses Nkosi	N	3	-2	Y	NY	-1.2	1.4	N	NN
7	Nelson Mandela	Nceba Faku	Nondumiso Maphazi	Y	2	4	N	YN	0.4	1.7	N	YN
8	Steve Tshwete	Mahlangu	Mahlangu	N	12	9	Y	NY	3.8	3.9	N	NN
9	Mangaung	Mothupi	Caga	Y	16	5	Y	YY	5.4	4.8	Y	YY
10	Emfuleni	Thabane	Mshudulu	Y	2	-7	Y	YY	-0.3	0.0	N	YN
11	Emnambethi	Mazibuko	Mazibuko	N	7	8	N	NN	4.2	2.2	Y	NY
12	George	Swart	Petrus	Y	10	5	Y	YY	3.7	2.1	Y	YY
13	Govan Mbeki	Mdibanisi Tsheke	S.S Nkosi	Y	3	-11	Y	YY	3.6	-1.1	Y	YY
14	KSD	D. Mkatshwa	FRS Ngcobo	Y	2	-7	Y	YY	2.7	0.0	Y	YY
15	Maluti-a-Phofung	B E Mzangwa	B E Mzangwa	N	-4	12	N	NN	1.2	4.6	N	NN
16	Mbombela	Mhaule	Nsibande	Y	9	2	Y	YY	2.0	-0.3	Y	YY
17	Msunduzi	GH Zondi	Zanele Hlatshwayo	Y	5	-6	Y	YY	3.2	0.0	Y	YY
18	Newcastle	FL Duma	Phumzile Mbatha-Cele	Y	12	7	Y	YY	0.4	3.3	N	YN
19	Polokwane	Thabo Makunyane	Thabo Makunyane	N	13	1	Y	NY	3.7	1.9	Y	NY
20	Rustenburg	Thabo Mabe	J Dibetso-Nyathi	Y	5	4	Y	YY	4.4	1.1	Y	YY
21	Sol Plaatje	TP Lenyibi	T P Lenyibi	N	6	-4	Y	NY	1.7	0.1	Y	NY
		Executive Mayor changed, but the Funding Compliance assessment didn't deteriorate					2	YN	EM Change FC factor >		4	YN
		Executive Mayor changed, AND the Funding Compliance assessment deteriorated					11	YY	EM Change FC factor <		9	YY
		Executive Mayor didn't change and the Funding Compliance assessment didn't deteriorated					3	NN	EM same FC factor >		3	NN
		Executive Mayor didn't change AND the Funding Compliance assessment deteriorated					5	NY	EM same FC factor <		5	NY
					10%	15%	21		19%	31%	21	
					52%	85%			43%	69%		
					14%	38%			14%	38%		
					24%	63%			24%	63%		
					100%				100%			

Table 6.14: Executive mayor changes and funding compliance

The quantitative analysis (QA) conclusions were as follows:

1. The funding compliance ***raw*** score: **52%** of all High-Capacity (HC) municipalities had a change in executive mayor and displayed deteriorating funding compliance. There were 13 HC municipalities that had a change in EM and of those 11 (or **85%**) had a deteriorating funding compliance score.

2. Funding compliance weighted ***factor*** score: **43%** of all HC municipalities had a change in executive mayor and deteriorating funding compliance score. There were 13 HC municipalities that had an EM change and of those nine (or **69%**) had deteriorating funding compliance.

The raw score results are displayed in **Chart 6.11** and the factor score results are displayed in **Chart 6.12**.

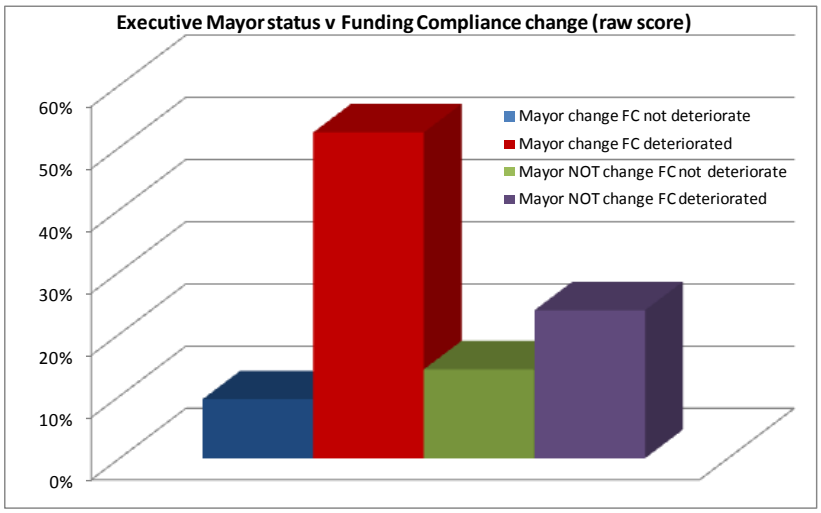


Chart 6.11: Executive mayor status v Funding compliance (raw score)

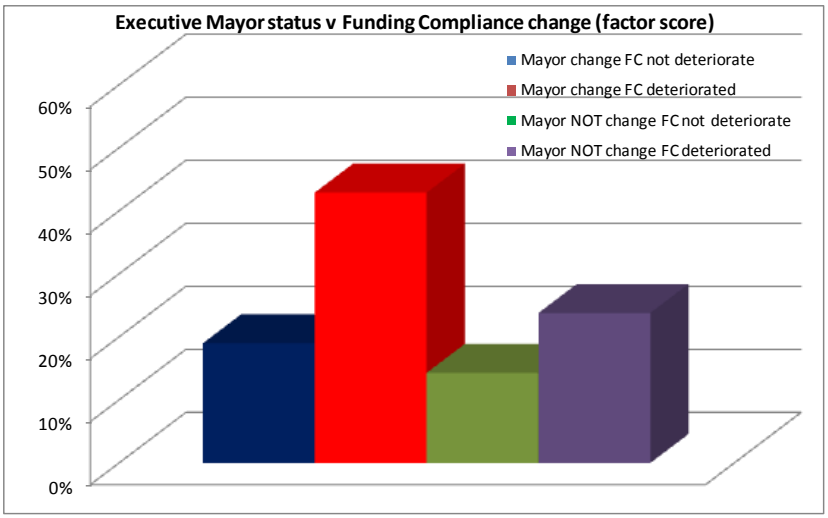


Chart 6.12: Executive mayor status v Funding compliance (factor score)

A reasonable conclusion is that a significant correlation between EM change and financial health deterioration does exist, and that this supports the hypothesis of the impact of a political entrepreneur. This does not allow a conclusion that a cause/effect relationship exists, as another valid proposition is that municipalities with deteriorating financial health are more likely to encourage the councils or the South African President to also change EM. Also, the QA only annualises one election period and other political entrepreneurs with power would also exist within the broader mayoral committee.

The political situation would indicate that unsuccessful mayors would more likely be associated with a failure to achieve service delivery improvement objectives with a significant emphasis on increased infrastructure spending to provide basic services. Therefore, if

significant capital expenditure increases were also related to EM change and deteriorating financial health this would add credibility to the hypothesis. To exclude the impact of national and provincial infrastructure policy from this QA such as World Cup stadiums built by municipalities, expenditure analysis was restricted to 'own' funded capital expenditure because World Cup funding was predominantly national funds.

Table 6.15 displays the results of the QA that compared a change in EM, potentially representing an incoming political entrepreneur, and a change in capital expenditure being measured by actual expenditure in 2004/05 and budgeted expenditure in 2008/09.

No.	Municipality	Executive Mayor (Political Entreprenuer?)			Capital expenditure/budget			
		Pre 2006 election	2006 election	Change	%	Increase	2004/05	2008/09
1	Tshwane	Smangaliso Mkhatshwa	Gwen Ramokgope	Y	72.9%	Y	1,272,704	2,200,284
2	Buffalo City	Sindisile Maclean	N.C. Peter	Y	284.1%	Y	85,483	328,319
3	Cape Town	Nomaindia Mfeketo	Helen Zille	Y	220.1%	Y	667,767	2,137,376
4	eThekwini	Obed Mlaba	Obed Mlaba	N	78.5%	Y	1,547,793	2,762,458
5	Johannesburg	Amos Masondo	Amos Masondo	N	103.4%	Y	1,622,035	3,298,804
6	Ekurhuleni Metr	Duma Moses Nkosi	Duma Moses Nkosi	N	321.5%	Y	414,959	1,748,856
7	Nelson Mandela	Nceba Faku	Nondumiso Maphazi	Y	144.3%	Y	449,429	1,098,153
8	Steve Tshwete	Mahlangu	Mahlangu	N	450.2%	Y	43,380	238,669
9	Mangaung	Mothupi	Caga	Y	32.5%	N	173,865	230,309
10	Emfuleni	Thabane	Mshudulu	Y	68.6%	Y	97,160	163,796
11	Emnambethi	Mazibuko	Mazibuko	N	-36.4%	N	43,120	27,413
12	George	Swart	Petrus	Y	157.3%	Y	96,810	249,125
13	Govan Mbeki	Mdibanisi Tsheke	S.S Nkosi	Y	128.2%	Y	14,606	33,334
14	KSD	D. Mkatshwa	FRS Ngcobo	Y	-28.5%	N	3,024	2,161
15	Maluti-a-Phofung	B E Mzangwa	B E Mzangwa	N	545.3%	Y	11,435	73,795
16	Mbombela	Mhaule	Nsibande	Y	877.4%	Y	40,461	395,446
17	Msunduzi	GH Zondi	Zanele Hlatshwayo	Y	-35.4%	N	232,234	150,000
18	Newcastle	FL Duma	Phumzile Mbatha-Cele	Y	-54.1%	N	38,300	17,580
19	Polokwane	Thabo Makunyane	Thabo Makunyane	N	393.8%	Y	90,991	449,347
20	Rustenburg	Thabo Mabe	J Dibetso-Nyathi	Y	67.5%	Y	53,127	88,968
21	Sol Plaatje	TP Lenyibi	T P Lenyibi	N	136.0%	Y	26,205	61,850
Change code					124.3%	42.1%	7,024,888	15,756,045
(YN) YchangeNincrease = Executive Mayor changed and capital expenditure increase < 42.1%					4	YN	19%	31%
(YY) YchangeYincrease = Executive Mayor changed and capital expenditure increased > 42.1%					9	YY	43%	69%
(NN) NchangeNincrease = Executive Mayor didn't change and capital expenditure increase < 42.1%					1	NN	5%	13%
(NY) NchangeYincrease = Executive Mayor changed and capital expenditure increase > 42.1%					7	NY	33%	88%
					21		100%	

Table 6.15: Executive mayor status v Capital expenditure trend

The buff-coloured highlighted results indicate an EM change and a significant CPIX+ capital expenditure increase. Blue indicates a no EM change and a CPIX+ capital expenditure increase. The compounded CPIX for the period 2004 to 2009 was 42.1%. The QA's base assumption was that the 'net' increase in 'own-funded' capital expenditure/budget would need to be greater than the compounded CPIX to be in the political entrepreneur influence realm. In other words, the municipality experienced extraordinary increases in the capital expenditure measure, compared with a municipal revenue percentage increase to the maximum of the inflation prediction.

The QA indicated that, of the 13 municipalities experiencing a change in EM, nine (69%) also experienced a capital expenditure increase greater than the CPIX. The total increase in expenditure for these nine municipalities was a massive 99% greater than CPIX. However, of the eight municipalities that didn't change their EM, seven increased capital expenditure greater than the CPIX. The increase was 88% greater than CPIX.

It is concluded that whilst there is some evidence of political entrepreneur impact on municipal financial health the one election cycle and capital expenditure increases are not consistently correlated to suggest any cause and effect. Sixteen municipalities had significant capital expenditure increases between 2004/05 and 2008/09, but 13 had an EM change. Of the 16 municipalities that had a significant capital expenditure increase, nine municipalities had a new EM after 2006, and seven had a continuing EM.

6.9 Municipal cost index - impact on performance assessment

The purpose of this section is to specifically explain the impact of one of the funding compliance performance measure items' influence, being the measure related to property tax and service charge/tariff increases, on the evaluation of municipal performance. The National Treasury's funding compliance assessment includes a rating of the difference between the Reserve Bank's (South Africa) inflation target and the annual property tax and service charge/tariff increases imposed by municipalities.

The funding compliance measure (item no. 5) is expressed as the property tax and service charge revenue percentage change, taking into consideration increases or decreases in consumer debts, of the municipality deducting the Reserve Bank Consumer Price Index (CPIX) target.

In advance of the annual local government budget process, prior to municipalities 'tabling' their MTREFs for the next financial year, the National Treasury prepares an annual 'Budget Circular' to emphasise to municipalities various rules and conditions that will apply to their budgets. A regular component of the circular is to advise municipalities of the National Treasury's inflation predictions. The purpose of the advice is to encourage all municipalities to limit their property tax and service charge/tariff increases (mainly related to electricity, water and refuse tariffs) to within the Reserve Bank target limit. The premise is that, as local government taxes and charges have a material impact on inflation, municipal rates and tariff increase constraint will assist with National Government macroeconomic objectives.

Municipalities are therefore also being advised to give consideration to limiting property tax and service charge increases to within the Reserve Bank inflation target. For the entire MFMTAP period, the Reserve Bank target was an annual inflation rate held between the range of 3% and 6%. **Chart 6.13** displays South African inflation (CPI during the period 2004 to 2011), corresponding to the MTREF analysis period of this thesis, and the Reserve Bank inflation target range. The chart illustrates that inflation, as measured by CPI, increased well outside the Reserve Bank target range during the MFMTAP period, but the CPI returned to within the target range at the end of the decade.

