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New Approaches To Private Sector Funding Of Public Sector Property: A Global Perspective
- *Professor Alastair Adair*

The Significance Of Real Estate In Asian Pension Funds
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Impacts Of New Development Projects On Properties: Measurement And Influence To Environmental Impact Assessment
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Natural Disasters And Property Markets: A Global Issue
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Announcement

Notes To Contributors

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Aims and Scope

The Journal of Valuation and Property Services is a publication specially intended for property professionals to keep abreast with developments in the property industry as well as the real estate profession.

This Special Edition consists of papers presented during the 6th International Real Estate Research Symposium (IRERS) 2012, held in INSPEN Campus 2, Selangor on 24 - 25 April 2012. The theme of the symposium was 'Globalisation of Real Estate: Transformation and Opportunities'.

This journal serves as a platform for the exchange of information and ideas on property issues. It seeks to:

- address areas of major interest and practical relevance to the real estate profession;
- create awareness of new theories, techniques and applications as well as related concepts relevant to the real estate profession;
- discuss policy issues and regulations and their implications on the property market.

We therefore welcome articles with theoretical and practical relevance to the real estate industry and profession, property valuation, property management, property investment and market.

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REFEREE PANEL

NEW APPROACHES TO PRIVATE SECTOR FUNDING OF PUBLIC SECTOR PROPERTY: A GLOBAL PERSPECTIVE

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Abstract

The global financial crisis (GFC) has had a profound impact on real estate markets around the world in particular on the way in which public property and infrastructure is financed. The GFC has exposed the dependence on debt finance and the vulnerability of governments and end users to the economic cycle. In addition, illiquidity within the banking sector has been compounded by contraction in risk appetite across investors necessitating significant intervention on the part of national governments.

Such intervention reinforces a consistent feature of national government policies which is a commitment to engage in long-term partnerships with the private sector. Infrastructure investment gaps combined with budgetary constraints ensure that the private sector is likely to take on more not less significance.

OECD estimates project investment of US$30-40 trillion required in global infrastructure up to 2030. The UK will be required to invest as much as US$800bn in new and refurbished infrastructure by 2020. Quality infrastructure provision is fundamental to the attraction and expansion of FDI and sustainability of economic growth.

At a time of constrained public sector spending the challenge for national governments is significant and will necessitate the exploration of innovative investment structures/models. The impact of the GFC has been to reduce both commercial and residential property values dramatically resulting in less scope for developer contributions in financing infrastructure and other public property projects.

This paper draws on research covering three areas of public sector property funding namely, Public Private Partnerships (PPP), Tax Incremental Financing (TIF) and Business Improvement Districts (BID). The research over the period 2010-2012 is global in scale and combines both quantitative and qualitative methodologies.

Globally the cost of debt has increased markedly for infrastructure which has increased the Whole-Life-Costs of PPPs. Rising interest rates has made project funding more expensive and financial closure difficult. Furthermore, the illiquidity of infrastructure as an asset class has made many investors reluctant to be exposed to schemes which transcend the economic/financial cycle.

Consequently the PPP model has not met with universal approval. Rather misgivings centre on reductions in the quality of service/provision, perceptions of private sector profiteering and long-term liabilities on future generations of taxpayers. It is also clear that there is a need to educate investors on the benefits of infrastructure as an investment asset class.

While TIF is a global model its success depends upon the effectiveness of local application. Each proposed TIF project area is different, with its own unique set of ownership issues, development partners, scale of development, timeframe and agreed end use. TIF schemes are by their very nature long term and flexibility is important in order to be able to respond to changes in the property market, as well as to political and economic circumstances.

The BID industry is now significant in the UK with an estimated US$266m investment in urban areas being raised via this funding model. BIDs provide real and tangible evidence of impact on the ground but the challenge for BIDs over the coming years will be to continue to deliver effective solutions for the benefit of the private sector whilst providing commensurate efficiency savings to their members.

The principal conclusion from the research is that managing the continuing negative fallout from the GFC and the pressures of the public sector financial squeeze could prove a difficult balancing act. In order to finance the infrastructure deficit identifying opportunities for innovative financing is paramount highlighting the need for enhanced skills among property professionals both to add value to the property asset and to engage more effectively with the wider capital markets.

1.0 Introduction

The financing of both private and public real estate has altered dramatically due to the global financial crisis (GFC) which has resulted in a decline in the availability of debt financing for both the private and public sectors and more especially across all sectors and types of real estate. In relation to the private sector, research by De Montfort University (2011) shows that a quarter of the UK's outstanding commercial property debt, amounting to almost £50bn (US$79bn), has loan-to-value (LTV) ratios of more than 100%. Almost a further 20% have LTVs of between 81-100%. With banks offering debt only at LTVs of 65.5% or below in mid 2011 as much as £114bn (US$180bn) of loans had no prospect of refinancing and the report notes that situation has only worsened. The value of outstanding balance sheet debt including CMBS of £46bn (US$73bn) and NAMA loans of £22bn (US$35bn) has reached a new high of £270bn (US$427bn). Indeed the ongoing uncertainty in the Eurozone and new legislation requiring banks to increase their liquidity has further driven down lending ratios (Maxted, 2011).

