

Financial implications for built environment consultants working at risk in South Africa

Peer reviewed

Abstract

Consultants in the built environment of South Africa are facing financial risks due to clients' expectations of completing certain portions of work at risk. Thus, consultants would complete projects at risk in return for the possibility of remuneration in the long run. A descriptive survey was conducted among various professional consultants working within the built environment in South Africa. The findings include that a large percentage of work was expected to be completed at risk. Once work was completed at risk, a relatively small percentage continued to a stage where the actual consultant received remuneration. As a result of the current global economic climate, the amount of work required to be completed at risk increased and the percentage of work continuing to a stage of remuneration has also decreased. A greater percentage of clients therefore expected more work to be done at risk than the actual amount of work for which consultants are remunerated.

Keywords: Built environment, financial risk, expectations, remuneration, work done at risk

Abstrak

Konsultante in die boubedryf van Suid-Afrika loop finansiële risiko's as gevolg van kliënte se verwagtinge om sekere fases van werk te voltooi teen 'n risiko. Konsultante voltooi dus projekte teen 'n risiko met die hoop op vergoeding in die lang duur. 'n Beskrywende opname is gedoen onder 'n verskeidenheid professionele konsultante wat in die boubedryf van Suid-Afrika werk. Die bevindinge was dat 'n groot persentasie van die werk teen 'n risiko gedoen word. As die werk teen risiko voltooi is, is daar maar 'n relatiewe klein persentasie

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wat voortgaan tot 'n stadium waar die konsultant wel vergoeding ontvang. As gevolg van die wêreld se huidige ekonomiese klimaat het die hoeveelheid werk wat teen risiko gedoen word toegeneem terwyl die stadium waar vergoeding moet geskied, afgeneem het. Meer kliënte verwag dus werk wat teen 'n risiko gedoen moet word terwyl die eintlike bedrag van vergoeding vir die konsultante afgeneem het.

Sleutelwoorde: Bou-omgewing, finansiële risiko, verwagtinge, vergoeding, werk gedoen op risiko

1. Introduction

The South African construction industry has experienced a decade of considerable growth and success, particularly as a result of the government's considerable infrastructure spending. According to a report by the Department of Agriculture and Land Reform (2008: 7), the construction industry managed to increase its contribution to South Africa's Gross Domestic Product by 18% between 2003 and 2008. However, the current global recession has, as in most sectors, put a dampener on growth (Adendorff, Appels & Brink, 2011: 42).

During certain economic cycles, professional consultants in the built environment are forced to work at risk. No current remuneration model for consultants working at risk in South Africa is clearly defined. Professionals are increasingly expected to commit their intellectual property and time at risk. Developers and employers have a tendency to take a certain amount of advantage of this phenomenon (Chinyiou, 2011: 4). Therefore, consultancy firms expected to do work at risk are facing more substantial risks during recessed economic cycles due to an increase in the amount of work required to be completed at risk (Van Zyl, 2011). Consultants are, in turn, expected to do the work, only to receive remuneration in the long run based on the case of the possibility of actual projects continuing. Various researchers argue that clients use the work done by the consultant to some extent, but no payment is, however, made to the consultant in the long run, even though the client has found some form of personal enrichment (Clark, 2012: 4). Consultants and consultancy firms are therefore incurring substantial loss of potential turnover due to work completed at risk never continuing to a stage of remuneration for such consultant or organisation (Griffin, 2012: 1).

2. Literature review

The financial uncertainty as a result of the current economic cycle has negative effects on businesses that trade during these times. A decline in employment opportunities and level of trade, caused by recessionary conditions, is primarily unfavourable for any economic

activity (Mukucha, Mphethi & Maluleke, 2010: 12; Equiteq, 2008: 1). The contribution of Gross Fixed Capital Formation to Gross Domestic Product in South Africa averaged between 20% and 22% in 2009 and 2010, a marked improvement from an average of 17% in 2005 (Du Plessis & Smit, 2005: 5). From 2006 to 2010 there has been a substantial increase in fixed capital in South Africa brought about by the need to support longer term and sustainable economic growth. Strong investment in fixed capital has therefore provided structural support to the economy (The Consulting Engineers South Africa, 2011: 5). The construction sector in South Africa contributed 49% to Gross Fixed Capital Formation, and increased its contribution to 10.8% of Gross Domestic Product in the 3rd quarter of 2010. Between 2006 and 2010 the construction industry in South Africa was supported by stronger government investment as well as an increase in capital spending by Eskom, ACSA and Transnet, while private sector investment was boosted primarily by residential and retail construction (Consulting Engineers South Africa, 2011: 5; Gordhan, 2012: 1).

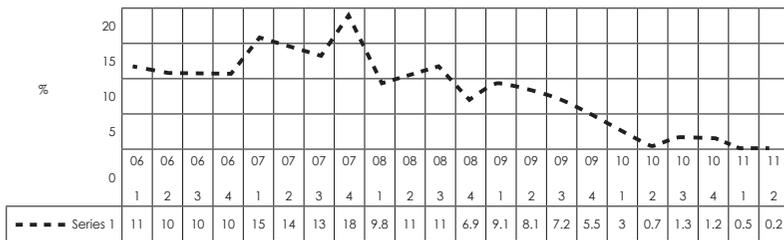


Figure 1: Percentage change in quarterly value added by construction industry at constant 2005 prices

Source: Stats SA, 2012

Residential buildings completed in South Africa also indicated a steady decline between 2007 and 2010. In an economic downturn owners and prospective owners of buildings may prefer to maintain their existing stock and delay new work, and therefore the number of mortgage approvals has a strong effect on the housing market (Chamberlin, 2009: 24-26).

