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RESOLVING RETENTION POLARITY: THE PERCEPTIONS OF STRUCTURAL STEEL SUBCONTRACTORS

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ABSTRACT

This study aims to understand the perceived polarity between main contractors and subcontractors with a view to resolving problems connected with retentions in an environment where a sliding-retention regime is utilised with a retention rate of 10% for work below NZ $ 200,000. Eight structural steel subcontractors operating in Auckland were interviewed. Contrary to popular belief, subcontractors are not averse to retentions with most taking a middle ground. Nevertheless, the apparently fair practice of using back-to-back contract terms is not seen as fair and reasonable. Most solutions acceptable to subcontractors impact negatively on contractors' cash flow highlighting the need for some form of reciprocity from subcontractors (price discounts, improved performance, etc.) to induce contractors to offer favourable retention regimes. This highlights the need for a theory on 'retention reciprocity' to supplement the five theories on retentions. However, given that not all contractors can be expected to display reciprocity fairness, an interventionist approach may be necessary in order to neutralise any imbalances in power between the contracting parties possibly through amendments to the Construction Contracts Act, and when doing so, there is a need to exercise much caution as the outcome of chaotic systems could be quite unpredictable.

Keywords: *reciprocity, retentions, construction contracts act*

1. INTRODUCTION

Some countries have declared war on the use of retentions. Some have effectively eliminated retentions (Abeysekera, 2009). Others lament, citing unprecedented problems (Abeysekera, 2008). Yet, some are convinced that it is an essential vehicle of modern day business. Others point out its power and how retentions may be harnessed for greater good (Abeysekera, 2005). Some have already created retention based funds to finance construction, given the reluctance of commercial banks to understand construction (Abeysekera, 2002, 2003). Others have tried to abolish retentions but failed (House of Commons, 2003). Moreover, practices related to retentions vary from country to country, from one standard form of contract to another and also from one contractor to another. Rates, limits, and release mechanisms vary too with many permutations and combinations. Thus, on the face of it there is chaos. It is this phenomenon that is being investigated focussing on perceptions of structural steel subcontractors in New Zealand in order to find a way to resolve problems and issues connected with retention regimes.

2. THE NEW ZEALAND CONTEXT

It is interesting to note that New Zealand is one of the few countries that had legislation on retentions as way back as the latter part of the last century with a rate as high as 25%! Whilst the intentions for having retentions then were different to the current, this 'ancient' practice has continued over the years but with diminishing rates of retention regulated since 1892 until the act legalising retentions were abolished in 1987 leaving industry to regulate itself. Interestingly, the retention regime in New Zealand is not a flat one but a sliding one as shown in Fig. 1.

In formal construction, it is standard practice to use back to back contract terms. Thus, retention regimes imposed on main contractors are usually imposed on subcontractors too as it is considered to be fair by the main contractors. However, what is interesting about this practice is that on large projects, the effective rate of retention imposed on main contractors is much less (2.5% for a 8M project as shown in Fig. 1) although the rates for subcontracted work are much higher (10% for a 200,000 package, 6% for a 1M package)! The use of back to back terms also suggests that defect liability period (DLP) is the same and front end trades (such as structural steel) can expect to receive their retentions back only at the end of the main contractor's (MC) DLP. Thus, one may argue that

this apparently fair practice of using back to back terms may result in higher retention rates and longer defects liability periods. Is this really the case? Is there a need for higher rates of retentions and longer DLPs? Perhaps, one needs to look at the purpose of retentions to answer this intriguing question (see: (Abeysekera and Soysa, 2012).