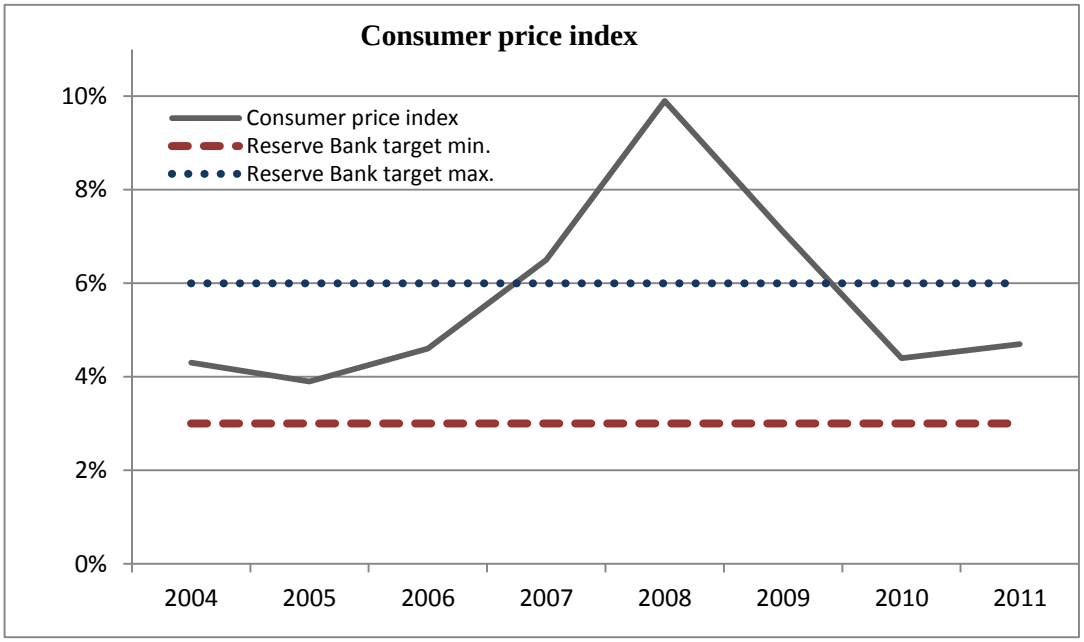


Chart 6.13: South Africa CPI 2004–2011

National Treasury's desire to constrain municipal tax and service charge/tariff increases does not have any mandatory legislative backing. A key reason for this is that local municipal conditions will be very different and drive a local response to revenue increases. Municipalities experiencing rapid growth or subject to greater service delivery backlogs, as well as those with previous conservative revenue increase policies, may experience the particular need for annual increase beyond the Reserve Bank targets or the National Treasury circular advisory.

One key reason for a municipality diverging from Reserve Bank targets is the differentiation between constituent affordability measurement and measurement of service delivery costs.

A similar challenge was faced by local government in Australia, including the City of Adelaide (South Australia) in the early 1990s. Management then was trying to understand the difference between escalating costs of service delivery and consumer inflation. Ratepayers and councillors would persistently argue from an affordability perspective that annual property tax and service charge increases should be limited to consumer price measure (CPI) increases, the CPI measure being considered a measure of ratepayer ability to pay. However, management also appreciated that if costs of service delivery – mainly labour, contracted services and materials – increased at a greater rate than inflation, then a CPI-based revenue increase would probably contribute to deteriorating financial performance. Therefore, the City of Adelaide introduced considering both the CPI forecasts as well as a local government 'cost of services' index as part of budgetary considerations, and therefore calculating a municipal cost index.

A municipal cost index (MCI) was not new, having been published in the United States since 1978 by American City and County. Their MCI was designed to determine the impact of inflation was having on the cost of providing municipal services (American City and County, 2012). However, the concept later gained acceptance within South Australian local government, which encouraged the South Australian Local Government Financial Management Group (SALGFMG) to formally endorse the process and obtain consulting assistance to develop a Local Government Price Index (LGPI).

The South Australian Local Government Association now annually publishes the LGPI on their website to assist South Australian councils with their budget deliberations (Local Government Association of South Australia, 2006). Similarly, a Local Government Cost Index (LGCI) is also used in New South Wales (NSW). In NSW, the cost survey and recommendation to local councils is made by the Independent Pricing and Regulatory Tribunal (IPART) (Independent Pricing and Regulatory Tribunal, 2010). The objective of providing this information is to provide a balance of information for budgetary consideration that enables councils to simultaneously appreciate the impact of inflationary pressures on the ratepayers' ability to pay property taxes and other charges, but also understand the shift in the cost of inputs that a local authority must purchase to deliver services.

The concept was first introduced to the City of Tshwane, South Africa, encouraged by advisory technical assistance, at a time of rapidly declining consumer inflation but significant municipal input (salaries, materials, contracts etc.) price increases. Budgeted revenue increases based on moderating consumer inflation were causing resource pressures at the

municipality and more broadly within local government. The measure's name was termed the Municipal Cost Index (MCI). The MCI was specifically constructed to measure the weighted prices of the labour and other resources that the municipality purchased. To improve organisation performance the objective was established by the council that a tax or tariff increase should be 0.5% less than the MCI.

For the 2008/09 MTREF the MCI was assumed to be approximately equal to the CPIX because the two measures had converged. But, in 2005 the MCI at the City of Tshwane was estimated to be 6.7% whereas the CPIX was advised at 4.8% (Nitsikeni et al., 2005), a significant difference of 1.9%. The operating revenue was forecast at Rand 7.28 billion, therefore the 1.9% difference represented over Rand 138 million.

This is relevant because the council then viewed itself as being responsible in targeting a revenue budget increase of 6.2% (0.5 less than the MCI), yet this would be outside the Reserve Bank target and the preferred National Treasury limit to tariff increases.

The importance of this discussion is that one measure of funding compliance is adherence to the Reserve Bank target. This is measured by the deducting the actual or budgeted increase of each municipality from the Reserve Bank target. **Table 6.16** displays the rating and scoring procedure that applies to this measure.

Service charge revenue % change - macro CPIX target exclusive	% result < 1%	% result < 2%	% result = 0	% result > 0%	% result 'negative' or > 2%
	2	1	0	–1	–2
	The variation to the macro CPIX target is being used as a proxy for real growth in revenues, although in periods where inflation exceed the target rate this may be an inappropriate proxy. Negative % results indicate that revenues are declining in real terms. Positive % increases can indicate (unless proven to be real growth and consumption) price increases greater than National Government macro policy.				

Table 6.16: FC service charge scale index scores

In **Table 6.16** the National Government macro policy refers to the Reserve Bank inflation target. The maximum target in every year of MFMTAP was 6%. Therefore, if a municipality had a property tax and service charge/tariff increase of 6.5% it would score a rating of 2 as a funding compliance score, being 6.5% less 6.0% equals 0.5%, which is less than 1% over the Reserve Bank target. The 'less than 1%' allowed for a real growth in revenues caused by annual household real growth. However, if a municipality proposed revenue increases of 8.5% the funding compliance score would be –2, being 8.5% less 6% equals 2.5%. Similarly, a municipality that had 'negative' revenue change, relative to the Reserve Bank's maximum

target, it would also score a –2. This 'negative' comparison scoring was justified on the basis that a municipality that proposed revenue increases that failed to keep pace with inflation was unlikely to be raising sufficient revenue to meet the cost of service delivery expectations.

However, the Reserve Bank inflation target was used as a funding compliance measure proxy from the perspective of National Treasury of the average local government preferred outcome. Nonetheless, localised growth conditions could indicate that there was substantial revenue growth well above the assumed growth limit that was causing tariff increases well in excess of the Reserve Bank annual target of 6%. An alternative approach would be to use the Municipal Cost Index (MCI) in the revenue increase measurement of the Funding Compliance assessment, which would be municipal growth neutral, to measure whether local government was contributing to cost-push inflation. A detailed examination of this option is beyond the resources of this thesis, as it requires an in-depth management knowledge of the budget cost structure of each municipality, separating staff number and material volume growth from the price of those inputs to understand the real change in costs that are volume growth neutral. The analysis included, for illustrative purposes only, the City of Tshwane's cost increases.

Therefore, the question posed was: If the MCI was used as an alternative base instead of the Reserve Bank benchmark, would there be a significant difference in this aspect of the funding compliance assessment? In its 2005/06 budget report the City of Tshwane published the history of the CPIX, MCI and average tax and tariff increases. This information is displayed in **Table 6.17**.

Year End	CPIX	MCI	Council Tariff Increase
2001/02	5.7%	5.9%	6.1%
2002/03	9.8%	6.9%	5.5%
2003/04	6.4%	9.4%	8.0%
2004/05	4.1%	7.5%	7.0%
2005/06	4.8%	6.7%	3.9%
5 years	35%	42%	34%

Table 6.17: City of Tshwane Municipal Cost Index series
(Nitsikeni et al., 2005, p.7)

To understand the scoring difference a table was prepared, based on the historical information presented in **Table 6.17**, to calculate the funding compliance scores using both the Reserve Bank and MCI as a basis for the funding compliance score determination for comparison. The results of this analysis are shown in **Table 6.18.**

Financial Year:	**2001/02**	**2002/03**	**2003/04**	**2004/05**	**2005/06**
Description	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**	**Audited Outcome**
CPIX	5.7%	9.8%	6.4%	4.1%	4.8%
Reserve Bank range - maximum target	6.0%	6.0%	6.0%	6.0%	6.0%
MCI - City of Tshwane	5.9%	6.9%	9.4%	7.5%	6.7%
City of Tshwane - property tax and tariff increase	**6.1%**	**5.5%**	**8.0%**	**7.0%**	**3.9%**
Property tax and tariff increase less **Reserve Bank target**	**0.1%**	**-0.5%**	**2.0%**	**1.0%**	**-2.1%**
Property tax and tariff increase less **MCI**	**0.2%**	**-1.4%**	**-1.4%**	**-0.5%**	**-2.8%**
Funding compliance rating scale score - Reserve bank target based	2	-2	1	2	-2
Funding compliance rating scale score - MCI based	2	-2	-2	-2	-2

Table 6.18: Funding compliance score: Reserve Bank v MCI base

Table 6.18 illustrates the funding compliance score difference between the two methodologies. The rating scores for 2001/02, 2002/03 and 2005/06 were identical. However, in 2003/04 and 2004/05 the rating scores were 1 and 2 comparing the tax/tariff increase to the Reserve Bank maximum target, but were –2 and –2 by applying the MCI as a base. The Reserve Bank benchmark therefore presented this funding compliance item in a positive light with positive scores, yet an MCI-based score was negative. The total score of the five-year period analysed using the Reserve Bank target was +1. The total score of the five-year period using the MCI approach was –6.

Therefore, the MCI-based calculations indicate that, between 2001/02 and 2005/06, the property tax and tariff increases in four years were less than the municipality's cost of service delivery, and in three years the variations were significant. It is probable that service delivery performance improvement might account for part of the variation, as it is also probable that funds available for operations and asset maintenance would be declining.

It is therefore concluded that, based on these very limited data, an MCI approach is worthy of further investigation to be used as a proxy for the Reserve Bank target in the funding compliance scale. A supporting factor is that an MCI benchmark varies with the economy, whereas the Reserve Bank target is likely to be conservatively static.

6.10 Performance rating trend - financial condition prediction

The purpose of this section is to present a view that the quantitative analysis (QA) techniques provide a basis for predicting and comparing the financial condition or health of local government. Prediction is defined as being capable of application to medium-term financial plans to assess funding compliance impact. This conclusion would be useful for local government management and elected officials and members, including government departments with local government oversight responsibilities, to provide an assessment technique for evaluating their decisions and program implementation.

It is contended that a robust approach for predicting municipal financial condition can be achieved. A logical proposal for financial condition prediction should contain the following key elements:

- The measurements used in the tools are collectively a 'true', or at least are vigorous measures, of financial condition and performance. Chapter 5 described the basis of the funding compliance instrument and earlier in Chapter 6 the financial health instrument was explained. The funding compliance instrument is grounded in particular in the South African legislation basis, but its measures include performance indicators that are also well grounded as acceptable measures of financial condition and performance internationally.
- The measurement tools are generalisable to the variability of local government structure and size. In this regard the funding compliance instrument successfully was applied to a large sample (50) of South African municipalities, including the large 'metros', large, medium and small local municipalities, distributed throughout the country. **Annexure Zc** includes maps of the sample municipalities, to illustrate sample municipality dispersion. The maps are categorised by the nine South African provinces. Municipal demarcation in the year 2000 and continuing into the decade included cross-border municipalities, being those that had boundaries that straddled provincial boundaries. However, these have subsequently been realigned and phased out.
- The financial health measurement tool was grounded in Australian local government, albeit adapted to South African conditions. Its Australian birth also makes it usable in that country, and indicates its generalisability for prediction and its qualitative and quantitative aspects support the funding compliance assessment tool.
- The measurement tools can be effectively and efficiently applied, especially in the context of independent analysis. In this regard, the funding compliance tool is especially supported

as a self-test instrument that forms part of the legislated annual MTREF requirements of all South African municipalities. Municipalities are required to comprehensively complete a template that contains the funding compliance performance measures, which can be simply transformed to the funding compliance scale instrument.

Therefore, it is concluded that the financial assessment information is readily available. The QA undertaken to determine factored dimensions provides a basis for focussing on less than the 18 funding compliance measures, improving efficiency analysis. This would be a more robust conclusion if the QA was applied to a another sample after the South African local government 'budget' regulations have been bedded down, that is, five years from 2010/11. Therefore, it is also concluded that the funding compliance scale instrument could be incorporated into the National Treasury assessment template, and a formula used to determine the scale scores, to further automate the measurement tool and to predict the overall financial health trend for a municipality.

6.11 Conclusion

This chapter has presented the findings from the quantitative analysis of the funding compliance and financial health measurement instruments, as well as a discussion of the impact of political entrepreneurs and the municipal cost index, mainly in the South African local government context. Chapter 7 describes the analysis undertaken to ascertain whether the funding compliance and financial health instruments have general application in a developed country context.

Chapter 7: Funding compliance/rating scale generalised

7.1 Introduction

Chapter 7 expands upon the quantitative analysis described in Chapter 6 with the objective of establishing whether the funding compliance and financial health instruments have general application in a developed country context. South Africa, identified as a developing country, has been the focus of analysis thus far, but broader application of the instruments would improve their credibility. It needs to be emphasised that the key purpose of Chapter 7 is to ascertain if the Australian sample of local governments is 'capable' of being analysed, with the financial health analysis results themselves being only ancillary to the chapter's main aim.

Section 7.2 presents the quantitative analysis for two Australian capital city local governments (Brisbane and Sydney), applying the budget funding compliance technique developed during the South Africa MFMTAP and the rating scale that was created and discussed in Chapter 4, to ascertain if the procedures can be applied in a developed country context.

Section 7.3 discusses whether the financial health instrument, similar to the application of the instrument to the South African sample in Chapter 6, can be utilised to understand the financial health of the Australian local governments.