The financing of public sector property has also been adversely impacted by the GFC as governments around the world and especially in the west have been crippled by sovereign debt. The rising cost of public sector procurement in recent years has witnessed a consistent feature of national government policies to engage in long-term partnerships with the private sector to secure public sector assets. The GFC has had a profound impact on Public Private Partnerships around the world. It has exposed the dependence on debt finance and the vulnerability of end user PPP models to the economic cycle. It has also necessitated intervention on the part of national governments in order to ensure the sustainability of debt finance at a time when illiquidity within the banking sector has been compounded by a contraction in the risk appetite across investors.

This conundrum is further heightened by the fact that institutional investors continue to seek out alternative investments. However, it appears that the risk profiles of public sector property do not suit institutional investors. While infrastructure investment gaps combined with budgetary constraints ensure that partnerships for the delivery of public sector property are likely to take on more rather than less significance in the future the ability to raise finance remains a problem.

Amidst ongoing economic austerity, governments face a significant challenge to fund infrastructure projects. In many areas, market based solutions are not possible due to the scale of infrastructure required, at a time when land values are declining and occupier rents and yields remain uncertain. In order to create the conditions for growth, intervention by the public sector is considered an essential part of the solution.

In a world that is increasingly becoming more global and more urban and as the GFC has demonstrated bringing with it the risks of global financial contagion there is a counter pressure to make greater use of local resources and for more local definition and differentiation of cities within their local context. As nations and cities strive to compete for FDI local distinctiveness can yield a competitive advantage. In the UK this has found expression by policymakers focusing their minds on local solutions to local problems through the localism agenda to provide real and tangible evidence of impact on the ground. Local differentiation is the key.

At a time of constrained public sector spending the challenge for national governments is significant and will necessitate the exploration of innovative investment structures/models. This paper draws on research covering three areas of public sector property funding namely, Public Private Partnerships (PPP), Tax Incremental Financing (TIF) and Business Improvement Districts (BID). The research over the period 2010-2012 is global in scale and combines both quantitative and qualitative methodologies.

The purpose of this paper is to examine new approaches to private sector funding of public sector property from a global perspective. The paper is structured as follows: A critical review of infrastructure financing literature is outlined in Section 2, followed by the research approach in Section 3, research findings in Section 4 and conclusions in the final section.

2.0 Financing Infrastructure

Quality infrastructure provision is fundamental to the attraction and expansion of FDI and sustainability of economic growth. Government budgetary constraints, primarily due to the GFC, have resulted in infrastructure provision failing to keep pace with economic expansion and public expectation.

OECD estimates project investment of US$30-40 trillion required in global infrastructure up to 2030. It is estimated that the UK will be required to invest as much as £500bn (US$790bn) in new and refurbished infrastructure by 2020. This will necessitate additional capital expenditure of £20bn (US$32bn) per annum depicting current infrastructural investment levels (RICS, 2011a).

Post-GFC there has been a dramatic change in enabling infrastructure funding in the UK. To a large extent prior to 2007, infrastructure in the UK was funded by planning value uplift, with infrastructure paid for by developers making contributions to the cost from their development profits (DLA Piper & CBRE, 2009). This model worked well when land values were rising rapidly between the late 1990s and 2007. However, during the economic downturn in 2007/08, both commercial property and housing values fell dramatically. This has resulted in significant reductions in the value of brownfield land, on which commercial and housing developments normally take place. The consequence is that most development schemes, where developer contributions were negotiated in stronger market conditions, are no longer viable financially (DLA Piper & CBRE, 2009). As a consequence the financing of enabling infrastructure has become a key issue. The alternative options for funding infrastructure in the UK have traditionally included public private partnerships (PPPs), private sector entrepreneurial projects and private finance initiative (PFI) schemes (Newell and Peng, 2008).

The PFI model has evolved to become one of the most commonly applied partnership models amongst national and regional governments around the world, including but not limited to Malaysia, Australia, Canada, Finland, France, Ireland, Japan, the Netherlands, Norway, Portugal, Spain, the United States and Singapore. Pertinently, in countries where PFI is the only partnership based structure the terms PFI and PPP have become synonymous. In more mature partnership markets, PPP is considered to be an all encompassing term transcending a diverse range of business structures and partnership arrangements that includes PFI as well as other forms of partnership structure comprising joint ventures and outsourcing arrangements associated with the delivery of policies, services and infrastructure.