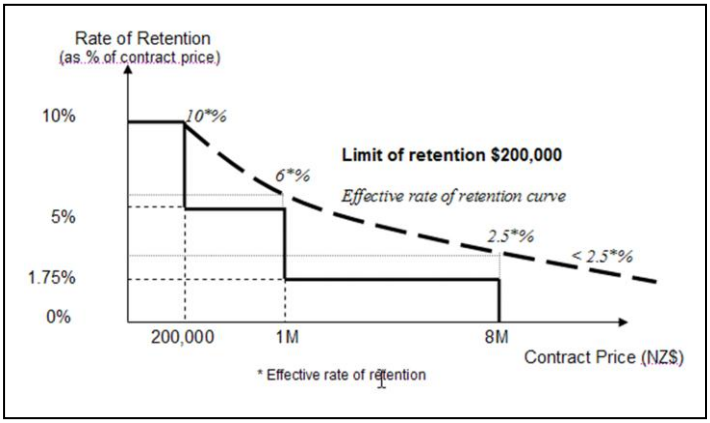

Fig. 1: Sliding retention regime commonly used in New Zealand

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The debate on whether retentions are fair or unfair, whether favourable to one party than the other seems unresolved. Main contractors in New Zealand are keen on retaining retentions whilst subcontractors appear to oppose, or at least point out the unfavourable aspects including abuse (Abeysekera, 2002, 2008). This is not surprising given that main contractors in New Zealand could generate considerably large surpluses of cash deploying what Abeysekera (2005) had referred to as the 'retention differentiation' strategy; indeed, an interesting mechanism for financing construction work reinforcing the author's Cash Cow Theory of Retentions not without beastly characteristics according to the author's Beast Theory of Retentions (Abeysekera, 2008). It must be noted that these theories are yet to be subjected to greater scrutiny by the academic community although the nature of 'theory' is such that it is neither complete nor perfect with the opportunity to criticise and refine with greater understanding given that theory development is an on-going process (Shoemaker *et al*, 2004).

It must also be mentioned that cases of front-end subcontractors such as those involved in demolition, excavation, concreting and structural steelwork are sometimes imposed high retention rates (Abeysekera and Soysa, 2012) and long DLPs, sometimes as long as 2 years, before they could get their retentions released. Given this background, it is easy to argue that contractors and subcontractors must be polarised on the issue of whether or not to use retentions in the form it is practiced in New Zealand. It is this 'perceived' polarity that this paper attempts to resolve by investigating the perceptions of one of the front end trades, namely, the structural steel fabricators, in an industry where subcontracting is rampant.

3. METHODOLOGY

As mentioned before the main aim of this study is to understand the perceptions of structural steel fabricators (SSF) with a view to ascertaining ways to resolve the retention polarity that appear to loom large in the New Zealand construction industry.

This exploratory study focuses on SSF in Auckland (the most populous city in New Zealand) and where probably the largest number of structural steel fabricators resides. Whilst there are many structural steel subcontractors in Auckland, only contractors whose annual turnover was more than one million NZ dollars was selected as such subcontractors operate in the formal construction sector. Subcontractors with an annual turnover of NZ$ 12.5 to 20M were categorised as Large, 5 to 12.5M as Medium, and 1 to 5M as Small.

A two-pronged approach was used for selection SSFs to be interviewed: Firstly, large scale contractors were contacted to identify well-known structural steel subcontractors, and secondly, subcontractors were asked to suggest names of others who were generally well known in the industry. Selections were limited to those who have been in industry for at least half a decade to ensure that they had a better understanding of the issues. In all eight subcontractors were selected based on their reputation.

In order to improve the reliability of the data collected only directors, commercial managers, and chief quantity surveyors were interviewed. The interview guide was emailed to them prior to the meeting. Whilst most interviews were completed within an hour there were few which took over an hour. In one instance, the interview took about 2½ hours: In this instance, the director who was interviewed invited his Financial Controller to participate as well.

The interview guide had 20 questions and a form for evaluation of alternative approaches to retentions. Data so collected were displayed using a conceptually clustered matrix. In doing so, the interview questions and responses were re-examined for potential concepts (or variables) by clustering several research questions together so as to generate meaning more easily. In other words, both a conceptual and an empirical approach were adopted when constructing these conceptually-coherent matrices with columns representing the concepts and rows containing the names of SSF firms and their responses. In all nine matrices were constructed with one matrix devoted to the 'context' of the situations being studied.