Section 7.4 discusses and reaches a conclusion regarding the financial health/condition measurement instrument generalisability to a developed country context.

7.2 Australian local governments - budget funding compliance instrument application

7.2.1 Introduction of the instrument application to Australian conditions

Brisbane City Council (BCC) and Sydney City Council (SCC) were selected for analysis because of their Australian local government technical assistance influence on South African reform, the writer's 'in-country' experience, and long-established Australian local government accrual accounting and budgeting procedures. Local government (LG) in Australia is the responsibility of state governments and, although the overall financial management requirements for local government are similar, there are also distinct differences both among states and among local authorities, including their historic delivery of particular

services and functions. Although the delivery of electricity and water/sanitation services have been core local government functions in some Australian states, these have evolved to state-wide and privatised entities in most jurisdictions. South African municipalities commonly distribute, and sometimes the larger municipalities generate, electricity and most are involved in provision of water/sanitation services. Electricity generation and distribution has involved significant investment in power generation and distribution infrastructure assets.

BCC is unique in the Australian context because of comparative size to large South African 'metros' and breadth of service delivery. SCC, another capital city, was a good candidate for the funding compliance and financial health analysis technique application, given its size and former finance manager's involvement in MFMTAP. To avoid repetition, as there are a number of measures and formats required by law in South Africa but not required in Australia, an in-depth analysis was undertaken and presented of the BCC and only a supplementary overview is presented for the SCC.

7.2.2 Brisbane City Council (BCC)

7.2.2.1 Background

The BCC's Chief Executive Officer agreed to participate, and referred the writer's research proposal to the Chief Financial Officer (CFO). BCC's assistance was greatly appreciated, and it is hoped BCC will benefit from the independent analysis and recommendations contained herein. The analysis findings were the subject of a separate report to the CFO.

For analytical purposes, the BCC's financial information, audited outcomes since 2003/04 and the budget until 2009/10, were assembled and restated to align to the legislated South African budget format for ease of comparison. A key difference between the South African and Australian budget format requirements is that Queensland law does not require medium-term budgets, and the budget focus is on an annualised budget.

An imposed research rule, to emulate the South African budget and public consultation process, was that BCC were requested to provide only publicly available information for this research. The 2010/11 information was an 'anticipated outcome' dataset. The analysis presented here is therefore generally repeatable by anyone interested in BCC financial management using 'publicly' available information.

7.2.2.2 BCC analysis and conclusions

The funding compliance analysis technique displayed promise for international application in a developed country, but this proposition was qualified due to BCC's uniqueness, predominantly its size and breath of services delivered, relative to most Australia local authorities. An absolute conclusion regarding the Australian application of the technique must be reserved without a larger Australian sample, although similar findings were also discovered at the SCC, as described in Section 7.2.3.

BCC's budget funding outcomes displayed healthy signs, although the 2007/08 result (surplus) and a slightly deteriorating funding trend over time are worthy of management investigation. The funding compliance measurement revealed that BCC's funding performance and financial position management could be enhanced, more transparent and understood if:

1. The medium-term budget (MTB) targets were to be incorporated into the BCC's budget formulation and formats. MTB benefits have received broad international support, which for brevity is not repeated here, but suffice to say users of BCC information presented in a MTB context would achieve an improved understanding of their underlying funding strategy and trends.
2. Separately disclosing the 'capitalised expenditure' credit (recovery) to the Budgeted Income Statement and presenting the 'operational' cost items net of the amount 'capitalised', would improve the meaning of the amount described to be transferred to Fixed Assets in the Balance Sheet. In simple terms, the cost type – such as employee costs, materials or contractors – of capital expenditure is only summarised with all other operating costs in the Statement of Comprehensive Income, but the total expenditure is reduced by crediting the total expenditure amount transferred to capital. This means that it is not possible, for example, to extract the total costs of employees attributable only to operational expenditure separate from employee costs spent on capital projects. This cost information would provide valuable user and benchmarking information, enabling an operational impact assessment of key cost items, such as operational employment costs, compared with the employment cost levels of other local governments. A case also exists to propose that the current BCC financial statement presentation does not comply with international accounting standards and concepts because of the cost type mix with 'functional' information, as the capital budget credit recovery is functional and, therefore, this mixture risks confusing users.

3. The BCC ‘Budget’ and ‘annual financial statements’(AFS) should separately disclose the strategy and operating expenditure, deployed to the repair and maintenance (R&M) of assets and capital expenditure, and be allocated between amounts allocated to new assets and existing assets’ renewal or rehabilitation. Whilst this asset management information is available internally to management, it would be beneficial to be made publicly available for others to make conclusions about the adequacy of funds deployed to protect revenue-generating assets beyond the short term. It is recognised this allocation can be somewhat arbitrary, especially where R&M extends an asset’s useful life or asset renewal is combined with a service level expansion. However, the requirement is mandatory for South African local governments (National Treasury 13, 2008) and South Australian local governments.

4. The capital budget ‘funding’ contains the planned expenditure program and the expected value of assets transferred, for which there would not be a cash outflow. The cash and non-cash items mix would be confusing to many except experienced local government finance analysts, requiring assumptions to understand how a ‘donated asset’ could fund a capital program. Inexperienced users could mistakenly believe a donated asset is an investment receipt. In reality, these asset value credits, mainly of a community infrastructure nature, impose a long-term future expenditure obligation on the BCC to maintain and renew the assets for which responsibility has been assumed.

5. The capital budget questionably includes ‘loan repayments’ as a funds application, confusing budget users. Capital expenditure, requiring capital funding, should meet the accounting standard test of asset creation. A loan repayment would usually comprise an interest expense and principal that reduces a liability, neither component meeting the ‘capitalisation’ test.

6. BCC should include a cash backed reserve/accumulated surplus reconciliation equivalent to that required by the South African legislation, providing a relatively easily understood explanation of the relationship between accrual budgeting and the cash position. This is especially important because of BCC’s intelligent but less transparent use of the Queensland Treasury Corporation’s (QTC) borrowing facility to minimise interest costs. The South African format reconciliation proves that BCC is in a stable funding position, information not otherwise transparent. BCC’s cash backed reserve/accumulated surplus reconciliation is presented in Appendix Z1.

7. BCC should separately disclose electricity and water distribution loss outcomes and targets. These are internationally accepted key indicators for utilities and, combined with simple explanation of technical losses are crucial for users to understand revenue performance and the relationship to asset maintenance.
8. The BCC's Corporate Plan would be enhanced by a medium- or long-term financial plan that explains the plan's prudent sustainability.

The detailed BCC financial information is presented in **Appendices U to Za**. However, despite this detailed information, a key challenge was to understand the overall trend, given that some financial measures perform in opposite directions. The rating scale index developed in Chapter 4 was applied to determine measurement scores and a total sum performance score. Although score summing is questionable, because of the criteria correlation, a similar rating technique is applied elsewhere internationally in financial performance analysis, such as the USA (Honadle et al., 2004).

Table 7.1 presents the raw rating scores[32] that are also represented in an accompanying **Chart 7.1**. The chart contains a 'trend' line, trending negative. Based on a continuing average good practice score of approximately 18, not only do individual years fall below good practice (2004/05, 2007/08), but 2008/09 forecasts and the 2010/11 budget also are below this level. The key cause for the negative trend was the poor overall result in 2007/08. Had the 2007/08 score been similar to the two prior financial years the trend line would be virtually flat. The deteriorating result could also be due to:

- Data availability; for example, publicly unavailable asset renewal and repairs/maintenance information would likely improve the scores.
- Determining comprehensive Australian local government context was unattainable within the scope of this research, limiting comparison, unlike the South African data where a sample of 50 municipalities enabled detection of industry trends.
- The negative trend may be partly related to deteriorating Australian economic conditions and volatility.

[32] Although the maximum annual summated score is 36 (18 measures * 2) in any one financial year higher scores relate to improving conditions which are unlikely to continuously occur (or would be inappropriate as it might indicate overly conservative levels of cash being extracted from constituents). Rating scale analysis suggests that on average a 'best practice' outcome would only yield a total score of approximately 18 each year. Refer **Annexure U** for the BCC Funding Measurement table on which the ratings scale scores are based.

Brisbane City Council funding measurement performance trend scales									
Financial Year:	Measure Number	2003/04	2004/05	2005/06	2006/07	2007/08	Budget 2008/09	Budget 2009/10	Budget 2010/11
Funding measures title		Audited Outcome	Audited Outcome	Audited Outcome	Audited Outcome	Audited actual			
Cash/cash equivalents at the year end	1	2	0	2	0	0	2	2	0
Cash equivalents + investments less applications	2	1	0	2	2	2	2	2	2
Cash at the year end:% of monthly employee/supplier payments	3	1	1	1	1	1	1	2	2
Surplus/(Deficit) excluding depreciation offsets	4	1	0	1	2	0	2	2	0
Service charge revenue % change - macro CPIX target exclusive	5	1	-2	1	-2	-2	-2	-2	-2
Cash receipts % of Ratepayer & Other revenue	6	1	1	2	2	0	0	2	2
Debt impairment expense as a % of total billable revenue	7	1	2	2	2	1	2	1	1
Capital payments % of capital expenditure	8	2	2	2	2	2	-2	1	-2
Borrowing receipts % of capital expenditure (excl grants)	9	2	2	2	2	2	1	-2	2
Transfers/Grants % of Govt. legislated/gazetted allocations	10	2	2	2	2	2	2	2	2
Current consumer debtors % change - incr(decr)	11a	1	-2	-2	2	-2	2	-2	2
Long term receivables % change - incr(decr)	11b	1	0	0	0	2	-2	2	0
Repairs & Maintenance % of Property Plant & Equipment	12	-2	-2	-2	-2	-2	-2	-2	-2
Asset renewal % of capital budget	13	-2	-2	-2	-2	-2	-2	-2	-2
Financial Performance Budget result (surplus/deficit)	14	1	1	1	2	1	2	2	1
Financial Position Budget	15	2	2	1	2	2	1	2	2
Cash flow budget	16	2	1	2	1	1	2	2	1
Other key performance measures	17	0	0	0	0	-1	0	-1	0
Total score		**17**	**6**	**15**	**16**	**7**	**9**	**11**	**9**

Table 7.1: BCC funding measurement trend

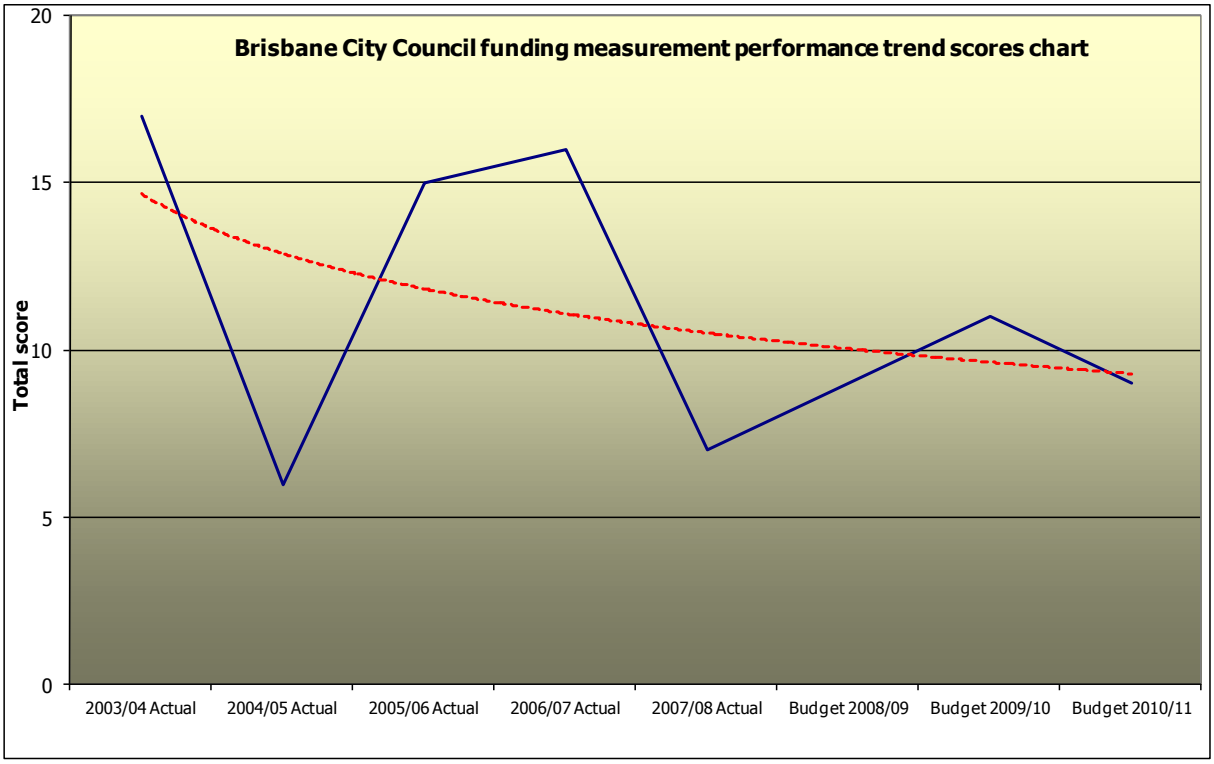


Chart 7.1: BCC funding measurement trend

7.2.2.3 BCC funding measurement

The funding measures table was derived from data collected in other financial analysis tables. Commentary on each measurement item appears after the following South African guidelines quote, which describes the sequence of the funding measures. The sequencing of the measurement questions was described as:

> *The sequence of the questions is deliberate, progressing from simplicity to complexity. Initial questions focus on cash fundamentals, then questions relating to collection rates and revenue growth, and finally with questions about revenue protection and overall financial outcomes.*

> *It is accepted that there could be a range of other questions that could be included in such an analytical tool. However, another aim is to keep the procedure to the minimum level that can provide a Council and other stakeholders with compliance confidence without becoming overly unwieldy and complex.* (National Treasury 10, 2007, p.3)

This sequence of analysis is equally applicable to the Australian local government context, particularly when a local government authority has a revenue mix comprising property tax and substantial forms of other revenue services revenue, such as water distribution, transport services.