From 2008 to 2010, the highest value of plans passed in South Africa, but never constructed, totalled R23 731 925 000 in 2008. In the same year, the mortgage rate was the highest, at 15.1%. Comparing the mortgage rate to the value of plans passed, but never constructed, a direct relationship between the mortgage rate and the value of the plans emerged. The negative value for residential buildings in 2009 could arguably be due to the sharp drop in mortgage rates

from 15.1% in 2008 to 11.7% in 2009, causing investors to carry on with building of plans passed in 2008 and, in turn, create the possibility of inaccuracies in the interpretation of data. To even out the data, a linear trend line has been added to the graph shown in Figure 4, illustrating the relationship between the value of the plans and the mortgage rate. A comparison of the linear trend line of the total value for plans passed, but never constructed, shows consistency against the gradual drop in mortgage rates over the three-year period. The actual value of building plans passed in South Africa in 2010 fell by 7.6 on the year in December (-11.7% y/y previously). The weakness was more pronounced in the non-residential building sector, which included factories, commercial and other office buildings. The real value of buildings actually completed in South Africa fell by 39.7% y/y in December 2010 (-15.4% y/y previously), driven by a contraction in both the residential and non-residential buildings (Radira, 2011: 1). This difference in the fall of plans passed, compared to buildings actually completed, created a situation where building projects were either cancelled or put on hold. This therefore increased the risk for consultants who are involved in those projects of not being remunerated for the work completed (Radira, 2011: 1).

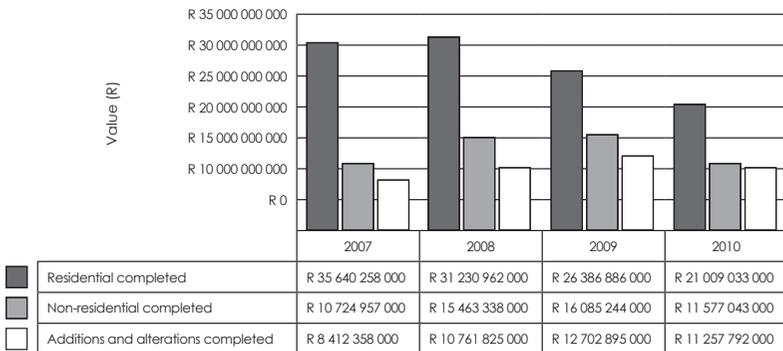


Figure 2: Buildings reported completed in South Africa

Source: Stats SA, 2010

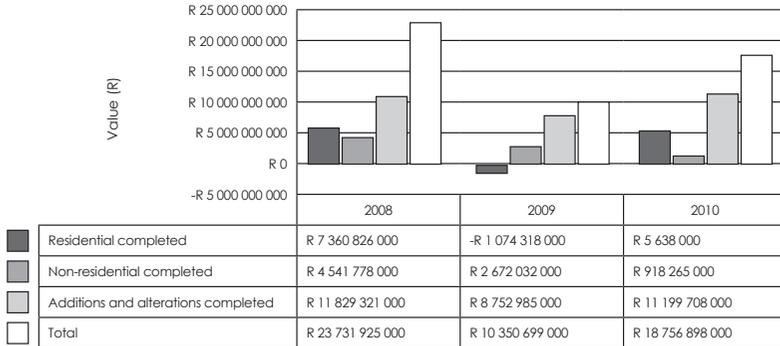


Figure 3: Value plans passed, but never constructed, in South Africa

Source: Stats SA, 2012

Economic cycles of recession caused uncertainty with regard to the financial feasibility of selected projects within the built environment (Posner, 2009: 25-43). Long-term construction projects may be victims of enormous escalations in cost. If recessions occur during the implementation phase of any project, the chances of cancellation will increase (The Construction Index, 2012: 1; Markstein, 2011: 1). It has been reported that most mega-projects have been put on hold and some cancelled, the reason being the world economic downturn (COBRA, 2010: 20). Two of Murray and Roberts' projects, a R3.2 billion Donald Trump Tower in Dubai and another in the Middle East, have also subsequently been cancelled (COBRA, 2010: 20). Goup5's small housing project for a local mining firm, African Copper Mining, has been cancelled due to financial pressures (*Business Day*, 2012: 1).

Eskom in South Africa also terminated the procurement process of the proposed and much needed multibillion-rand nuclear power station projects due to economic downturn factors (COBRA, 2010: 20). Construction of the much acclaimed Leadenhall building in Johannesburg was temporarily put on hold in 2008 and 2009, due to concerns over future occupancy rates, which were forecasted to be much lower during recessed economic downturns (Chamberlin, 2009: 30). At December 2011, only 13 of 107 planned projects in South Africa had broken ground, and only 10 of these have gone vertical (Lilia, 2009: 42). A decline in private sector investment, particularly in new housing construction, machinery, equipment and transport, contributed to the poor performance in gross fixed investment. Slower growth in non-residential construction resulted in a negative

impact on gross fixed capital formation in 2010 (Consulting Engineers South Africa, 2010: 3).