4. PURPOSE OF RETENTIONS

Unfortunately, it appears that none of the standard form contracts define or explain the purpose of retentions. According to many sources of literature, Das (2008) asserted that retentions are useful for the following purposes:

- A fall back fund for the employer in case the contractor defaults or goes bankrupt;
- As an incentive for completing a project as early as possible (as part of the money will become available at practical completion);
- As a protection against any defects that might arise during the defects liability period;
- To act as a deterrent against contractors who fail to respond without delay to rectify defects during the defects liability period
- As a protection against any overpayments; and
- As a fund to respond to any lien claims of unpaid suppliers (say in the event of a subcontractor abandons work).

The importance of these considerations accentuate with respect to subcontract work as it is not common practice to use performance bonds despite back to back contract terms (which seems favourable towards subcontractors as subcontractors rarely provide such bonds) although it is not

clear whether retentions bonds would be accepted by main contractors. Given this background, the following non-performance situations usually covered by performance bonds as noted by Bunni (2005) can also be expected to be covered by retentions for subcontract work:

- Improper execution of the works by the contractor involving material, plant, workmanship, or design leading to defective work or work not in accordance with the contract which is discovered during the contract period and ending with the issue of the final certificate;
- Improper execution of the works by the contractor involving material, plant, workmanship, or design leading to defective work or work not in accordance with the contract which is discovered after the issue of the final certificate;
- Delayed completion of the works beyond the stipulated date stated in the contract; and
- Failure to complete the works as a result of the contractor's inability to continue with the performance of his contractual obligations.

As part of this study, structural steel subcontractors were asked to explain the purpose of retentions. Their responses are given in Table 1. Thus, it is clear that subcontractors perceive that retentions are of 'value' to main contractors and as such, it would be difficult to imagine that they would let go of this practice.

Table 1: Purpose of retentions as perceived by structural steel subcontractors

Size of Firm	Reasons for MCs holding retentions
1. Large	Quick response trigger for defective remedial work Cash flow Investment opportunities (e.g. purchase of land)
2. Large	-
3. Large	Facilitate cash flows of MCs
4. Medium	As a warranty "Interest generating capability has been calculated into winning the job."
5. Medium	Security of performance, risk of over certification (billing is not an exact science), positive cash flow for MCs. "The old thing about the 10% retention is that it gives the MCs greater comfort in using an untested subcontractor with an unviable price…! That's a quite real consideration"
6. Medium	-
7. Small	Quick response trigger for defective for remedial work (only reason) [Did not say about cash flow benefit to MCs]
8. Small	-

Thus it seems useful to have retentions for subcontract work (from a main contractor's point of view). Given this scenario, it would be useful to understand the acceptability of retentions from the point of view of the structural steel subcontractors.

5. ACCEPTABILITY OF RETENTIONS

A representative selection of the types of responses received when the interviewees were questioned on whether 'retentions' was an acceptable practice is given in Table 2.

Results show that contrary to popular belief, subcontractors are not totally averse to the concept of retentions! In fact, the peaked central tendency of the inclinations (see number of responses in the second row of Table 2) suggests that the majority view is to accept (with reservations) rather than to reject. This middle ground seems useful for resolving retention polarity. However, in order to make better sense of the data, after some deliberation, four concepts were synthesised, i.e. 'fairness', 'reasonableness', 'power' and 'rights' all of which are grounded in the data itself (see underline

phrases in Table 2). These four concepts could play a significant role (with others) to diffuse the state of polarity that exists between contractors and subcontractors particularly by understanding concepts of 'fairness' and 'reasonableness'.

Table 2: Acceptability of retentions and possible clusters for resolving polarities
(Note: L,M,S refers to responses by large, medium, and small)