7.2.2.4 BCC financial performance analysis

The detail available in the BCC budget documents was less than within their annual financial statements, although not significantly affecting the funding analysis. As is the objective of the South African legislated budget format, there would be merit of closer alignment of performance comparisons. The BCC financial performance analysis is presented in Appendix V (Australian sample financial performance tables).

One significant impediment to analysis was the annual financial statement and budget treatment of capitalised expenses for capital assets produced. For example, $845.1m was budgeted to be credited to 'operating' (financial performance) in 2008/09 ($1,465m in 2009/10), but it is unknown what cost items this comprised. Therefore, cost item categories such as employee costs and materials would have indistinguishable capital budget and 'operating' elements and it was not possible to separate operating performance in those items. This severely limited analysis and eliminated opportunities to benchmark operating costs, because the net operating cost of expenditure items was unknown, for example, net employment costs charged to operating.

Further, measurement item number 12 (Repairs and Maintenance as a percentage of the value of Property, Plant and Equipment) required an analysis of 'repairs and maintenance' expenditure, to understand whether BCC was maintaining its assets so that the assets' condition was not a future threat to its revenue. 'Repairs and maintenance' expenditure information was not available from public BCC documents, thus preventing the calculation of this measure from publicly available information, although these data were contained in internal BCC asset management information.

A key aim of the South African 'operating' budget format was to enable analysis of the 'result' exclusive of capital revenue[33] for the purpose of understanding revenue coverage of operating costs. The premise was that an average neutral result indicated that consumers were making a reasonable contribution for annual services/resources consumed. A persistent deficit at this level suggested an intergenerational cost recovery issue, either that higher revenues prior to 2003/04 had transferred a benefit to the period analysed, or a cost burden was being transferred to future ratepayers and consumers. Not uncommon in the Australian context is that asset depreciation is based on the replacement value of assets, and many are long-lived. Alternatively a small deficit may not be considered a major issue at this level because technological improvements in future capital asset formation will normally provide an offsetting benefit.

Overall, BCC's annual financial performance result was persistently a surplus of between $100m and $200m over the analysis period, and therefore did not appear to suggest any intergenerational cost shifting issue.

7.2.2.5 BCC capital expenditure analysis

BCC sample capital expenditure budget tables, presented in Appendix W, are the restated BCC capital expenditure history and budgets. Generally the analysis displayed expenditure growth over the period. The equivalent South African municipal budget format excluded the donated assets to local government, usually related to private sector development, such as residential sub-division construction, as part of the capital assets budget.

7.2.2.6 BCC financial position analysis

The BCC's sample financial position tables, presented in Appendix X, were in a similar format to that used by BCC, but the South African-based format applied contained additional information useful for the funding analysis, presented here for completeness and to enable the calculations in the funding measure table to be sourced. An overall observation was that net assets (total assets less total liabilities) steadily increased from $13.4 billion to $19.9 billion over the analysis period.

7.2.2.7 BCC cash flow analysis

The BCC's sample cash flow tables are presented in Appendix Y. The key focus of any cash flow analysis is whether there are negative trends in annual changes of net cash held. There was a decrease in BCC's net cash held in the financial years of 2004/05, 2006/07, 2007/08

[33] Sydney City Council reports on a 'before and after' capital revenue basis.

and a decrease was also forecast for 2010/11. The 2008/09 and 2009/10 financial years were forecast to provide healthy increases in cash. Importantly, despite the pattern of annual net cash increases and decreases, a positive cash/cash equivalents balance was maintained throughout the analysis period.

7.2.2.8 BCC cash/funding reconciliation analysis

The cash/funding commitments reconciliation format for the BCC is presented in Appendix Z. The format, developed during South African reforms, proved to be crucial analysis during difficult economic conditions, acting as a bridge of understanding between accrual accounting/budgeting and liquidity. A relatively common strategy in mature Australian local governments, as pursued by BCC, is to minimise short-term cash investments for liquidity purposes by maintaining pre-approved credit limits. The credit limit is established as a substitute for holding working capital avoiding having this transferred from ratepayers. Adjustments have been made to take available credit into consideration. The appendix reveals a solid financial position for BCC, with net surplus cash reserves improving from $148 million in 2004/05 to a forecast $435 million in 2010/11.

One concern is that the 'imputed' cash and debtors' collection rate, imputed and applied in the working capital requirement calculation adjustments, was persistently greater than 100%. This is discussed further in **Table 7.3** in Section 7.2.4.

7.2.2.9 BCC key performance indicators (KPIs) analysis

BCC's KPI analysis and measurement is presented in Appendix Za **(**Australian sample key financial indicators tables). The analysis revealed a number of deficiencies. Certain information was unavailable publicly, such as repairs and maintenance expenditure, electricity and water distribution transmission losses. In addition, as previously discussed in Section 7.2.2.4, users of the financial information were unable to separate operating and inappropriate capital components from employee costs, thus preventing some indicators from being calculated and conclusions being reached. Another challenge was how to assess a range of KPIs that have variable change. A technique to do this is discussed below in relation to the funding measures. Some noteworthy KPIs:

- The low liquidity ratio result was a consequence of the strategy of using a pre-approved external loan facility for minimising liquidity and borrowing costs.

- An annual debtors' collection result was consistently greater than 100%, which could not be sustained in the long term and suggests recent successful improvement in the collection of long-term debts in addition to high levels of debt collection of current billings.

The debtors' collection rate result deserves a fuller explanation. It is worth repeating the full funding compliance measures guidelines here as it accurately applies to the BCC and to make clear the calculation is different to a generally accepted billing-based approach which would require access to internal debtors' book information:

> *The selection of measurements used are deliberately based upon information sourced only from budgeted or audited annual financial statements, to ensure ease of calculation and independently calculated and verifiable by stakeholders external to the organisation. For example, the collection rate calculated is the actual or budgeted cash receipts from the Cash Flow Budget and the total of ratepayer and other revenue (much of which is cash collections and therefore a collection rate is always 100 per cent). This will be a slightly different result to a collection rate of only cash from consumer debtors related to consumer debtor billings, depending on the level of 'other revenue' cash collections, but is not significant and a preferable approach to requiring even greater cash collection disclosure and the related inaccuracies that may cause. Especially as more significant is the volatility of the collection rate caused by the generally-accepted approach of the inclusion of arrear debtors in the cash collection rate.* (National Treasury 12, 2008)

The BCC's numerator sourced from the restated Cash Flow Statement (not available in the BCC formats) was interpreted by making assumptions about the operational and capital cash flows received from other tiers of government, but the capital component was assumed to be equivalent to the 'funding' which may be revenue instead of cash and therefore presents a timing issue. However, with a timing issue it would be expected that the effect would reverse with a rate collection less than 100% in some years, rather than being greater than 100% annually since 2003/04. This is deserving of further investigation.

7.2.3 Sydney City Council (SCC)

It is markedly noticeable from the SCC analysis that there were the flaws in assumptions between the financial position budget (forecasted cash/cash equivalents) and the cash budget balance in two of the financial years analysed. Also noticeable was the steady decline in cash/equivalents/investments position, but the SCC did not borrow during the entire period

analysed. Cash/cash equivalents had declined from $342.1 million in 2004/05 to projected $88.2 million in 2010/11, caused by a persistent net annual decrease in cash available.

Although beyond the scope of this research, it is understood that SCC disposed of some significant assets in the 1990s and eliminated all of its borrowing from the proceeds. It may have been gradually spending the benefits of this asset sale transaction ever since, but the earlier asset sale benefits may soon expire, based on the trend over the analysis period.

Table 7.2 presents the performance rating scores for the SCC's funding measurement trend.

Financial Year: / Funding measures title	Measure Number	2004/05 Audited Outcome	2005/06 Audited Outcome	2006/07 Audited Outcome	2007/08 Audited Outcome	Budget Year 2008/09	Budget Year +1 2009/10	Budget Year +2 2010/11
Cash/cash equivalents at the year end	1	2	2	0	0	0	0	2
Cash equivalents + investments less applications	2	2	2	1	1	0	2	2
Cash at the year end:% of monthly employee/supplier payments	3	2	2	2	2	2	1	1
Surplus/(Deficit) excluding depreciation offsets	4	2	2	0	0	2	0	1
Service charge revenue % change - macro CPIX target exclusive	5	-2	2	-2	-2	-2	-2	-2
Cash receipts % of Ratepayer & Other revenue	6	2	2	2	2	2	-2	2
Debt impairment expense as a % of total billable revenue	7	1	1	1	1	1	1	1
Capital payments % of capital expenditure	8	0	-1	-1	2	2	-2	2
Borrowing receipts % of capital expenditure (excl grants)	9	2	2	2	2	2	2	2
Transfers/Grants % of Govt. legislated/gazetted allocations	10	2	2	2	2	2	2	2
Current consumer debtors % change - incr(decr)	11a	-2	-2	2	-2	1	-2	-2
Long term receivables % change - incr(decr)	11b	1	2	-2	-2	2	1	1
Repairs & Maintenance % of Property Plant & Equipment	12	-2	-2	-2	-2	-2	-2	-2
Asset renewal % of capital budget	13	-2	-2	-2	-2	-2	-2	-2
Financial Performance Budget result (surplus/deficit)	14	2	-2	2	-2	2	1	2
Financial Position Budget	15	1	1	0	2	1	1	2
Cash flow budget	16	2	2	1	1	1	1	2
Other key performance measures	17	0	0	0	0	0	0	0
Total score		**13**	**13**	**6**	**3**	**14**	**0**	**14**
Total score as percentage of maximum score (Max =)	**36**	**36%**	**36%**	**17%**	**8%**	**39%**	**0%**	**39%**

Table 7.2: SCC funding measurement trend

It should be specifically observed in Table 7.2 that the scores for the 2009/10 budget, due to the significant deterioration in financial condition indicated by the poor rating trend, deserve greater evaluation. It is possible that the deterioration evident from the raw scores was partly attributable to tight economic conditions at that time. The following year recovered to the same score as in 2008/09, although the trend line in **Chart 7.2** still indicates a slow decline in funding measurement performance.

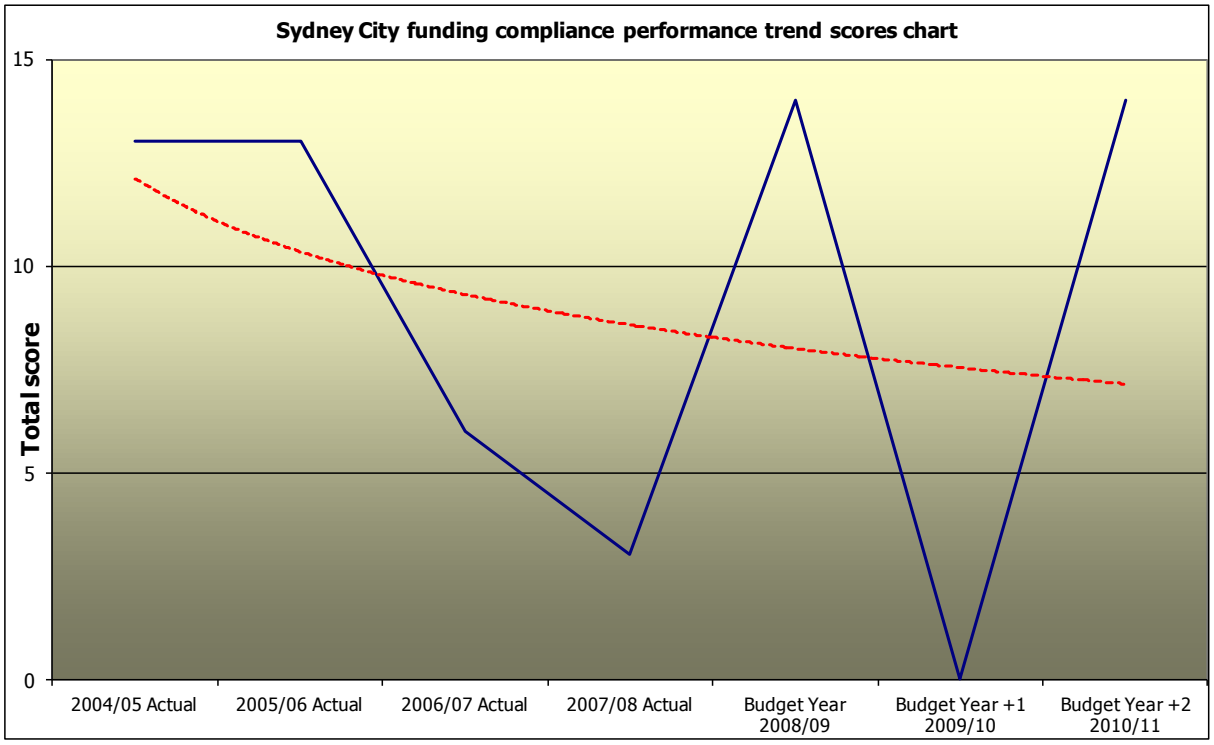


Chart 7.2: SCC funding measurement trend

7.2.4 BCC and SCC summary

A summary of the outcomes of both the BCC and SCC funding measures is presented in **Table 7.3**. The SCC outcome, similar to BCC, provides additional support to the proposition that robust performance assessments can also be undertaken in an Australian developed country context. The writer is of the firm belief that based partly on senior financial management experience at the City of Adelaide and at five other South Australian local authorities, the methodology can be broadly and successfully applied in the Australian context.

Measure	Brisbane City	Sydney City
Cash/cash equivalents at the year end	Positive cash/cash equivalent balance maintained.	Positive but steadily declining cash/cash equivalent balance.
Cash + investments at the year end, less applications	Positive balance maintained, steady improvement.	Positive but slightly declining Cash + Investments at year end less cash applications.
Cash year end/monthly employee/supplier payments	Steady improvement generally above three (3) months coverage considered satisfactory.	Impressive 21.6 times cash 'months' coverage in 2004/05 declining significantly to the minimum level of 3.4 times budgeted in 2010/11.