Conditions for consultants in the built environment industry continued to become more challenging. Fee income fell by 8% compared to the first 6 months, or by 16.9% year-on-year adjusted for inflation (CPI, 2011). The high level of discrepancies between consulting firms indicated that some firms did manage to report an increase in earnings, while most firms reported a decrease (Consulting Engineers South Africa, 2011: 19). The average (un-weighted) net profit (before tax) moderated in the last six months from 18.4% in the first six months of 2009 to 16.4% in the last six months of 2009. Therefore, economists expected profit margins to moderate further in 2010, to an average of between 10% and 13%. Although a larger number of consulting firms were dissatisfied with profit margins, the majority of consulting firms were still of the opinion that the profit margins were between satisfactory and good (Consulting Engineers South Africa, 2011: 10).

An increase in competition was felt due to the plummeting economy (Newcomb, 2009). It is argued that competition generally eased during a time when the availability of work decreased, and intensified during periods of work shortages (Consulting Engineers South Africa, 2010: 13). An easing of competition has generally led to an increase in prices, while price inflation was capped during periods of work shortages, due to the fact that an increasing number of firms tendered on the same projects. The tendering process was regarded as costly and time-consuming, and higher levels of competition significantly increased the risk for consultants in South Africa (Hughes, Hillebrandt, Geenwood & Kwawu, 2006: 140). Respondents indicated that competition was seen to have declined 79% in December 2007 to 78% in December 2009, recovering from what may have been a supported error during the June 2009 survey as part of the research study, 36%. Competition undoubtedly remains fierce in the construction industry in South Africa. It can be argued that competition really escalated in 2008 and subsequently led to an increase in the rates whereby firms discounted fees (Consulting Engineers South Africa, 2010: 14).

The discounting of fees, benchmarked against fee guidelines gazetted by The Engineering Council of South Africa, continued during the 2008 survey period, but moderated, from 19.3% to 16.4% during June 2009. Indications were that 43% of the firms reported a discounting rate of 20% or more, the highest being 45%. Larger firms argued to leverage a discount at an average of 21% during 2009 (compared to 25% and 15% in the previous surveys). Interestingly,

those firms already running at a capacity rate of 100% or more seemed to be offering the highest discounting rates of over 25%. Consulting Engineers South Africa's labour cost indicator, on the other hand, increased by 10.7% year-on-year December 2009, including a 20.6% increase in June 2009 (Consulting Engineers South Africa, 2011: 25). The increase in engineering consulting costs has, since June 2003, surpassed the increase in the Consumer Price Index, indicating that the real change in fee income has probably been overstated, given the fact that the Consumer Price Index has used a nominal fee income deflator (Consulting Engineers South Africa, 2011: 25). The average unit labour cost in the consulting engineering consulting industry, however, increased by a mammoth 145.0% a month between June 2002 and June 2009, from an average of R75 per hour (based on 160 hours per month) to R185m in June 2009 (Consulting Engineers South Africa, 2010). Average unit costs, on the other hand, increased by an annual rate of 21.7% in 2008, compared to 9.6% in 2007 and 10% in 2006. Unit costs rose 11% in June 2009 compared to December 2008, or by 25.4% compared to that of the June 2008 unit cost survey (Consulting Engineers South Africa, 2011: 25). Changes in the general cost of living (as measured by Statistics South Africa's Consumer Price Index) have clearly been non-indicative of labour cost changes within the consulting engineering industry (Consulting Engineers South Africa, 2010: 25).

2.1 Working at risk

Consultants are often required to perform work at risk (Consulting Engineers South Africa, 2011: 25). The concept of 'working at risk' is defined as when a consultant performs certain work for, or on behalf of a client and payment of the fee for such work is deferred (partially or in full) until a specific agreed event(s) occurs. This event is further defined as 'success'. If success is not achieved (often by an agreed date), the client has no further liability or obligation to pay the deferred fee. The work required by the client could include items such as presentations, design proposals and draft designs or layouts (eHow, 2012: 1; Saito & Furusaka, 2006: 3).

Reasons for performing work at risk typically fall within the following broad category: A requirement to align the interests of the consultant with those of the client through risk-sharing and a mechanism utilised by clients to manage their own cash flow and risk profiles. Whatever the reason, working at risk is becoming increasingly common (Consulting Engineers South Africa, 2011: 25). While it may be a valuable marketing tool for consultants, it also involves a meaningful role in protecting the interests of clients, but there are some pitfalls

that should be avoided. One of the pitfalls is pricing – if the pricing is wrong for a particular project, either the consultant or the client may thus be prejudiced (Moss, 2000: 1)

Working at risk should however not be confused with a simple deferral of the consultant's fee (or a portion thereof), which the client has already agreed to pay. In the case of a deferral, payment of the fee is certain, but when working at risk, there is a possibility that the fee never gets paid. It is clear in the case of working at risk that there is a definite transfer of risk to the consultant, but the same does not apply to a simple deferral of the fee. It is also clear from the definition of the concept of working at risk that the definition of success is critical. The event or events making up success should be defined clearly, without any ambiguity, and should be measurable or identifiable (Contractor Community, 2012: 1; New South Wales Government Procurement System for Construction, 2008: 5). An example would be the signing of a specific contract by the client or his agent. Payment of fees in portions or stages, each dependant on individual success events or combinations thereof, may apply (Consumer Build, 2012: 1). It is not necessary for the full fee payable to the consultant to be deferred, but where a portion of the fee is deferred this will still be regarded as constituting working at risk (Consulting Engineers South Africa, 2011: 30).

The question to be posed is at whose risk is work to be completed. First, it is argued and assured that the consultant will not be entitled to any fees or compensation for work to be done. From an income point of view, the work is being done at the risk of the consultant, who may never be paid for the services rendered (Ipenz, 2004: 14). It often appears that projects never go ahead, but alternatively, when they do proceed, the original consultant is not re-employed. The client then utilises the work done by the initial consultant on the project at a much later date, leaving the consultant out of pocket (De Vries, 2009: 1; Finch, 2011: 1).