Acceptable	Acceptable with reservations		Not acceptable	
1 (L)	**5** (1L,2M, 2S)		**2** (L,M)	
L: "Strategically advantageous to compete with smaller fabricators [A1]"	L: *Duration of DLP:* "We don't mind retentions to some degree. But, why should we wait for years and years after we've finished the work… Retentions should be released three months after our completion…It is greatly abused…It is <u>not fair [B1]</u>" M: *Rate of retention:* "It is a form of security, [for] workmanship and quality, progress payments are never exactly quantified…I will qualify this statement by saying that 10% is not an acceptable practice when the main contractor has much less than that up against them. It is a very distorted situation where main contractors will generate positive cash flows through higher retentions…[B2] So, when it comes to completion, it's actually in main contractor's interest to not complete projects [not common though]. I am quite happy with retentions but <u>it is the application of the scale that is objectionable [C1]</u>." S: *Rate of retention:* "Absolutely, it should be there…[B3]We all want to play safe…You need to look at both sides and I think, it is <u>a fair thing [B4]</u> to have…. You can't really eliminate. To be <u>reasonable [C2]</u>, rates [should be reduced to] 5% and DLP to 3 months from our sectional completion." M: *Interest for moneys held* "It is there for a purpose [C3]. But we must get interest. The client has a <u>right [D1]</u> to keep our money but it is our money. If [at all] he should <u>return our money with interest [D2]</u>."(M) S: *Retention rate:* "Need for some form [B5] but 10% is not acceptable [C4]. On A 400,000 job what can go wrong is only special coatings (if any) and this will not cost so much[C5]"		L: *Pre-trade quality issues* "Normally retentions are based on quality of work. Lot of our work is based on what we are given to work with. When we hand over our work steel must be plumb, true and correct. But, when they handover the concrete to us, it is not plumb, it is not true, and not correct…[B6] You have to accept to work your way through it…. They say they use a ISO 9001 system yet they get nothing is right…When we are handed a floor, it's 25mil out, bolts are miles out, nothing is level, and nothing is checked… They must have good quality controls. We work according to specs. The builder should have someone to check that we are working according to specs. If you are not, should they not tell you as you are doing the work? Why check something when it's finished? [C6]" Retentions create a big-brother syndrome.[A2]" M: *Cost* "I think it is stupid. It is an additional cost[C7]"	
Concepts	Fairness (B)	Reasonableness (C)	Power (A)	Rights
Indicators	B1,B2,B3,B4,B5,B6	C1,C2,C3,C4,C5,C6,C7	A1,A2	D1,D2
Concerns for subcontractors	Duration of DLP; Quality of work of other front-end trade; Better cash-flows for MCs	Rate; Interest for moneys held; type of defects	-	Interests for retentions held

6. ACCEPTABILITY THE DEFECTS LIABILITY PERIOD

Shown in Table 3 are the responses received when subcontractors were questioned on the acceptability of a defects liability period for structural steel work.

Once again it appears that subcontractors are not totally averse to having a defect liability period but what concerns them is the duration of such periods, quantum of retentions held, and timely release.

This raises some fundamental questions on the issues mentioned above (rate, duration, release) in relation to what is *fair and reasonable*. In other words, is there a rational basis for setting up a retention regime for subcontract work whilst meeting subcontractor's test of fairness and reasonableness? Unfortunately, this is an issue that needs to be investigated further. Understanding defects regime for structural steelwork would assist but it is not sufficient. Investigations carried under this study reveal that most of the defects seem to be in relation to paint coatings which are not costly to remedy although the greatest risk seems to be when such problems arise during the defects liability period.

On the other hand, are there solutions to overcome some of the concerns related to fairness and reasonableness expressed by subcontractors? Are there win-win solutions?