(Table7.3 continued overleaf)

Measure	Brisbane City	Sydney City
Surplus/(Deficit) excluding depreciation offsets	Depreciation offsets is a South African analysis concept excluding depreciation on 'other' government funded assets. Refer Financial Performance result (surplus/deficit).	Refer BCC comment, which equally applies to SCC.
Service charge rev % change - macro CPI target exclusive	Local government taxes and charges are a consumer price change factor. Reserve Bank targets a maximum 3% CPI. This measure represents imputed BCC increase greater than the 3% target. BCC is generally well in excess of the range and an especially large increase in 2008/09, but budgeted lower increases in 2007/08.	Two (2) financial years just outside of Reserve Bank inflation range, but 2008/09 to 2010/11 greater than 3% above the target and would be contributing to consumer inflation.
Cash receipts % of Ratepayer & Other revenue	The underlying assumption behind the BCC data may be suspect, however, the consistent trend greater than 100% warrants investigation. This measure is different to the KPI equivalent because it is adjusted for change in financial position balances between financial years. Suggests an impressive collection rate.	Average of 101% over the six (6) years of available data also warrants further investigation, as does the decline over the final three (3) years. Also, suggestive of an impressive collection rate certainly not experienced in the South Africa context.
Debt impairment expense as a % of total billable revenue	Debt impairment is not separately budgeted, warranting further consideration, even though the trend in actual outcomes had been commendable from 2003/04 to 2006/07 although a 2007/08 deterioration.	Commendable debt impairment situation.
Capital payments % of capital expenditure	The main aim is to understand whether capital expenditure cash flow timing volatility is effectively managed. Budget growth experienced by BCC would suggest the measure would be consistently less than 100% as is the case historically, but the budgets of 2007/08 and 2008/09 were based on the assumption that cash = expenditure; but appropriately corrected in 2009/10. A 100% assumption would suggest that the cash balance is understated.	Measure result is certainly suggestive that SCC is attempting to forecast the timing difference between capital cash flow and expenditure timing, but the high volatility of the outcomes translates to volatile rating scores.
Borrowing receipts % of capital expenditure (excl. transfers)	Generally a conservative borrowing strategy, although a substantial change in 2009/10.	SCC does not borrow funds due to its impressive financial position (so achieves a perfect rating score) although the steadily deteriorating cash position would suggest that it will need to borrow in the near future, unless there is a fundamental shift in expenditure levels.
Grants % of Govt. legislated/gazetted allocations	Not directly relevant to the Australian context, although the intent is to ensure that grants from other governments are budgeted and not inflated.	Refer BCC comment, but also note that capital grants tend to be immaterial in the capital city context in Australia, although this is likely to be very different in regional or outer metropolitan locations.
Current consumer debtors % change - incr.(decr.)	The budgeted reduction in 2008/09 appears to have been overly optimistic, although the pessimistic budgeted change of 2009/10 presumably assumes 'collection' deterioration due to economic conditions. This would be another reason to transparently disclose the debt impairment budget assumptions.	Unusual increases in current debtors in some years, which appears to be inconsistent with debt impairment (doubtful debts).

(Table 7.3 continued overleaf)

Measure	Brisbane City	Sydney City
Long-term receivables % change - incr.(decr.)	Substantial reduction in recent history and 2009/10 budget assumes no receivables. The main item in the 2007/08 financial year was investment units in a managed fund which presumably were redeemed.	Volatile SCC long-term receivables changes would warrant investigation. Seven (7) year view highlights the issue, which may not be evident in an annual financial statement or budget evidence.
R&M % of Property Plant & Equipment	Repairs and maintenance expenditure not available. The aim is to ensure revenue generating assets are maintained in good working condition.	Although R&M is reported this is only the contracted amount. The information needs to be enhanced with R&M generated by the internal workforce.
Asset renewal % of capital budget	Asset renewal expenditure information is not available. The aim is to ensure revenue generating assets are maintained in good working condition.	Asset renewal expenditure information is not available.
Financial Performance Budget result (surplus/deficit)	Generally consistent and steadily improving positive results.	Generally consistent, but steadily deteriorating positive results. Unlikely for SCC to sustain its capital budget level without borrowing in the future.
Financial Position Budget	Generally consistent and steadily improving positive position. Budgeted net asset position appears more conservative than actual outcomes.	Same as BCC, the SCC has a generally consistent and steadily improving positive position.
Cash flow budget	Well managed final outcome, but historically negative net annual changes are frequent.	Recent trend of negative net annual changes is a concern, but consistent with a rundown in cash resources over the period analysed.
Other key performance measures	Numerous measures caused a rating scheme to be developed for an overall assessment. The overall rating for performance measure change to 2004/05, 2005/06, 2006/07 and 2008/09 was 'zero' (no change); –1 in 2007/08 (minor deterioration) and –1 budgeted for 2009/10 which could be related to budgeting 'conservatism'.	No average change in overall measures over the period analysed, with deteriorating outcomes on some KPIs offset equally by improving outcomes on other KPIs.

Table 7.3: BCC v SCC funding compliance comparison

7.3 Financial health of the Australian local government sample

The Australian Cities of Brisbane and Sydney's details were also applied to the financial health instrument initially described in detail in Section 6.3 to ascertain whether the instrument was adaptable in the Australian context. The summary results are presented in Appendix Zb (Australian samples financial health assessment). The full assessments against the financial health instrument for both cities are provided on the separate CDRom.

For the City of Sydney, the financial health instrument for the 2008/09 financial year gave a total score of 435 from a maximum of 500, a performance rating of 87%. This rating, being greater than the threshold of 75%, indicated 'excellent' financial health. For the City of Brisbane, the same instrument for the 2008/09 financial year gave a total score of 345 from a maximum of 500, a rating of 69%. This rating, being greater than 60% and less than 75%,

indicated ‘good’ financial health. Appendix M contains the grading table with rating thresholds.

The BCC’s financial health result was somewhat inferior to that of the SCC because of its borrowing and cash strategy. SCC had a healthy cash and investments position, reflecting in a number of higher performing measures and contributing to the ‘excellent’ financial health outcome. A borrowing minimisation strategy was also obviously very helpful for reducing interest costs. BCC’s strategy included maintaining low levels of available cash and investments, with an agreed overdraft and borrowing limit with the Queensland Treasury (QTC). Although this was a sensible interest-reduction strategy, it was a higher-risk strategy than SCC’s strategy should economic uncertainty curtail QTC’s operations.

Completing the financial health measurement did pose some minor challenges, but none of these would be significant to the result. For example, the level of expenditure on repairs and maintenance calculated relative to property, plant and equipment asset value is mainly in the context of historic cost values in the South African context. The Australian local government accounting standard requires property, plant and equipment to be re-valued at its replacement cost. Therefore, this financial health measurement instrument should be amended to reflect the average Australian experience. It is also uncommon for Australian local government to now provide electricity services, which is a substantial part of operations of most South African municipalities, although this is potentially changing in the South African context with electricity industry reform previously suggesting regional suppliers will be created.

The sample application of the financial health instrument provided preliminary support for a conclusion that, subject to some minor localised amendments, the approach has international application, which will be explained further in Section 7.4.

7.4 Generalisation

The South African municipal reform program was the origin of the funding compliance (FC) measurement technique, but being predominantly developed using ‘international’ technical guidance the measurement procedure has potential ‘international’ application and compatibility. The FC innovation evolved during the MFMTAP, with that program being described as ‘based on international best practices in budgeting, accounting and financial reporting’ (World Bank, 2008, p.11).

The research proposal questioned if the funding compliance analysis technique was unique to South Africa municipalities as a consequence of the requirements of their national MFMA legislation, and therefore not generalisable. The research sub-problem demanded a 'so what' answer, that if the technique was proven to be applicable, would it be useful for analysing local government financial health? The procedure is proven in the South African context, but is it useful for financial management reform progress analysis in other developing or developed countries?

South Africa's legislative regime, to which the technique responds, is likely unique having simultaneously introduced full accrual accounting and budgeting at the local government level enforced by a strict legislative framework (Australia has tended to progressively evolve to full accrual budgeting many years after introducing full accrual financial reporting). The literature suggests that the direction of the South African reform has similarities to other financial management reform programs. The hypothesis here presumed that fundamental financial criteria, such as necessity of sufficient liquidity, working capital and sustainability, would be similar regardless of geography.

A general observation was that the South African financial statement and budget formats were more useful for strategic funding considerations, probably due to the diverse and substantial international experience provided over a number of years that contributed to their development. However, minimal format amendment could achieve similar outcomes in the Australian context.

It is important to note that a substantial proportion of the funding information was publicly available information, with the analysis providing a basis to make robust budget funding conclusions similar to that made by oversight organisations in South Africa. More significant is that the analysis indicated that the funding compliance and the financial health measurement both have potential for international application in developed countries.

This concludes the generalisation discussion and the core analysis parts of this thesis. Chapter 8 presents the overall conclusions.

Chapter 8: Conclusions and summary

8.1 Introduction

The main purpose of Chapter 8 is to illustrate how the study answered the research problem and sub-problems, discuss whether and how the hypotheses were supported and summarise the key findings of the research. Section 8.2 sets the scene for the findings by briefly examining an uncontrollable element of the South African-based component of the research, the underlying demand on local government in the post-apartheid era to deliver socio-economic services. This is deliberately included here, rather than as an introduction to the thesis, because it is economic and confirmatory information that became available after the completion of the research. Section 8.3 provides a summary table of the key findings, and then provides a detailed examination of each of the conclusions related to seven sub-problem hypotheses, comprehensively cross-referencing each of the sub-problems and the original hypotheses. Chapter 8 is completed with an assessment of the significance of the research in Section 8.4, a consolidation of comments related to the potential for future research in Section 8.5, and finally some concluding remarks in Section 8.6.

8.2 Findings' scene setting and context

This section initially discusses the probable socio-economic impact on local government in South Africa during the MFMTAP analysis period. When examining the success or otherwise of the South African reform advisory technical assistance, a key consideration was an often-asked question: What would have happened had the technical assistance not been provided? MFMTAP occurred in a period of ongoing political turbulence and a nationwide desire to improve basic service delivery to millions of South Africans. South African local government is at the forefront of the delivery of basic services. It is reasonably easy to understand that, even with the guidance and control of the strict MFMA requirements, community demands for huge increases in local government services, especially basic infrastructure, must have strained local government resources. Also, even with significant National Government financial support, the immense project implementation changes required a major improvement in management culture. Whatever is concluded here regarding MFMTAP's financial management reform outcomes must be tempered by an understanding of the significant

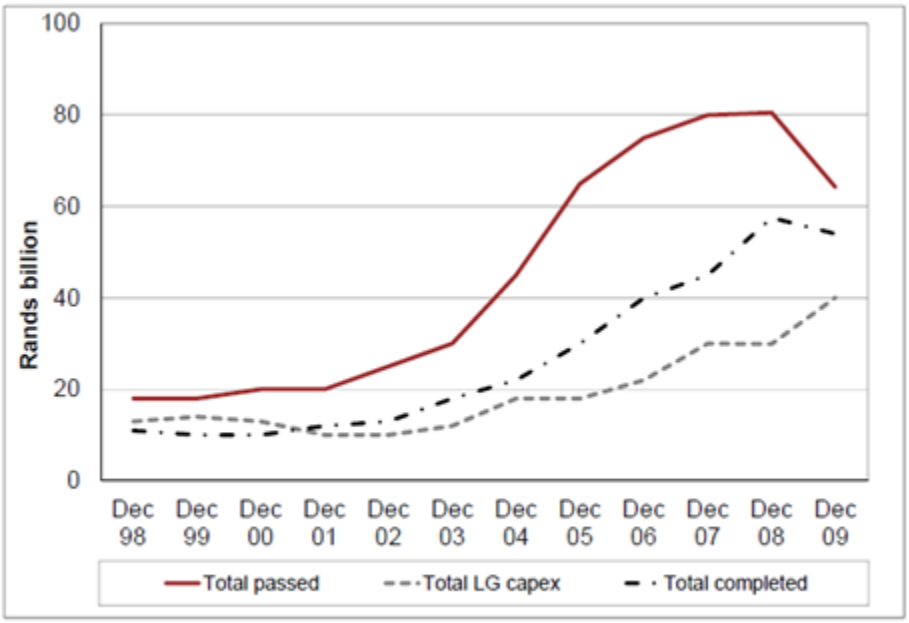
changes in service delivery production and concurrent municipal sizeable population growth and immigration.

Simultaneously understanding the service delivery performance outcomes was beyond the research scope, and could be the subject of another study. The logic of this delimitation is that local governments are required by the MFMA to adjust their expenditure plans to reflect economic conditions. However, it is also appreciated that service delivery demand can be exacerbated during difficult economic circumstances; for example, the cost of providing free basic services would have increased as unemployment levels deteriorated and further enlarged the reliance on those free basic services.

To illustrate an example of the impact of spectacular growth of a South African municipality, the City of Tshwane had a population of 1.67 million in 1996 (Census), 2.35 million in 2007 (national survey) and was expecting to have 2.49 million in 2009/10, a phenomenal 49% population growth rate over that period. In 1996, there were 337,609 'formal' households, but by 2009/10 it was estimated this has grown to 538,254 households (City of Tshwane Metropolitan Municipality, 2010, A-10 table). Despite the success at servicing such a huge increase in the demand for services demand the number of 'informal' households had increased from 88,477 to 197,982, no doubt causing a considerable increase in political pressure on the city's politicians and management. In spite of these demand increases the city was expecting in 2009/10 to have only a relatively small number of households receiving less than the minimum level of basic services (3,000 households with water; 11,000 households with sanitation/sewerage; 51,000 with energy, for households not supplied with electricity; and 106,000 with refuse, of which 15,000 were in the category of no supply of refuse services) (City of Tshwane Metropolitan Municipality, 2010, A-10 table). Although it has to be accepted that any individual household not receiving any basic service is unfortunate, the service delivery increase achieved during this period was spectacular, and any funding compliance and financial health analysis must be viewed and evaluated in this context.

Analysis undertaken by the South African National Treasury (National Treasury 18, 2011) also provided additional useful information for putting the financial health trends into the broader economic context. Building construction was a key driver for municipalities, including growth in the property rates tax base and infrastructure construction activity. **Chart 8.1** (National Treasury 18, 2011, p.15) illustrates the potential impact that the Global Financial Crisis (GFC) and declining South African economic performance that was facing municipalities as they approved their 2008/09 MTREFs. This is because building statistics are

a leading indicator of municipal revenue growth and are likely being impeded by GFC affected economic conditions. Therefore, even though local government capital expenditure had steadily increased, until December 2009, the risk to revenue growth indicated by the total value of building plans passed was likely about to impact of local government financial resources.