The price of work as regarded by consultants has two components, namely the actual cost of carrying out the works and security which is allowed for profit. The activities involved in the course of work at risk therefore also warrant expenditure. The cost of work thus completed at risk will then usually be regarded to be subsumed in an organisation's overhead costs (Chinyio, 2011: 13). Determining overhead costs depends to a large extent on collecting accurate data and being able to present this data in a meaningful way. People and resources used to conduct the work at risk are not specifically dedicated to risk projects. However, only determining what resources

are completely consumed during this period is argued to be very difficult to determine. This is further complicated by how individuals and organisations are rewarded and the actual manipulation of data that occurs when people may try to optimise their personal rewards (Dalrymple, Boxter & Staples, 2006: 72-79). There are two types of overhead costs in professional consulting, namely company overhead costs and project overhead costs (Assaf, Bubshait, Atiyah & Al-Shahri, 2001: 1). The consulting company overheads include salary costs, payroll burdens, travelling expenses, communication expenses, legal services, drafting supplies, printing and copying, all incurred directly due to a certain project (American Society of Civil Engineers, 2003: 26). Project overheads, on the other hand, refer to the costs which cannot be linked directly to a certain project in particular, but are merely required for the survival of the business. These general overheads include items such as office supplies, automobile expenses, administration salaries, etc. (American Society of Civil Engineers, 2003: 26). Company overheads may be one of the main reasons why many professional consultants are unable to realise a profit, or even stay in business (Assaf *et al.*, 2001: 1). The expenditure on overheads varies between firms and trades, but each organisation must endeavour to recoup this as outgoing. This could be done by allowing for overheads either in each item of the Bill of Quantities, in South Africa, or as a lump-sum addition to the net project cost (World Bank, 2012: 1). In best practice, some overheads will be charged along with the preliminaries, and the rest as part of the unit rates pricing of individual items of work. A broad estimation of overheads is to assess the company's expenditure as a percentage of its turnover (Chinyio, 2011: 13).

Since some overheads are not incurred directly on a product such as construction of consulting materials, they can deceptively be invisible. However, overheads are relevant and expected to support the primary functions of any organisation. The ideal is to minimise, but not to do away with overhead costs. The minimisation must not be regarded as part of the detrimental primary functions of the organisation, but to ensure efficiency therein and to avoid or minimise waste.

3. Research method

In this study a quantitative approach was followed with the aim of gaining recognition of the problem. The case study approach and method was chosen for it allows for collection of rich data and assists in understanding phenomena in their real-life context (Oney-Yazici,

Giritli, Topcu-Oraz & Acar, 2007: 438). Interviews were used as the primary data-gathering method for this study. More specifically, focus interviews were chosen and questions were carefully designed to provide adequate coverage for the purpose of the research. The concepts and topics in the literature reviews were used to elicit information from the respondents.

The sample frame for the survey conducted included a wide spectrum of nine consulting professionals within the South African built environment, including engineers, property developers, project managers, quantity surveyors and architects. The design of the questionnaire was aimed at gathering data relevant to each sub-problem. As the topic being researched was of a technical and possibly personal nature, the questionnaires only addressed the salient aspects in order to be non-problematic. The questionnaire comprised 18 questions and was designed to ensure that the selected sample frame was not discouraged from responding. The questionnaire focused on the following topics as reviewed within the research, namely general information; information about amount of work done; information about remuneration for work done, and work done at risk between 2007 and 2010.

Respondents were given the opportunity to express general comments regarding the sustainability of any current remuneration models for consulting professionals in South Africa working at risk. Due to the increase in demand for the scarce skills of professionals in the professional consulting industry in South Africa, the likelihood existed that potential respondents were experiencing substantial workloads. Leedy & Ormrod (2005: 185) concluded that the use of questionnaires has advantages. However, questionnaires yield a low rate of response. However, based upon previous survey response rates of Crafford (2007) and Rossouw (2007), the eight responses can be deemed adequate for this research. The response rates for these surveys were 14.5% and 29%, respectively.

The following reasons that could have had a negative effect on the response rate were considered: respondents not having an interest in the research topic; the current nature and economic state of the construction/development industry in South Africa; the perception that completing the questionnaires would be time-consuming; non-delivery of questionnaires, and the respondents' unwillingness to take part in the survey. The number of questions entailed responses in the form of percentages, but due to the fact that it was argued to be very time-consuming for respondents to research exact numbers,

a certain degree of educated freedom was expected from each respondent.

4. The case study

4.1 Interview results: Profile of respondents

What is your highest qualification?

The majority of the respondents identified that the highest qualification they possess is a "B degree", which includes Bachelor's as well as Baccalaureus Scientiae degrees, with the second highest number being Baccalaureus Scientiae Honores degrees. Zero respondents possessed only Grade 12 or a National Diploma.

Please indicate which field of consultancy you are involved in.

The choices ranged between engineering, construction management, quantity surveying, project management and other. The majority of the respondents are involved in project management (32%), with construction management and engineering being second (23% each). Quantity surveying possessed the smallest share at only 4%. The responses received for other (18%) include sustainable energy, regional planning and feasibility/business cases for infrastructure, a consultant architect, and a dispute resolution consultant.