Table 3: Acceptability of Defects Liability Period

Acceptable	Acceptable with reservations	Not acceptable
2 (L,M)	**3** (L,M,S)	**3** (2L,M)
M: DLP for coatings "Defects period is necessary. You can enter into say whether the DL is limited only to the coatings [as] generally nothing should go wrong with steel but that is splitting ears…It is just as simple to take it overall." Cost of remedial work: Rework extreme cases – 25%; on the average 10%. 99% of the time with paint coatings. Frequency of projects with defects: "Very rare. In 5 yrs. it must be handful of projects with varying degrees of work." Comparison with other trades: "It is not like air-conditioning or things like that where you can technical problems and other situations where the following trades are painting over someone else's work. We don't encounter such problems." Latent defects/Duration of DLP: "It is usually not until well into the defects period if not the end of the defects period…Coatings don't fail over the short term. [So the long wait is reasonable?] Absolutely – from the owner's point of view" M: "It is ok. The Client should also have something."	L: Duration of DLP: Maintenance period after our practical completion should be 3 months. Dealing with latent defects: "If there is a problem we will fix it because we want to work with these guys" Minimal risks to contractors: "Risk is so minimal. It is not existent." M: Risk to contractors: "I have no issues with the DLP. It limits our exposure. We are not indefinitely held to the performance of an item that we are doing. That means there is a set time frame that we guarantee this single work for. That also offers the client a form of warranty that if something is going to go wrong it's likely to go wrong within that time frame and therefore there is some redress to get it fixed." Duration of DLP/Nature of trade: "Industries like reinforcing concrete. Once the steel is in the concrete there is nothing that can really go wrong or happen. So, they don't accept DL periods. Likewise, we have tried to reduce our DL to reduce to 3 or 6 mths. DLP from subs completion: Typically MCs adopt 12 mths but that too we try to negotiate from our practical completion and not from MCs." S: Yes with reservations	L: Type of trade: "Useful but not with respect to steel work as any defects are immediately visible." S:Inefficient specifications: "Sometimes steel is exposed inside the building. They don't specify any [protection]. Shop priming is not enough" "The problem we have faced is only touch up paint. So many trades work on ours. There are problems of damages during erection. But, so far as retentions are concerned I don't think these have anything to do with it." L: No

7. VALUE OF RETENITION SOLUTIONS AND THEIR FEASIBILITY

Interviewees were requested to provide a rating for seven solutions based on their value perceptions with 'A' for solutions that were of much value, 'B' for moderate value, and 'C' for no value. A brief description was given to explain what a retention-based fund is (Abeysekera,2005), but no explanations were provided against other solutions though it would have been useful in hindsight.

The results in Table 4 show that 'trust accounts' and a 'retention-based fund' were of value. It is not surprising that the use of warranties instead of retentions was another good solution. Interestingly, the practice of negotiating a better retention regime was perceived as valuable given the success some subcontractors have had though not everyone indicated that they had done so or tried to do so. However, according to Abeysekera's Cash Cow Theory, it would be difficult for New Zealand contractors to let go a 'free' financing facility (i.e. the opportunity to create surplus cash through retention differentiation described earlier) given that trust accounts, retention-based funds, and warranties are solutions that nullify the cash flow benefit main contractors could have by differentiating retention regimes (Abeysekera, 2006) particular when using back to back contract terms with work packages of less than 200,000 dollars which attracts a retention of rate of 10% as the per the commonly practiced declining rate of retention (see Fig. 1). In fact, all the solutions barring the first solution (negotiating favourable regimes) would have a strong negative impact on the cash flow of a main contractor. This raises the question whether there are any win-win solutions, which is discussed in the next section.

Table 4: Rated retention solutions rated

Solution	1	2	3	4	5	6	7
Size of Firm	Negotiate favourable regimes	Trust a/c	Interest bearing a/c	Retention -based fund	Performance bonds	Retention bonds	Warranties instead of retentions
1. Large	-	A	B	B	A	A	A
2. Large	-	C	C	C	C	C	A
3. Large	B	A	B	B	A	B	A
4. Medium	A	B	B	B	A	A	A
5. Medium	-	A	A	A	B	B	A
6. Medium	A	A	A	A	B	B	A
7. Small	A	B	C	A	C	C	C
8. Small	A	B	B	A	B	B	C
Summary:							
A	4	4	2	4	3	2	6
B	1	3	4	3	3	3	-
C	-	1	2	1	2	3	2
Total responses	5	8	8	8	8	8	7
Conceptual value score (%)	90	69	50	69	56	44	75

Weights for conceptual value scores: A – 2; B- 1; C-0

8. WIN-WIN SOLUTIONS

Given that most of the preferred solutions have a negative impact on contractor's cash flow (see Cash Cow Theory), it would be interesting to find out whether there are any other solutions that might be of value to the contracting parties. Subcontractors' responses are given in Table 5. Results show that there are more solutions than originally envisaged (e.g. treating each trade and subcontract differently) but these are not necessarily win-win solutions. In fact, retention solutions can be categorised into four main types, viz. subcontractor focussed, contractor focussed, mutually beneficial solutions, and industry focussed solutions.