Source: Statistics South Africa. Selected building statistics of the private sector as reported by local government institutions, 2009

Chart 8.1: Building plans passed v Infrastructure Investment (Rand billion)

It should be emphasised that local government's share of total country capital expenditure had declined between 2004 and 2008, but had then increased in 2009, probably attributable to (soccer) World Cup-related infrastructure investments leading up to the 2010 event. However, more importantly, the sharp decline in the value of building plans approved in 2009 was likely a leading indicator of difficult economic circumstances for local government in South Africa during the period at the end of the analysis phase of this research.

Another factor worthy of consideration is local government's reliance on National government transfers. Local Government's situation is considered more fragile relative to the degree that it relies on financial transfers from other spheres or levels of government (Nickson, 2010). South Africa's position could be fragile because during economic downturns the National and Provincial governments might retract the level of transfers. **Table 8.1** indicates that there was some evidence of this, as noted that the overall percentage share of national revenue declined from 7.9% in 2007/08 to 7.8% in 2008/09 and 7.5% in 2009/10, although recovering to 8.2% in 2010/11. The Equitable Share (an untied transfer to local

government similarly structured to the Grants Commission Grant general transfer to local government in Australia) declined from R25.560 billion in 2008/09 to R23.845 billion in 2009/10, although it had increased from R20.676 billion in 2007/08.

R million	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	% Ave annual growth	
	Outcome			Revised Estimate	Medium-term estimates			2007/08 - 2010/11	2010/11 - 2013/14
National departments	**242 580**	**289 236**	**345 366**	**359 120**	**380 154**	**408 439**	**439 049**	**14.0%**	**6.9%**
Provinces	**207 505**	**246 836**	**293 164**	**323 080**	**357 929**	**380 449**	**404 251**	**15.9%**	**7.8%**
Equitable share	171 054	201 796	236 891	265 139	288 493	305 725	323 604	15.7%	6.9%
Conditional grants	36 451	45 040	52 073	57 941	69 436	74 724	80 647	16.7%	11.7%
Gautrain loan	–	–	4 200	–	–	–	–	-	-
Local government	**38 482**	**45 488**	**51 537**	**61 152**	**70 171**	**77 029**	**82 316**	**16.7%**	**10.4%**
Equitable share	20 676	25 560	23 845	30 559	34 108	37 573	39 960	13.9%	9.4%
Conditional grants	17 806	19 928	20 892	23 051	27 490	30 416	32 743	9.0%	12.4%
General fuel levy sharing with metropolitan municipalities	–	–	6 800	7 542	8 573	9 040	9 613	-	8.4%
Total	**488 567**	**581 560**	**690 067**	**743 352**	**808 254**	**865 917**	**925 616**	**15.0%**	**7.6%**
Percentage share									
National	*49.7%*	*49.7%*	*50.0%*	*48.3%*	*47.0%*	*47.2%*	*47.4%*		
Provincial	*42.5%*	*42.4%*	*42.5%*	*43.5%*	*44.3%*	*43.9%*	*43.7%*		
Local	*7.9%*	*7.8%*	*7.5%*	*8.2%*	*8.7%*	*8.9%*	*8.9%*		

Source: National Treasury Budget Review 2011

Table 8.1: National Government transfers of revenue 2007/08-2013/14

Therefore, reasonable evidence exists to suggest that the broader economic situation would have been placing pressure on South African municipal financial health and condition during the 2008/09 financial year and 2008/09 MTREF approval period, the evaluation conclusion of this research.

8.3 Research problem and sub-problems

Section 8.3 summarises the research findings categorised by the problem and sub-problems.

The research problem that was the original basis of the research was:

> *Is international best practice technical assistance performance for South African local government financial management reform and capacity-building since 2003 capable of quantitative assessment?*

The research problem was delimited into seven sub-problems that, solved collectively, would enable a definitive and defensible conclusion to be made in relation to the overall research problem, being that the (MFMTAP) reform and capacity building was or was not capable of quantitative assessment. The sub-problem analysis was also expected to reveal an efficient

basis of future local government financial analysis, as a basis of government oversight, together with an understanding of the technique's application in another international context.

The research problem was examined through a sequential interrogation of the sub-problems. These research components focussed on developing measurement instruments for undertaking the quantitative assessment, applying those instruments and reaching analysis conclusions, understanding other uncontrollable factors that affected the outcomes, such as economy, capacity and political entrepreneurs, and assessing the generalisation of the conclusions. The sub-problem conclusions are summarised as:

Hypothesis		Result	Comment/qualification
H1	Financial health measurement	Not supported	Significant correlation between financial health and financial management reform progression not evident
H2	Funding compliance measurement	Not supported	Significant correlation between funding compliance improvement and financial management reform progression not evident
H3	Political entrepreneur	Inconclusive but sustained	Sustained, subject to a further repeated analysis of future period sample
H4	Funding compliance influence trends	Supported	Instruments developed capable of measuring funding compliance trends
H5	Factoring capability	Supported	Robust factoring solution, subject to repeated analysis of future period sample
H6	Funding compliance trend analysis and forecasting using factor solution	Supported	Capability proven, but subject to confirmation using further repeated analysis of future period sample
H7	International application of measurement instruments	Strong support	Developed country application capability proven. South African local government financial management approach not unique

Table 8.2: Research findings summary

A full explanation of the sub-problem conclusions:

Financial 'health' measurement **(see Section 2.5.1 in Chapter 2)**: The sub-problem was proposed by the question*: What is the financial health of each municipality in the representative sample?* It was hypothesised (H1) that there would be ***a high correlation between financial health, the degree of MFMA funding compliance improvement and the***

level of financial management reform progress. It was also hypothesised ***that poor financial health will influence financial management capacity and constrain a municipality from meeting community demands and simultaneously meeting strict MFMA funding compliance criteria, but good financial health will support financial management reform***. This sub-problem was mainly evaluated and discussed in Chapter 6. The first stage was the adaptation and development of an instrument to measure financial health. The measurement instrument was adapted from an instrument partially developed during MFMTAP, but extended and improved based on useful concepts revealed from the literature, such as incorporating a discounted and weighted trend score approach.

When the weighted trend financial health instrument was applied to the sample of seven large South African municipalities (see Chapter 6, Section 6.4), it was concluded that an inconsistent trend was evident between 2004/05 and 2008/09 (MFMTAP period), with four municipalities rated to be in 'Good' financial health in both years, two improving and one deteriorating. The basic, raw score unweighted, financial health instrument also rated four municipalities in 'Good' financial health in both years, one had an improved rating and two deteriorated. However, the funding compliance factored dimension instrument revealed three municipalities improving and four deteriorating. More importantly, of the seven largest municipalities analysed, four displayed a similar direction (improving or deteriorating) as shown by the financial health instrument, but three municipalities displayed an opposite trend. On the basis of this small sample, albeit examining only the larger South African municipalities, the hypothesis expecting a high correlation between a municipality's financial 'health' and funding compliance was *not* supported.

A more reliable and credible result would require a much larger sample. However, due to the status of the financial reforms, it is improbable that sufficient quality information would currently be publicly available from other municipalities to evaluate the qualitative aspects of the financial health measurement instrument. A re-examination after a period of a number of years when the 2009 'Budget' regulations had been 'bedded down' across local government would be more realistic and may reveal a different conclusion. A different outcome might be a reasonable expectation from progressive municipal improvements in financial reporting and 'budget' format compliance that would likely improve the quality of the financial information. An improvement in financial information and municipal financial strategy might also evolve

as management progressively adheres to required improvements in financial management qualifications.[34]

Funding compliance measurement **(Section 2.5.2)***: What is the degree of funding compliance of the representative sample municipalities over the time period 2004/05 to the 2008/09 MTREF utilising National Treasury's funding compliance procedure?* This sub-problem was a core component of the research, but was predominantly discussed and evaluated in Chapter 6, sections 6.5 and 6.6.

It was hypothesised (H2) that the ***funding compliance trend will 'generally' improve over the time period since the beginning of the reform program, for all municipalities in the sample, subject to H1, but legislative adherence will be achieved to a greater extent by municipalities that have received a substantial level of direct advisory assistance for an extended period (> 2 years) to advise and assist with the financial management reform compared with those that received only financial assistance and other guidance from the National Treasury (circulars, website, email 'hotline)***.

The quantitative research design was planned to analyse the raw score measurement from the funding compliance instrument and then compare the results with an examination of the weighted factor solution developed in Chapter 5. This two-pronged approach was used to understand if the factor solution revealed more robust results than the raw score, and therefore justify the more extensive evaluation effort required to produce this analysis. The 'raw score' version revealed that the difference between the overall raw score results, of municipalities that were provided with advisory technical assistance compared with those municipalities that did not receive technical assistance, was immaterial and insignificant. It was evident that the overall funding compliance of the combined sample municipalities deteriorated over the analysis period, although this performance decline was also likely to be contributed to by deteriorating economic conditions rather than any causal relationship to advisory technical assistance. Therefore, hypothesis H2 was <u>not</u> supported.

Chapter 6, Section 6.6.2, also explored the factor solution that removed the correlations between the funding compliance measures and focussed on the critical dimensions of the data. An important conclusion was that, compared with the weighted factor score solution, the raw score solution was overstating the impact of the funding compliance assessment change, in this case being an overstatement of the level of deterioration. The logical conclusion was that the individual measures that were most influencing the deteriorating scores were highly

[34] Municipal Regulations on Minimum Competency Levels - Gazette No 29967, 15 June 2007

correlated and therefore were having a multiplying effect on the result. This finding justified the effort to develop and continue to use a weighted factor solution rather than a raw score approach to the funding compliance assessment.

Another more important conclusion was that, due to their greater explanation of a trend variation, a much smaller selection of the factors explained the deteriorating results in both the sample of municipalities that received advisory technical assistance (BPTA) and the municipalities that did not (noBPTA sample). The importance of this for an oversight institution, such as the South African National Treasury, is that it could consider focussing its resources on only selected components of the funding compliance with the confidence that the selection would explain the performance, rather than devoting considerably scarce resources to analysing all measures. Dimension 2, given both its variation and explanatory power, would be a good candidate for the focussed analysis approach. Dimension 2 comprised the Financial Performance Result (Surplus/Deficit) and the Financial Performance Result (Surplus/Deficit) excluding depreciation offsets measures[35]. Alternatively, it could then explore changes in all funding compliance measures for selected municipalities if material change was first highlighted in a limited dimension selection.

The funding compliance analysis also appeared to reveal that the forecast MTREF-related (medium-term budget component) scores were unfavourable compared with prior year actual results. This suggested that actual municipal results were generally better than budgeted, budgets contained more aggressive expenditure plans than could be actually achieved, or a combination of both. However, these apparent outcomes were during a period of widespread economic deterioration. The analysis would need to be repeated during an extended period of economic improvement to more confidently understand the relationship between actual results and budgets.

Chapter 6, Section6.6.3, discussed the factored dimension average score of the sample of 25 municipalities that were provided with advisory technical assistance by way of international financial management experts compared with the 25 municipalities sample that did not receive technical assistance. The average score results did not support the hypothesis that there would be a general improvement in compliance and that legislative compliance would be greater in the sample that received the international technical advisory assistance. The

[35] It would be important to analyse both measures simultaneously to understand whether external influences on capital expenditure was influencing the Financial Performance result.

average scores of both samples and the total sample deteriorated, rather than showing the hypothesised improvement.

The variation in expert technical assistance ability was an uncontrollable and unmeasured variable that may have had an impact, as was the level of acceptance of the advisory assistance by individual municipalities, and the potential deterioration in funding compliance prevention that may have eventuated had the advisory technical assistance not been provided.

The conclusion regarding the hypothesis was verified by scatter-plot analysis which revealed similar results, but with a suggestion that for the higher explanatory power dimensions a high proportion of the 25 municipalities without advisory technical assistance improved funding compliance, albeit still to an unsatisfactory level. It was also possible that the sample of municipalities that were provided with advisory technical assistance generally were the larger municipalities that experienced a greater level of economic pressure and service delivery demands during the recession.

Influence of political entrepreneurs and the election cycle **(Section 2.5.3)***: What is the level of influence of political entrepreneurs and the election cycle on MFMA funding non - compliance?* Section 6.8 of Chapter 6 specifically examined the sub-problem, although this was also supported by analysis from other sections. The hypothesis was that ***political entrepreneurs [as defined] negatively influenced [municipal] funding compliance***.

The sub-problem was formulated on an assumption that political entrepreneurs, key people of significant South African local government influence such as executive mayors and mayoral committee members and portfolio committee leaders, would strive to accelerate expenditure programs to meet service delivery expectations. In doing so the political entrepreneurs would place pressure on funding compliance requirements. It was also assumed that the change of the executive mayor at an election was indicative of citizen dissatisfaction with the existing incumbent and a need for improved service outcomes. This reason for change was likely to be one of a number of other reasons, which may actually not relate to municipal service delivery performance or financial performance outcomes.

Chapter 6, Section 6.8, examined the relationship between executive mayor 2006 local government election changes and municipal funding compliance performance. The executive mayor as an important full-time contributor to municipal policy was used as a political entrepreneur proxy, although it is accepted that other key elected mayoral committee positions would also exhibit entrepreneur activity. The main purpose was to compare municipal funding compliance and expenditure outcomes with the mayoral situation. It was expected that those

municipalities that changed their executive mayor at the 2006 election would also exhibit deterioration in funding compliance, most probably related to an acceleration of capital expenditure beyond MFMA limitations. The analysis focussed on 21 high-capacity municipalities, of which 13 municipalities changed executive mayors.

Some evidence was found to support the hypothesis, but it was not conclusive. The analysis found some correlation between mayoral change and deteriorating funding compliance. Further analysis did not find a correlation between mayoral change and acceleration of expenditure plans which may have been related to deteriorating financial condition.

The funding compliance correlation was examined using both the 'raw score' and 'weighted factor score' techniques. The weighted factor score technique is likely to be more reliable as the raw score approach was previously found as likely to exaggerate funding compliance deterioration. Thirteen municipalities changed mayor. The raw score technique revealed that 11 of the 13 municipalities (85%) that changed executive mayor exhibited a deterioration in funding compliance. The 'weighted factor score' technique revealed that 9 of the 13 (69%) that changed executive mayor exhibited a deterioration in funding compliance. The situation was less clear at the large 'metro' municipalities (three changed executive mayor but only one had exhibited a funding compliance deterioration). For the 10 'non-metros' that changed executive mayor, eight displayed funding compliance deterioration.