Please indicate what type of consulting projects your organisation completed in 2010 (indicate as a percentage totalling 100%)

Respondents were required to choose between commercial, industrial, infrastructure, residential and other. Most of the allocations were for infrastructure (46%), with commercial, industrial, residential and other occupying a considerably lower percentage share on average through the respondent frame. In the event of a percentage allocated to "other", respondents were required to specify, among others, wind farms, government, museum, sport, offices, education, recycling, space planning, etc. or golf estates.

Please indicate the average contract value range of consulting work done by your organisation (including contracts consulted for at risk where no remuneration was received).

Respondents were required to indicate a range by specifying an amount from and to per industry as their indication in the third question. This question was included to, in conjunction with the turnover; establish the relevant size of the organisation and contracts

which they have completed to work on, as well as to prove the spectrum of respondents surveyed.

What was the turnover for your organisation in 2010?

Options included unsure, will not say, and the South African Rand value for the turnover of the organisation in 2010. This question was included in order to attempt to notice the spectrum of respondents, as well as to equate the actual amount of potential turnover lost by each of the respondents in testing each one of the propositions.

4.2 Interview results: Remuneration of consulting work

In the event of the project continuing, at what stage (indicated as a percentage) into the project will remuneration for the work completed in the beginning be received?

Respondents were required to indicate a percentage per industry as posed in the third question. Comments by many respondents included that the costs of the work done at risk are covered in the budgeted overheads of the organisation, but in many cases are written off from the start. However, respondents also indicated that the overheads were to be recovered from successful projects and will only be fully recovered into the projects once and if projects continue.

4.3 Interview results: Consulting work done “at risk”

What percentage of consulting work completed in 2010 was to be remunerated once the project was confirmed to continue further, or in the event that your organisation is selected for the project (i.e. “at risk”)?

Choices were again between commercial, industrial, infrastructure, residential and other. Other was specified in question 3. Although, in question 3, it was noted that the majority of work conducted at average through the sample frame consists of infrastructure, it is residential (32.73%) and commercial (26.73%) that required the highest amount of work to be completed at risk, with industrial (14%) and infrastructure (14.09%) requiring a considerably lower percentage of total work to be done at risk.

What percentage of consulting work done at risk in 2010 continued to a stage where remuneration was received by your organisation?

Choices were again between commercial, industrial, infrastructure, residential and other. On average only 30% of all commercial work done at risk continued to a point where remuneration was received by the consultant, thereby being the second lowest received score,

after infrastructure. Fifty-two per cent of industrial work continued to the point of remuneration for the consultant. It was specified in previous questions that the majority of work done by consultants consists of work in the infrastructure field, but it became evident that this field requires one of the lowest percentages of work done at risk. This field of infrastructure, however, also has the lowest success rate for projects continuing to a point of remuneration for the involved consultant with only 6.25% of projects continuing to this point for any given professional consulting project. Although it is difficult to specify exactly which type of work specified in "other" caused the high percentage of "at risk work" continuing to an actuality and a point of remuneration for the consultants, "other" scored the highest, and was therefore regarded as the lowest risk factor posed for consultants.

Has the amount of work to be done "at risk" increased since 2007?

Respondents were required to choose between "Yes", "No", or "Unsure". The majority of the respondents noted that the situation of work being required to be completed at risk has in fact deteriorated since 2007 with 55% answering "Yes" to this question. Twenty-seven per cent answered a definite "No", and 18% were "Unsure". A large percentage of respondents who answered "No" or "Unsure" indicated that they do almost no work at risk.

If YES in previous question, what percentage of consulting work was done at risk in 2007?

The options were similar to those indicated in the fourth question in order to enable a comparison to be made between 2007 and 2010.

If YES in previous question, what percentage of consulting work done in 2007 continued to the stage where remuneration was received by your organisation?

The options were similar to those indicated in the fifth question in order to enable a comparison to be made between 2007 and 2010.

What is the cost to your organisation of the actual work generally done "at risk" (indicate in the form of percentage of contract value).

Respondents were required to indicate a percentage per particular industry indicated in the third question.

What kind of work has generally been done "at risk" by your organisation (please indicate with an X in all the relevant fields)?

Options included presentations, sketch drawings, working drawings, rough cost estimations, feasibility studies and other. If "other" is

chosen, respondents were required to specify. Specifications for "other" include various types of programmes and reports as well as the general management of the risk phase of the project and development facilitation.

What percentage of clients use the work done "at risk" by your organisation for any form of personal enrichment of any kind (including to establish the feasibility of a project or merely for personal information)?

Respondents were required to indicate a percentage per industry as indicated in this particular third question. In answering this question, it became clear that, in the respondents' opinion, a much higher percentage of clients utilised the work done at risk, than what consultants got remunerated for.

What were the consulting projects presented generally used for (please check all relevant boxes)?

Options included personal information, feasibility, acquisition of possible investors, seeking funds from financial institutions, presentations, cost estimations and other. If "other" was selected, respondents were required to specify. However, not a single respondent selected "other" in this instance.

To what extent of financial risk did your organisation experience of work done "at risk" (please indicate with X only one option)?

Options included no financial effect on organisation, very small financial risk, small financial risk, average financial risk, large financial loss, and risk of closure.

On a scale of 1 to 5 where 1 (has not) and 5 (has very), how sustainable do you think a current remuneration model was for consultants when working in the following industries?

Respondents were required to indicate per industry, as indicated in the third question. When examining the linear trend lines drawn for each of the industries, it became clear that the majority of the respondents regarded the sustainability of any current remuneration model as unsustainable across most fields.

What percentage of your annual turnover was for work done "at risk"?