The current retention regimes with higher rates of retention for subcontractors than for main contractors seem favourable to contractors. So is the case when back to back contract terms are used with final retentions released at main contractor's practical completion. Solutions such as eliminating retentions, trust accounts, or mobilisation advances (from contractors) have a negative impact on contractor's cash flow with no extra benefit to contractors. These are subcontractor focussed solutions.

Mutually beneficial solutions are not too many. Negotiating retention regimes is one such and aligns well with the following suggestion:

"Treat each subcontract on its merit rather than as a head contract thing.
Each trade to be treated on its own merit."

In fact, there does not seem to be too much rationality in treating all subcontractors alike. Clearly, there are subcontractors who meet contractors' expectations time and time again: Indeed, it may be argued that they receive better terms incentivising their performance further (see Abeysekera's Steroid Theory of Retentions, 2008). Moreover, there is no apparent reason why all trades should be treated alike as well. Indeed, this is a positive way forward which seems to be in harmony with the test of fairness and reasonableness that subcontractors seek.

Table 5: Perceptions on win-win solutions

Size of Firm	Solution
1. Large	"Not really"
2. Large	"Do away retentions. "Quality control is the secret"
3. Large	"Treat each subcontract on its merit rather than as a head contract thing. Each trade to be treated on its own merit."
4. Medium	"Eliminate retentions. Reduce costs for the client."
5. Medium	"Trust fund could be a practical solution unlike bonding" "If you look at the big picture it is in their interest to not hold on to the cash because long term positive cash flow is a temporary substitute for lack of profitability. They can overcome working capital restrictions through exploiting subcontractors' cash flow to grow and thereby increase competitiveness amongst their own ranks. So, if they were to look at it from a big picture point of view, it would actually be advantageous to remove that ability."
6. Medium	MC to give a mobilisation advance to cope with cash flow problems. If that is the case, retentions are ok: "If they want a job done, then they must invest and not us."
7. Small	Strongly advocates retentions [with emphasis on reduction of time period for release] "The first thing, I would say is to negotiate. The second would be the retention-based guarantee."
8. Small	Ideally there shouldn't be retentions; cover through insurance. Smaller retention margin about 5% reducing to 2 ½% on practical completion. More regulated and a structured way of getting the money back. We don't know when the builder reaches practical completion. Half the time we don't know. Even when people are living in the building we still don't know whether the builder has got PC.

However, the nature of the relationship that contractors have with subcontractors is such that they might exercise their position of power to negate any apparently mutually beneficial solutions in favour of self-centred solutions (also see Abeysekera's, Beast Theory of Retentions, 2008). As such, one wonders whether it would be possible and desirable to develop industry-focussed, trade-specific solutions which are fair and reasonable. In this regard, it would be useful to assess their perceptions on the role of government and industry associations.

9. ROLE OF GOVERNMENT AND INSUTRY ASSOCIATIONS

It was noted earlier that the amount of retentions to be held was legislated in New Zealand as far back as 1892 and later abolished in 1987 for industry to regulate its own mechanisms. The Construction Contract Act (CCA) 2003, did not make any reference to retention-issues. Although provisions under the Act could be used to overcome payment problems (particularly when payments are not released), by and large, it left contracting parties to agree on contract terms on their free will. As so long as the parties did so, such contract terms were seen as fair and reasonable irrespective of whether retention rates were too high or whether defects liability periods were too long.

Interestingly, some respondents pointed out as noted in Table 6 that CCA could be broadened to deal with any unfair and unreasonable practices. As such, one way forward would be to develop some 'regulations' (similar to what has been achieved under the Health and Safety in Employment Act) or to have an endorsed code of practice for fair and reasonable contracting which will in due course change the behaviour of contractors as noted by another (see Table 6). Thus, is there a pressing case for government's involvement? It is worth noting that none of the subcontracting organisations seem to have lobbied the government thus far on a possible way forward. Would it be of public interest?