However, the outcome of the funding compliance analysis related to the correlation between mayoral change and capital expenditure acceleration, given the funding compliance result, was unexpected. Capital expenditure budget increases above the accumulated CPIX increase of 42.1% between 2004/05 and 2008/09 were used as an initial surrogate for a municipality having extraordinary expenditure plan increases. It was hypothesised that political entrepreneurs would be associated with these extraordinary increases, due to their perceived desire to achieve politically acceptable service outcomes, especially creating new capital assets. Although 69% of the sample municipalities (9 out of 13) had massive capital increases averaging 99% greater than CPIX, it was also found that most municipalities (seven out of eight) that did not change executive mayor also had significant capital expenditure budget increases of an average 88% greater than CPIX. It therefore must be concluded that the data did not support a cause-and-effect relationship between executive mayors as political entrepreneurs and capital expenditure as a surrogate for service increase outcomes, although there is a possibility of a relationship.

The hypothesis should be sustained, if not upheld, but sustained only subject to further future analysis which should focus on repetition of the relationship between the replacement of the executive mayor and financial health and funding compliance over a longer period of time and election cycles. Sufficient evidence does exist for oversight organisations such as the South African National Treasury and provincial treasuries to be aware of the election risks of political entrepreneurs and respond with comprehensive governance training including gaining an appreciation of the risk of non-compliance to the MFMA.

Measuring and comparing funding compliance measurement trends **(Section 2.5.4)***: Are funding compliance measurement performance trends capable of being evaluated over time?* This sub-problem was examined in chapters 4, 5 and 6. This sub-problem was also considered with sub-problem 2.5.5 (factoring evaluation). The hypothesis was that ***there is a significant correlation between some funding compliance measures and a sub-set, factors or summated scale of these measures will reliably explain the trend***. The approach to resolving the sub-problem was to:

- Develop a *Likert* scale that enabled each of the 18 funding compliance measures to be translated to scale items.
- Reference each scale item to a score performance schedule, with the score schedule assigning values to funding compliant outcomes. The values assigned would indicate both a current standing and a trend; for example, a score value of 1 could indicate a current satisfactory position, but a score value of 2 could indicate a current satisfactory position that was also trending to improvement.
- Select a municipal sample containing 50 municipalities.
- Translate the historical financial results of every municipality in the sample, if required, to the regulated budget format that was to be the basis of the funding compliance analysis. This mainly required translating 2003/04, 2004/05, 2006/07 and 2007/08 financial statements into the new formats regulated in 2009 for most municipalities. The translation effort required varied significantly depending on the capacity of the municipality. High-capacity municipalities had mainly already achieved this budgeting and reporting format standard.
- Assign the Likert scale score to each measurement item for each financial year analysed, from 2004/05 through to 2007/08, as well as to the forecast budgets from 2008/09 to 2010/11.

- Analyse the scores for each item to understand the trend from 2004/05 until 2007/08 and for the MTREF from 2008/09 to 2010/11 for each funding compliance measure.
- Sum the scores for each financial year and analyse to understand the total raw score funding compliance trend for each municipality.

This procedure provided a sound basis for concluding that funding compliance performance trends could be evaluated over time. A key qualification was that a number of the funding compliance measures were correlated, some highly, and the financial results of many of the lower-capacity municipalities from the sample were unreliable. The correlation limitation was later addressed by factoring. The unreliability of data would be addressed over time as municipal capability improves and the financial management reforms are further entrenched.

It can be concluded that the procedure and instruments developed enabled funding compliance to be measured, including the measurement of trends over time. The correlation and factoring hypothesis conclusion is described in the reference to sub-problem 2.5.5 below.

Quantitative analysis and factoring **(Section 2.5.5)** ***and Reform performance trend forecast*** **(Section 2.5.6)***:* These sub-problem conclusions should be considered together because the sub-problems and hypotheses are related. Sub-problem 2.5.5 was: *Can the funding compliance performance rating 'Likert-like' scale measures be reduced to a number of factors to explain the funding compliance trend variable?* Sub-problem 2.5.6 was: *Is the funding compliance trend capable of being extrapolated to forecast probable municipal future trends?*

Chapter 5 evaluated how the quantitative analysis technique of factoring could be applied to the scale item measures, for the purpose of reducing the number of variables to a smaller number of factors or 'dimensions'[36]. The 18 scale item measures, although collectively determining whether a municipality achieved MFMA funding compliance, were recognised to contain significant correlation. The hypothesis was that ***an overall financial management reform progress can be extrapolated by applying trend analysis of funding compliance measurement factors.*** Therefore, when the factors were established, trend analysis would reveal a municipal capacity grouping or overall trend toward funding compliance. Chapter 6, Section 6.10, examined the performance prediction sub-problem, with the aim of understanding whether financial condition was capable of prediction. The hypothesis that was

[36] Dimensions comprise a number of variables that share common attributes.

proposed was that ***trend analysis of historic or budgeted funding compliance outcomes can assist to predict achievement of MFMA funding compliance***.

It was concluded from the factoring analysis undertaken in Chapter 5 that the 18 scale measures could be reduced to seven dimensions, with the best solution being a Varimax Orthogonal type, accounting for 66% of the variance or explanatory power. Dimension 1 (18%), Dimension 2 (11%) and Dimension 3 (8%) collectively accounted for approximately 37% of the variance. Dimensions 4–7 accounted for approximately an additional 7% of the variance each.

The total 66% explanation of the variation was at the lower end of an acceptable solution for factor variance explanation. However, it is expected that the solution would improve when a number of additional years have passed and the financial management reform implementation encourages improved budgeting and financial reporting outcomes.

The significant advantage of the factor solution is that it simplifies analysis by eliminating the variable measures that are highly correlated and allows the high power dimensions to remain. The advantage of this simplification, especially if further confirmation analysis improves the explanatory power of a smaller number of variables, is that oversight organisations such as governments and rating agencies can quickly analyse a smaller number of key measures with the knowledge and confidence that a compliance conclusion will be reliable. This would eliminate the extensive examination of all compliance measures with the risk of confounding results.

To illustrate, analysts could consider focussing their analysis on dimensions 1 and 2, which include measurements of municipal cash flow, cash and investment balances, monthly fixed payments, cash coverage, financial performance result and the adjusted financial performance result by excluding depreciation offsets resulting from externally funded capital expenditure. A budget analyst would have a reasonable level of confidence that funding compliance, or the contrary, suggested by these measures are indicative of an overall funding compliance, without having to compute and analyse the remaining 12 measures, thereby improving the efficiency of the analysis. Oversight focus could then be directed at clearly non-compliant municipalities and include the extensive analysis of all measures to better understand underlying non-compliance causes. The analysis of all measures would then provide a comprehensive explanation of the cause of non-compliance; for example, poor revenue collection performance would cause a deteriorating debt impairment expense with a consequential impact on the financial performance result.

The factor solution simplified the analysis of funding compliance trends that were then discussed further in Chapter 6, including the comparison with the financial health instrument outcomes. The solution also simplified the trend analysis, enabling funding compliance to be readily assessed over the seven-year planning cycle. A scale rating of economic conditions also enabled the funding compliance trend to be compared with the economic trend, placing the deteriorating funding compliance trend into an economic perspective. Further research during an extended period of economic improvement could confirm the suitability of the analysis, balancing this analysis which was conducted during a period of economic decline.

In summary, it is proposed that the research has provided confidence in the hypotheses and that an efficient factor solution can efficiently measure funding compliance, and be the basis of both trend analysis over time and future compliance forecasting.

South African local government uniqueness **(Section 2.5.7)** *Is the funding compliance situation unique to South African municipalities as a consequence of the national legislation?*

Chapter 7 dealt with the generalisation of the funding compliance technique beyond South Africa and into a developed country context where local government financial management reform of the 1990s was likely to be already embedded. The hypothesis was that ***South Africa is not unique and funding compliance measurement can be successfully applied to local government authorities (municipalities) in any developed country that apply accrual accounting and/or accrual budgeting***.

South African local government financial management policy and procedure is intertwined internationally. MFMTAP reform included implementation of accounting standards and reporting based on international public sector accounting standards (IPSAS). MFMTAP international advisory technical assistance was sourced from the United States, Canada, the United Kingdom, Australia and New Zealand. However, the MFMA had some South African uniqueness, through a legislated requirement of a budget funding regime that ensured that expenditure plans were well supported by comprehensive consultation, quality documentation and reliable revenue collection. The financial health measurement instrument that was partially developed during the MFMTAP was based on an Australian experience. Financial reporting and budgeting formats were grounded in international best practice. Therefore, there was some likelihood that the funding compliance concept could be successfully applied elsewhere.

Chapter 7 used two large Australian local governments (cities of Brisbane and Sydney from the different states of Queensland and New South Wales) to examine whether the funding

compliance approach could be applied in a developed country context. The technique applied was to translate those cities' corporate and annual plans, budgets and annual financial statements into the South African local government budget formats, and then ascertain if the funding compliance analysis could be completed. The next phase involved the application of the scale scores.

A deficiency was found to be the inconsistent local government foray into medium- and longer-term financial planning in Australia. Local government legislative responsibility belongs with state governments. Therefore, whilst longer-term financial planning was more formalised in New South Wales (represented by the City of Sydney), the focus was still on annual budgets and planning in Queensland (represented by the City of Brisbane). This weakness meant that budgets did not have the medium-term planning predictions required in the South African context.

Although the City of Brisbane had comprehensive corporate plans, these did not include detailed financial plans that were being approved in other states (and in South Africa). This failed to recognise the power of longer-term financial planning, that significant performance change could be achieved by compounded small steps over a number of years. This deficiency was overcome by progressively preparing the analysis over the duration of the research, which allowed for comparative three-year forecasts to evolve; for example, the final financial year of the analysis, 2010/11, was based on the 2010/11 budget rather than a budget year +2 year forecast in 2008/09. The risk of this approach was that it improved the accuracy of the forecasts because they were more current, but the results suggest that this did not impact on the analysis results.

Another impediment, again related to the inconsistent development of strategic financial planning, was that the City of Brisbane and the City of Sydney's planning documents lacked evidence of transparent asset management planning. In South Australia, the local governments are required to prepare 10-year financial plans and annual plans that include a vital analysis of asset renewal and new assets produced with capital expenditure plans. A comparison of this information with asset depreciation averages over time provides some insight into whether assets are being renewed, if their councils choose to renew them, rather than focussing on expanding the asset base by politically preferred investment in new assets. Similarly, South Africa has formalised a similar regime in their medium term financial frameworks. However, to their detriment this approach was not evident in Brisbane and Sydney public documents,

although in Brisbane's case their internal management documents do provide this information, but it is not transparent to key stakeholders.

The translation of the Australian samples into the South African regulated budget formats was relatively straightforward. The main challenge, as discussed in the previous paragraph, was the different treatment of asset renewal and repairs/maintenance expenditure. The completed translated files are included on the separate CDRom, named 'Brisbane City funding compliance.xls' and 'Sydney City funding compliance.xls'. However, once the relatively minor translation impediments were overcome, including the use of a combination of financial year datasets to support the 2004/05 to 2010/11 investigation, the analysis was then completed with relative ease.

The analysis highlighted the relatively similar financial framework between the countries. The funding compliance technique was especially useful for understanding the differences in funding risk between the City of Brisbane and the City of Sydney examples, with the City of Brisbane using pre-approved Queensland Treasury Corporation (QTC) short- and long-term borrowing limits and the City of Sydney effectively self-funding all asset growth. However, it also highlighted the negative trend situation at the City of Sydney, purportedly brought about by the sale of significant assets some years ago, the funding benefit of which is now declining and nearly exhausted.

It is concluded that there was strong support for the hypothesis that the technique could be applied in a developed country context. There is also good support to reject the sub-problem proposition that South African local government legislation makes it unique, and therefore by implication not capable of being benchmarked to other countries. Whilst some conservatism and differences are embedded within the MFMA legislation, related to attempting to ensure that municipalities maintain their financial health during times of significant service delivery challenges, these aspects do not prevent application of measurement techniques developed in South Africa from being used elsewhere.

8.4 Significance of the research

The research outcomes have a number of significant implications. Elaborated further below, these include the utility of a quantitative measure of financial management reform, the higher risk and complexity introduced by asset accounting and full accrual accounting to local government, and the need for an independent 'audit' of financial plans.

Newly established programs for local government financial management reform in developing countries can adapt instruments to measure funding compliance and financial health as one basis of evaluating program progress, providing a quantitative basis for evaluating the success or progress of reform programs. The quantitative approach provides a robust addition to evaluation procedures that are generally limited to qualitative measures, such as compliance with new budget formats, compliance with annual report and annual financial statement formats, and improvements in governance procedures. The research outcomes can lead to the introduction of measurement tools that add balance to outcome measurement by including a rigorous assessment of changes in financial results during reform programs. More importantly, the factoring solution indicates that oversight agencies can simplify their analysis by initially focussing on analysing a few funding compliance dimensions, but then applying further analysis effort to only those municipalities that fail the preliminary approach to gain a greater understanding of why they are not meeting legislative requirements.

The funding reconciliation procedure developed by the writer for the South African National Treasury, and the assessment of that measure by this research, has potential for application in developing and developed country contexts. The procedure provides a dynamic basis of genuinely linking and evaluating the financial performance, financial position and cash flow outcomes of local government entities. It also has potential for evaluating other public sector entities applying full accrual budgeting and financial reporting.

Whilst the introduction of full accrual accounting and budgeting brought significant benefits, especially in understanding asset management and the relationship between billing and cash collection and expenditure and cash payments, it transformed many local government financial structures from historical strict alignment of financial performance planning and outcomes to a higher-risk evaluation mode.

The higher-risk evaluation mode was caused by the lack of understanding and perceptions of budgeted and reported financial performance surpluses and deficits. To illustrate, a Financial Performance statement[37] that has a surplus result (reported expenditure being less than revenue) can provide financial statement users with a false confidence for a number of reasons:

- Public sector surplus results have some similarities to the private sector ‘profit’, but there are also many differences, such as the long-term nature of asset investment and the

[37] Now known in Australia as the Statement of Comprehensive Income

politicisation of revenue collection[38], and in South Africa especially the historical cost depreciation expense does not reflecting the economic cost of asset consumption mainly due to the significant age and condition of many infrastructure assets.