Respondents were given the choice of either answering "Unsure" or entering a percentage. Two respondents answered 0% and two respondents answered "Unsure". Out of the rest of the respondents who answered, a percentage of their turnover was, however, from

work procured "at risk". An average of 49.29% of their turnover procured "at risk" was reported.

Do you have any other comments regarding remuneration models for professional consultants in South Africa completing work at risk?

Comments included: For our company it may be completing work at risk due to some 'scope creep'. For some respondents, considerable work was done against minimal fees in return for obtaining rezoning and marketing of the proposed schemes. Some projects were being 'sold on', and for other respondents the cutting of 'downstream' revenue was to flow from the initial projects done at risk. Some respondents regarded this as possibly due to not being astute enough when dealing with certain developers and agents. Considerable and significant wealth has, however, been generated by some respondents requesting a certain portion of proposals for work done at risk. From experience, what was more damaging was the pressure felt to cut consulting fees and the new tendency of required tendering about possible commissions in the industry, which were felt to be damaging to certain design professions and the business environment in general. Adequate fees are required to service a project. Respondents also argued that it is possible to pass off work produced with the minimal input necessitated by tight fees, but this was felt to be very damaging to the profession, its sustainability and society at large. Some respondents also indicated the lack of awareness of what competent design can (and should) contribute towards the appropriate development of South Africa, communities and the well-being of all South Africans. Current tendering for services in South Africa was felt to be not sustainable for it does not promote growth in the industry, training and development of trainees. The tender process was also argued to be wasteful and inefficient as it results in unnecessary cost to companies. The tender process rewards the lowest bidder, which is rarely (if ever) best equipped for the job, and clients in the public sector often lack the skills and knowledge to be able to adjudicate on the most appropriate service provider. The further lack of clarity on the scope of work was also regarded as a critical problem for many tenders. This increase in tender offers by the public sector will in the future change the figures periodically striving towards 100% of tendered appointments.

The review of related literature and the findings emanating from the descriptive survey were used to test the propositions.

4.1.1 Proposition one

Consultancy firms in the South African built environment are facing more substantial risks during recessed economic cycles due to an increase in the amount of work required to be completed at risk.

Comparing the Gross Domestic Product and the contribution by the construction industry in South Africa to the Gross Domestic Product of 2007 and 2010 in South Africa, it became clear that the economy and the South African construction industry was in a worse condition in 2010 than in 2007. Therefore, these two years were compared with regard to the amount of work required to be completed (at risk) as well as the success rate of projects for the consultants involved. It was evident that the amount of work required to be completed in 2010 was considerably higher than that required during 2007 for most industries. The percentage of projects which continued to a stage where the consulting organisation received remuneration dropped from 2007 to 2010. It is therefore argued that the consultants were under more financial pressure during 2010 due to the decline in successful projects within the construction industry in South Africa.

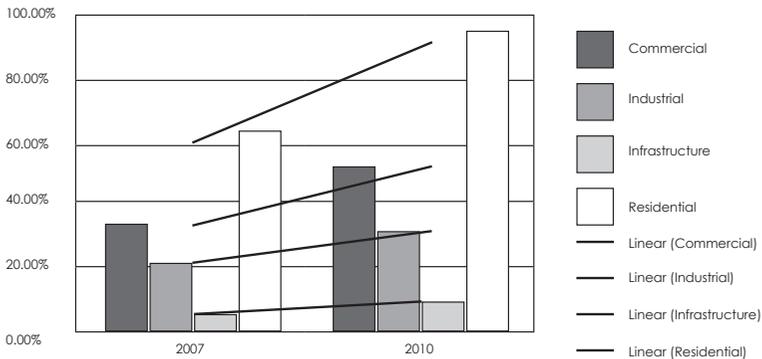


Figure 4: Percentage of work required at risk in 2007 versus 2009

Source: Researcher's own construction

4.1.2 Proposition two

Consultants were expected to do a certain amount of work, only to receive remuneration in the case of the project continuing.

Results of this survey indicated that large percentages of work were required to be completed by consultants in South Africa working at risk. It became evident that the stages at which certain

organisations were remunerated for work done at risk were often far into the actual project. The cost of such project work done at risk was often written off to overhead costs which were to be believed to be recovered equally over all perceived successful projects.

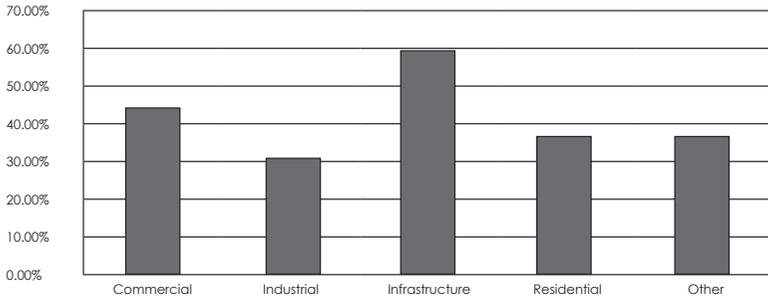


Figure 5: Stage of project as percentage at which remuneration is received for work

Source: Researcher's own construction

4.1.3 Proposition three

Clients of the respondents of this survey used the work done by the consultant to some extent, but no payment was made to certain consultants even though the clients had some form of personal enrichment.

Respondents believe that it often happens that the project does not go ahead, but when it does proceed, the original consultant was not re-employed for whatever reason. The client then utilised the work done by the initial consultant on the project at a later stage, leaving the consultant out of remuneration (Consulting Engineers South Africa, 2004).