Perhaps, there are other organisations that need to be consulted such as the Master Builders Association, Association of Consulting Engineers, Standards New Zealand for a nationally agreed

standard form of contract for subcontract work along with a set of guidance notes if this approach is to be pursued when searching for a fair and reasonable solution to the retention polarity.

Table 6: The role of government

Size of Firm	Role of Government
1. Large	Construction Contracts Act to be broadened to regulate retentions. Set up retention based guarantee fund.
2. Large	"Limit retentions – maximum of 1- 2.5%. If MCs can't show that there is a fault, they should pay the money out.
3. Large	Should be legislated. Give guidelines for holding retentions.
4. Medium	"If the government was involved that competitive aspect of utilising retentions was removed for every one – to put everyone on an even playing field."
5. Medium	"They need a certain level of protection. They don't have the commercial knowledge."
6. Medium	"It is our money somebody is holding. Hold it in a trust or [something like that] where we can earn interest…"
7. Small	"CCA is good. It is working. It will take time." It has changed the behaviour of contractors. The government can set up a guarantee fund. Specify maintenance periods with respect to trade.
8. Small	"Industry should be able to regulate itself".

According to Abeysekera's 'Retentions as Chaos' Theory (2008) the retention-scenario in New Zealand is chaotic. Given this situation, Abeysekera claims that understanding the behaviour of chaotic systems may assist in taking new approaches for dealing with the retention-chaos. However, it is cautioned that there is considerable difficulty in predicting the outcome of interventions (such as introducing legislation) although by creating more chaos, it should be possible to move a chaotic system to a more orderly state by pushing it to the edge of chaos; leaving industry to regulate itself may not actually manifest in a new order from this perspective.

10. CONCLUSIONS AND RECOMMENDATIONS

Contrary to popular belief, structural steel subcontractors are not averse to retentions with most taking a middle ground. Nevertheless, the situation in New Zealand is such that they see the need for solutions which are fair and reasonable concerning retentions rates, release mechanisms, and defects liability period in relation to the types of defects they need to be held accountable. The current practice of using back-to-back contract terms which appears to be fair and reasonable to main contractors is not perceived so by the subcontractors interviewed when taking their responses as a whole. There is a need to investigate further as to what constitutes fair and reasonable particularly in relation to how a retention regime may be set up for subcontract work.

Most of the solutions that seem to be fair and reasonable to subcontractors impact negatively on main contractors' cash flow. As such, it is will be difficult for main contractors to forgo this benefit (as per the Cash Cow Theory of Retentions) without some form of reciprocity, or trade-off, such as good performance, price discounts, mobilisation advances from clients, or through some other form of reciprocal response given that contractors in New Zealand seem to need at least 10% of retentions for the risks they take with regard to most type of building work (Abeysekera and Soysa, 2012). Perhaps, this observation could lead to what may be referred to as the 'theory of retention-reciprocity' to add to the five theories on retentions the author proposed in 2008.

According to Fehr and Gächter (2000), economic models have typically portrayed humans as exclusively self-centred beings. As such, what percentage of people or organisations would be interested in the concept of fairness and reasonableness is a concern. However, many people deviate from purely self-centred (i.e. self-interested) behaviour in a reciprocal manner (Fehr and Gächter, 2000). According to these authors, many studies have shown that reciprocal types vary between 40-

66% whilst self-centred types vary between 20-30%. This is indeed fortunate, as selfish behaviour does not embody fairness and reasonableness whereas reciprocal behaviour is; in other words, there is said to be reciprocity fairness when people reciprocate in a 'tit-for-tat' manner. Whilst there is no information on reciprocal behaviour for those who operate in the construction industry, there appears to be role for the government or industry associations given that not all contractors would display reciprocity-fairness. Interestingly, it is in this respect that there seems to be a role for government and industry organisations given that some respondents had suggested amending CCA to deal with unfair and unreasonable practices. Moreover, this approach would neutralise the imbalance of power in the contracting relationship. However, this must be done with care as the nature of chaotic systems seems difficult to predict according to theory of 'Retentions as Chaos' described by the author. As to whether such actions should make a distinction between different building trades (as suggested by a respondent) or whether it should be common to all trades needs further investigation whilst augmenting this study with trades involved with civil construction.

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