- Cash flow risk can be caused by significant seasonality at year end. For example, local governments invariably have an incentive to accelerate spending towards the end of a financial year to meet capital expenditure budget and other program delivery targets. End-of-financial-year results are often heavily inflated with abnormal levels of expenditure 'accruals' which are expenditure commitments based on official supply orders being issued, creditors and capital expenditure work in progress but incomplete. None of these items are reflected in cash outflows or cash investments as they are only shown as liabilities in the municipal Statement of Financial Position, so this can mislead inexperienced readers regarding the perceived financial health at a point in time. For example, the City of Tshwane's Financial Performance over time is summarised in **Table 8.2**. The surpluses before capital transfers and contributions should be especially noted. To explain, in 2008/09 Tshwane was budgeting for an 'operating surplus' (before capital transfers and contributions) of 165.695 million Rand, which in itself is not problematical, especially compared with the deficit of 208.056 million Rand, experienced in 2006/07.

Tshwane Metro Municipality - Consolidated Budgeted Financial Performance (Revenue & Expenditure)

Description	2004/05	2005/06	2006/07	Current Year 2007/08			2008/09 Medium Term Revenue & Expenditure Framework		
R thousand	Audited Outcome	Audited Outcome	Audited Outcome	Original Budget	Adjusted Budget	Audited Outcome	Budget Year 2008/09	Budget Year +1 2009/10	Budget Year +2 2010/11
Total Revenue	**6,987,950**	**8,054,399**	**8,080,078**	**9,672,559**	**9,809,421**	**9,995,442**	**12,074,372**	**12,995,370**	**14,069,773**
Total Expenditure	**6,632,089**	**7,822,374**	**8,288,135**	**9,535,891**	**9,690,734**	**9,696,405**	**11,908,677**	**12,906,455**	**13,852,679**
Surplus/(Deficit)	**355,861**	**232,025**	**(208,056)**	**136,668**	**118,687**	**299,037**	**165,695**	**88,915**	**217,094**
Transfers recognised - capital	223,294	233,099	358,810	868,900	624,240	263,825	1,001,481	1,084,946	1,313,309
Contributions	86,305	146,434	165,567	155,000	155,000	165,369	138,000	139,656	141,192
Surplus/(Deficit) for the year	**665,459**	**611,558**	**316,320**	**1,160,568**	**897,927**	**728,231**	**1,305,176**	**1,313,517**	**1,671,595**

Table 8.3: Tshwane financial performance result

However, the City of Tshwane was experiencing significant growth in creditor payables, probably due to a massively escalating capital expenditure program. Call investment deposits were increasing, providing some justification for believing that all was well from a financial health perspective. The Cash Flow Statement and Budget for 2008/09 similarly did not also suggest difficulties. However, the cash backed funding reconciliation (**Table 8.3**) revealed the disguised difficulties:

[38] Reduction in collection procedures prior to elections

Tshwane Metro Municipality - Consolidated Cash backed reserves/accumulated surplus reconciliation

Description	2004/05	2005/06	2006/07	Current Year 2007/08			2008/09 Medium Term Revenue & Expenditure Framework		
R thousand	Audited Outcome	Audited Outcome	Audited Outcome	Original Budget	Adjusted Budget	Audited Outcome	Budget Year 2008/09	Budget Year +1 2009/10	Budget Year +2 2010/11
Cash and investments available									
Cash/cash equivalents at the year end	668,995	586,210	830,042	178,765	476,876	380,318	1,108,952	1,266,625	2,549,650
Call investment deposits - >90 days	–	–	–	–	–	–	–	–	–
Non current assets - Investments	485,353	535,993	418,075	621,122	621,122	432,411	590,865	670,103	368,983
Cash and investments available:	**1,154,348**	**1,122,203**	**1,248,117**	**799,887**	**1,097,998**	**812,729**	**1,699,817**	**1,936,728**	**2,918,633**
Application of cash and investments									
Unspent conditional transfers	187,563	176,500	210,991	–	38,500	339,175	–	–	–
Unspent borrowing	–	–	–	–	–	–	–	–	–
Statutory requirements	–	–	–	–	–	–	–	–	–
Other working capital requirements	(78,004)	(390,898)	(472,731)	107,153	440,994	(610,323)	567,003	828,199	1,079,071
Other provisions	–	–	–	–	–	–	–	–	–
Long term investments committed	502,407	535,993	418,075	–	–	568,645	633,171	681,574	850,300
Reserves to be backed by cash/investments	594,596	636,877	708,275	693,663	673,863	449,420	716,316	762,876	812,463
Total Application of cash and investments	**1,206,563**	**958,471**	**864,610**	**800,816**	**1,153,357**	**746,917**	**1,916,490**	**2,272,649**	**2,741,834**
Surplus(shortfall)	**(52,215)**	**163,732**	**383,507**	**(929)**	**(55,359)**	**65,812**	**(216,673)**	**(335,921)**	**176,799**

Table 8.4: Tshwane financial cash backed reserves/accumulation reconciliation

It should be noted that the reconciliation makes it apparent that substantial amounts of Tshwane's current and non-current investments, investments that gave their Financial Position Budget a perceived position outlook, were actually committed to the future repayment of borrowing[39] and there was a R216.673 million funding shortfall expected in 2008/09. Whilst the reconciliation does not explain the timeframe of the loan maturities, it does highlight the very tight medium-term funding situation. It also indicates that the City of Tshwane was probably being unrealistic when it budgeted for zero unspent conditional transfers in 2008/09, and it actually later reported 434 million Rand unspent. Arguably these unspent conditional transfer funds, mainly from the National Government, were supporting a fragile cash position.

In 2009/10, the City of Tshwane budgeted for a reconciled funding shortfall of 1.274 ***billion*** Rand. The significance of these practicalities is that the 'raw score' funding compliance measurement found that the City of Tshwane had a steadily *improving* total score. This is evident from an inspection of **Chart 8.1**. The weighted factor solution evaluated Tshwane as *improving* between the 2004/05 actual result and the 2008/09 MTREF. These measurements appear to be inconsistent with overall financial health assessment, which, although still rating the City of Tshwane as 'good', displayed financial health deteriorating between 2004/05 and 2008/09. The City of Tshwane case may be an outlier in the sample, as it was the only municipality in the large municipality sample that displayed an improvement in the funding

[39] E.g. setting aside funds in 'sinking funds' for borrowing does not require principal repayment until the loan maturity.

compliance instrument but deteriorating financial health instrument. However, it illustrates the practical challenge experienced by analysts to responding to an exceptional case.

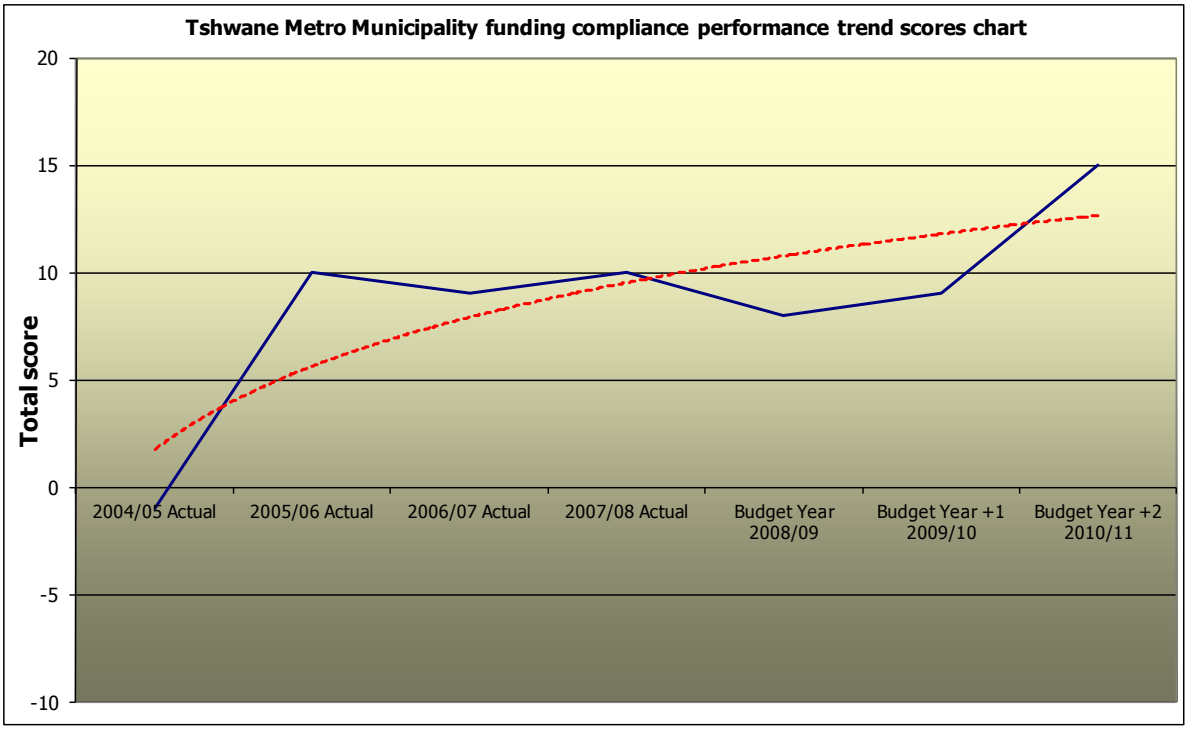


Chart 8.2: Tshwane funding compliance trend scores

It is evident from this and a number of key examples in the municipal sample analysed, that some of the municipality financial projections were based on dubious claims or a lack of financial management capacity to understand the modern accounting and budgeting requirements. For example, the City of Tshwane 2008/09 assumed that the financial position for current debtors would reduce to 1.491 billion Rand in 2008/09 from 2.402 billion Rand in 2007/08. This was highly improbable, especially as it required a substantial change in revenue collection during the GFC. The significance of this, and many other examples, is that the quality of the research would be significantly improved if the quality of the financial information was enhanced. This raises the question, given the critical impact of the financial planning decision, of whether an independent veracity of the budget forecasts by some form of external audit or examination should be applied to a draft MTREF prior to approval to assist with the elimination of obvious departures from the regulated requirements.

It could be argued that an external audit or a similar evaluation of the comprehensive regulated municipal budget in advance of council approval would be of greater value to the

community and other key stakeholders than post-performance audit of annual financial statements.

8.5 Potential for future research

The most obvious potential for future research is a repetition and replication of the quantitative analysis for a future period of South African local government financial performance. The repeat research analysis options are listed below:

8.5.1 Analyse a future MTREF cycle

Analyse a complete MTREF cycle, comprising a seven-year timeframe of three past financial years of audited actual financial results, a current year expected result during the year when the medium-term budget for the next three-year cycle is being prepared, and the three-year forecast comprising the budget year and two additional future years of estimates.

The analysed period should commence at the earliest financial year included after the MTREF became a fully regulated requirement, but preferably one year after the 'Budget' regulations are first applied[40] as the first year achieved only a reasonable level of compliance at mostly larger high-capacity municipalities. The research repetition could therefore be best applied to three financial years of actual audited results from 2011/12, the current year analysis of 2012/13, and the medium-term budget from 2013/14 (to 2015/16). However, it would also be useful to analyse a MTREF cycle that included a general improvement in the South African economy, to enable a comparison of funding compliance outcomes during a period of economic downturn that was applied in this research. Therefore, the suggested repeat analysis could not be undertaken until the 2013/14 MTREF is available in July 2013.

The main purpose of this repetition is to compare the conclusions during a period after the financial management reforms had been embedded, but also hopefully during a period of South African economic improvement.

[40] 2010/11

8.5.2 Funding compliance analysis repetition/replication

The research should repeat the funding compliance analysis (raw score and weighted factor score), factoring determination of the dimensions, and the financial health instrument, as a basis of confirming these research results.

8.5.3 Suggested future research hypothesis

A suggested future research hypothesis is that, due to the improvement in the quality of the financial information because of the progress of financial management reform, the factoring reliability would increase and a reduced number of dimensions would explain a higher proportion of the variance, therefore eliminating additional correlation. Factor improvement would increase the efficiency of oversight organisations analysing local government financial performance.

8.5.4 Additional South African local government research

Further South Africa-based research could analyse the impact of the activities of political entrepreneurs. The analysis undertaken here could be enhanced by the inclusion of additional election cycles to understand the impact of changes of funding compliance and financial health related to changes in the office of elected mayors. The further research could be confirmatory, but also extend to a larger municipal sample which would be enabled by embedded financial management reforms. The further research could also be enhanced by including limited other local government political entrepreneurs, for example senior Mayoral Committee members such as the Chair of the Finance Committee or equivalent.

Another aspect of potential South African research is to extend the municipal cost index (MCI) analysis to confirm application to the funding compliance measurement. This would require calculating a local government industry MCI as well as individual municipality MCIs.

8.5.5 Larger Australian local government sample

Another potential target for future research would be the application of the measurement instruments to a larger sample of Australian local authorities, possibly including a sample from other Australian states. Research could also apply the measurement instruments to other developed or developing countries. Given the similarities of accounting it would be most

useful to include New Zealand local government, although the United Kingdom and Canada would also likely provide useful samples.

8.6 Concluding remarks

This thesis has comprehensively substantiated that quantitative analysis is capable of being applied to measure the impact of technical assistance in financial management reform program in terms of the change in funding compliance and financial health of the municipalities analysed. It was evident from the analysis, based on changes in funding compliance and financial health, that it was difficult to distinguish municipalities that received international technical assistance from those that did not. However, this is deserving of further analysis.

The analysis for the thesis developed a performance rating scale for the efficient evaluation of municipal funding compliance, and augmented a local government financial health measurement scale. Associated with the investigation of funding compliance, it was revealed that the cash backing/accumulated surplus reconciliation procedure, developed during the South African Municipal Financial Management Technical Assistance Program, provides a valuable analysis tool for understanding the underlying financial performance and financial health. This procedure assisted to bridge the gap in understanding the underlying financial health in an accrual budgeting and an accounting environment, and may have application outside of local government.

The quantitative analysis procedure known as factoring was utilised to develop analysis dimensions that could simplify an assessment of municipal funding compliance by a central government agency. South African local government was the focus of the thesis although, subject to more extensive evaluation, it was also demonstrated that the instruments and performance rating could similarly be applied to local government financial analysis in a developed country context.

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