4.1.4 Proposition four

Consultants and consultancy firms are incurring substantial loss of potential turnover because of work completed at risk never continuing to a stage of remuneration.

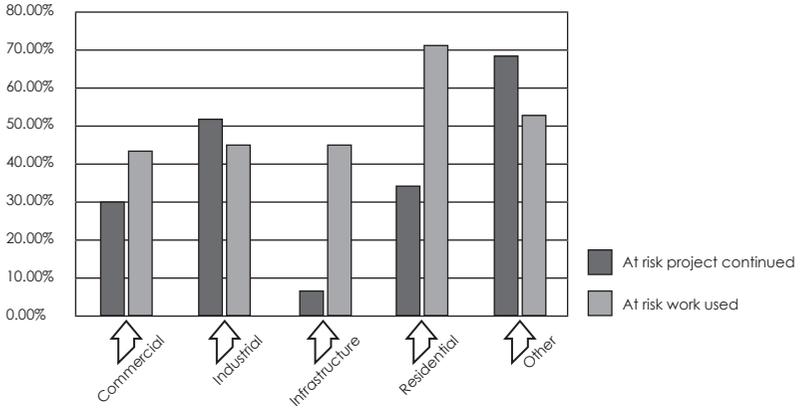


Figure 6: Average percentage of projects continuing vs percentage of clients utilising work done at risk

Source: Researcher's own construction

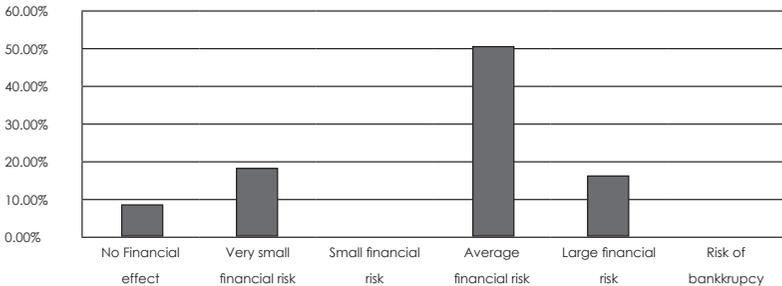


Figure 7: Financial risk faced by organisation because of remuneration model

Source: Researcher's own construction

In order to test the above proposition, the extent of financial loss was calculated per respondent which indicated that his/her organisation did in fact endeavour doing work at risk. In order to calculate the percentage of potential turnover lost by each respondent per industry, data were required regarding the percentage of total work done, the percentage of the particular work completed at risk, as well as the percentage of the latter which continued to the point where the organisation actually received remuneration.

To calculate the percentage of potential turnover lost by each organisation, the following equation was used:

$$\text{Plost} = (100 \times \text{Pt}) \times \text{Pr} \times (100 - \text{Pp})$$

where: Plost: Percentage of turnover lost because of work at risk

Pt: Percentage per industry of total

Pr: Percentage of Pt which is completed at risk

Pp: Percentage of Pr for which remuneration is received

Respondent one indicated that 60% of work undertaken by his/her organisation was classified as "other", of which 5% was done at risk. Of this 5%, only 95% continued to a stage where his/her organisation received remuneration. This translated to 0.15% of the respondent's turnover being lost because of work completed at risk. The respondent did not indicate a turnover; therefore it is not possible to calculate a physical value in South African Rand.

Respondent two indicated that 80% of work undertaken by his/her organisation is classified as "commercial", of which 90% was done at risk. Of this 90%, only 30% continued to a stage where his/her organisation received remuneration, which meant that 70% of it was lost. This translates to a loss of 50.4% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 75 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 37 800 000.00. Ten per cent of work undertaken by his/her organisation was classified as "industrial", of which 60% was done at risk. Of this 60%, only 70% continued to a stage where his/her organisation received remuneration. This translates to a loss of 1.8% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 75 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 1 350 000.00. Ten per cent of work undertaken by his/her organisation was classified as "residential", of which 100% was done at risk. Of this 100%, only 10% continued to a stage where his/her organisation received remuneration. This translates to a loss of 9.0% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 75 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 6 750 000.00.

Respondent three indicated that 30% of work undertaken by his/her organisation was classified as "commercial", of which 100% was done at risk. Of this 100%, only 40% continued to a stage where his/

her organisation received remuneration. This translates to a loss of 18% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 6 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 1 080 000.00. Forty per cent of work undertaken by his/her organisation was classified as "industrial", of which 60% was done at risk. Of this 60%, only 50% continued to a stage where his/her organisation received remuneration. This translates to a loss of 12% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 6 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 720 000.00. Thirty per cent of work undertaken by his/her organisation was classified as "residential", of which 100% was done at risk. Of this 100%, only 10% continued to a stage where his/her organisation received remuneration. This translates to a loss of 27% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 6 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 1 620 000.00.

Respondent four, however, indicated that 30% of work undertaken by his/her organisation was classified as "industrial", of which 30% was done at risk. Of this 30%, only 70% continued to a stage where his/her organisation received remuneration. This translates to a loss of 2.7% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 12 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 324 000.00.

Respondent five argued that 5% of work undertaken by his/her organisation was classified as "commercial", of which 2% was done at risk. Of this 2%, only 10% continued to a stage where his/her organisation received remuneration. This translates to a loss of 0.09% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 428 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 385 200.00. Five per cent of work undertaken by his/her organisation was classified as "industrial", of which 2% was done at risk. Of this 2%, only 10% continued to a stage where his/her organisation received remuneration. This translates to a loss of 0.09% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 428 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 385 200.00. Ninety per cent of work undertaken

by his/her organisation was classified as "infrastructure", of which 5% was done at risk. Of this 5%, only 5% continued to a stage where his/her organisation received remuneration. This translates to a loss of 4.28% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 428 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 18 297 000.00.

Respondent six indicated that 20% of work undertaken by his/her organisation was classified as "commercial", of which 100% was done at risk. Of this 100%, only 10% continued to a stage where his/her organisation received remuneration. This translates to a loss of 18% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 100 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 18 000 000.00. Eighty per cent of work undertaken by his/her organisation was classified as "infrastructure", of which 100% was done at risk. Of this 100%, only 10% continued to a stage where his/her organisation received remuneration. This translates to a loss of 72% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 100 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 72 000 000.00.

Respondent seven indicated that 20% of work undertaken by his/her organisation was classified as "commercial", of which 2% was done at risk. Of this 2%, only 60% continued to a stage where his/her organisation received remuneration. This translates to a loss of 0.16% of the respondent's turnover because of work completed at risk. Twenty per cent of work undertaken by his/her organisation was classified as "industrial", of which 2% was done at risk. Of this 2%, only 60% continued to a stage where his/her organisation received remuneration. This translates to a loss of 0.16% of the respondent's turnover because of work completed at risk. Sixty per cent of work undertaken by his/her organisation was classified as "residential", of which 70% was done at risk. Of this 70%, only 50% continued to a stage where his/her organisation received remuneration. This translates to a loss of 21% of the respondent's turnover because of work completed at risk.

Respondent eight indicated that 100% of work undertaken by his/her organisation was classified as "infrastructure", of which 30% was done at risk. Of this 30%, nothing continued to a stage where his/her organisation received remuneration. This translates to a loss of 30% of the respondent's turnover because of work completed at risk. The

turnover indicated by the respondent for 2010 is ZAR 11 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 3 300 000.00.

Respondent nine indicated that 98% of work undertaken by his/her organisation was classified as "infrastructure", of which 20% was done at risk. Of this 20%, 10% continued to a stage where his/her organisation received remuneration. This translates to a loss of 17% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 6 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 1 058 400.00. Two per cent of work undertaken by his/her organisation was classified as "residential", of which 90% was done at risk. Of this 90%, only 60% continued to a stage where his/her organisation received remuneration. This translates to a loss of 0.72% of the respondent's turnover because of work completed at risk. The turnover indicated by the respondent for 2010 is ZAR 6 000 000.00, which means that the South African Rand value lost because of this factor equates to ZAR 43 200.00. It should be noted that the percentages and amounts of turnover lost are identified as "potential turnover", which means that it would be the amount gained by each organisation in the event of each project taken on by the organisation at risk continuing to completion for that organisation. Every organisation incurred great losses of potential income because of work started by that organisation at risk not continuing to completion for that organisation.

5. Conclusions and recommendations

The downturn in the current economic condition in South Africa has had a negative effect on the South African built environment which, in turn, affects businesses at all levels of trade. Although the value added to Gross Domestic Product by the South African construction industry has increased from 2006 to 2010, the number of buildings reported as completed in South Africa declined between 2007 and 2010. The uncertainty caused by an economic downturn increased the risk of construction projects not reaching final completion, causing potentially substantial financial loss and/or risk in the South African built environment, architectural engineering and cost estimating.

Consultants are required and expected to perform work such as presentations, design and draft proposals at risk, only to be remunerated for such work at the possibility of the project continuing during a later stage. The cost of any work completed

at risk by a consultant or company is generally covered by the particular company's overheads. The majority of work completed by the sample of this study consisted of infrastructure. However, residential and commercial projects required the most amount of work expected to be completed at risk. On average, the majority of work in the infrastructure field did not continue to any stage of remuneration for the involved company. The amount of work required to be done at risk also increased from 2007 to 2011, and companies were, therefore, faced with financial risks due to work having to be done at risk.

It was also found during the study that countless resources were wasted by companies and consultants in South Africa annually due to work being completed "at risk" and not continuing to a stage where remuneration was received. Consultants were, in fact, expected to conduct a great amount of work at risk in South Africa, with work in the residential industry requiring the highest average percentage of work done at risk. Work in the industrial sector has had the highest success rate, after "other" for work done at risk to continue to a stage where the consultant received remuneration. Work in the infrastructure sector has had the lowest success rate for remuneration, and it is therefore suggested as the highest risk sector in terms of work continuing. The situation of work required to be completed at risk has also deteriorated between 2007 and 2010 in South Africa. The percentage of work required at risk increased, whereas the success rate of projects continuing for any given consultant decreased.

The actual cost to the consulting organisation of the work done at risk equates to between 1% and 2.5% of the total contract value. It was noted that, on average, more clients use the work done at risk than what they receive remuneration for. An argument raised by one of the respondents in this survey indicated that the professionals in the built environment often do work "for free", while other professionals such as attorneys, accountants or doctors will invoice clients for their time spent.

6. Further research

The current tender process in South Africa for both contractors and consultants was cause for some concern and should be further investigated. The money that it is costing each consortium (or firm) taking part in a tendering process should be reviewed in South Africa. The proposed methods followed during selection processes should also be investigated, as the possibility exists that, with the

current selection processes, the price of proposals exceeds the factor of whether the bidding company is financially equipped to manage the actual bidding process. One respondent representing a leading engineering consultancy firm indicated that there are serious problems as a result of certain clients "not knowing what they really want".

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