In spite of its long-term application, private sector procurement of key infrastructure remains, even within the most developed PPP markets, a source of consternation generating concerns of accountability, risk dumping as well as conflicting public sector ethos (Flinders, 2005). According to Ball and Maginn (2005) the diversity and increasing complexity of PPP arrangements gives rise to a series of interrelated questions about the nature of the decision making process within such structures and the balance in power relations between the various stakeholders.

Hood et al (2006) argue that the deficiencies in empirical evidence have resulted in many evaluations of PPP being essentially polemic in nature, culminating in a capacity to merely assert rather than substantiate the worth of PPPs relative to conventional public procurement. The lack of emphasis on the 'added value' that partnership models bring relative to conventional procurement has meant that the "value-for-money" argument in favour of PPPs is difficult to prove, even if it is theoretically reasonable.

Hall (2010) argues that PPP project evaluations have too often been superficial lacking the rigour and depth of interpretation to facilitate meaningful assessment of the value created by the respective partnership structure or to enable definitive conclusions to be drawn on the overall effectiveness or efficiency of the PPP vehicle relative to more conventional forms of procurement.

The 'no viable alternative argument' is to some degree endorsed by an evaluation of European Investment Bank (EIB) financed PPPs across Europe (EIB, 2005). The evaluation found that of the ten projects selected for in-depth review, the key impact of the PPP mechanism was that the projects were implemented at all. In all ten projects public-sector budgetary constraints meant that the only alternative to a PPP project was no project, or at least no project within the foreseeable future, rather than a public-procurement project. Nonetheless as the EIB evaluation notes "constraints on government borrowing are political decisions, not set in stone, consequently the extent to which government spending limits could have been adjusted to accommodate these projects without the need for PPP can be debated" (EIB, 2005 p4).

The search for alternative methods of financing has seen the emergence in the United States, of Tax Incremental Financing (TIFs) as a favoured model for funding infrastructure and development. Introduced in the 1950s, the TIF model is used extensively throughout the US to support urban renewal, affordable housing, land reclamation and public infrastructure projects. The TIF model involves the hypothetication or "ring fencing" of property taxes and is based on the assumption that property values within the designated TIF area will increase and generate sufficient increment tax revenue to finance the infrastructure improvements, often initially supported by a bond issue.

In the UK the scale of the infrastructure investment challenge allied with capital budget constraints has meant that the prospect of implementing TIF has gained considerable momentum in recent years. Significantly, the TIF model has found favour across a diverse range of key stakeholder groupings, in 2008, the Core Cities Group, along with PricewaterhouseCoopers published the first detailed study of how TIF could operate in a UK context in the report "Unlocking City Growth". The British Property Federation (BPF) has also been a key advocate in campaigning for TIF.

Since the mid 2000s UK government policy has shifted towards supporting the decentralisation of power to local authorities. Local authorities are empowered to make key decisions on

the direction of regeneration within their boroughs as well as having greater accountability over funding. The introduction of Supplementary Business Rate and Community Infrastructure Levy in 2009 and 2010 respectively, provides local authorities with revenue generating streams to fund infrastructure provision contributing to the economic viability of regeneration schemes. Moreover, the government white paper "Local Growth: Realising Every Place's Potential" (HM Government, 2010) further discusses localism and calls for consultation on business rate retention and TIF models. In July 2011 a consultation document entitled 'Local Government Resource Review: Proposals for Business Rates Retention' was issued by DCLG. The consultation centres on the repatriation of business rates and includes an overview of how TIF could be implemented to support local economic growth.

In 2009, APUDG launched an inquiry into the funding of regeneration in a recession. The report emphasised the need for cities to have additional financial tools such as Accelerated Development Zones (ADZs) to fund infrastructure. The report also recommended that ADZ/TIF pilots should be sanctioned to provide an opportunity for other potential users of TIF to understand how the model works. The plan was for the pilots to be used to push through a fully national TIF scheme from 2011 (APUDG, 2009). Recent years have seen numerous reports promoting funding tools for regeneration – concepts include ADZs, TIFs, Business Rates Supplements, Community Infrastructure Levy, Local Asset Backed Vehicles, Public Private Partnerships, Regional Infrastructure Funds and a Business Increase Bonus scheme – with only some reaching fruition.

Another method of using local property taxes to lever private investment is through Business Improvement Districts (BIDs). In western economies governments are increasingly making localism and community empowerment a core pillar of policy, the benefits of local business involvement being determined by partnership and leadership capacity providing strategic thinking and creating the environment for economic growth. Evidence shows that BID communities are striving to adjust and adapt to the localism agenda in delivering service provision, public realm investment, crime reduction, marketing of city/town centres, and regenerating the high street. Delivery is achieved through business-led partnerships in tackling local economic recovery, facilitating community impact, generating sustainable funding streams and developing a clearly defined vision for city/town centres.

Evidence from the literature on BIDs (British Retail Consortium, 2009) shows that they are contributing to developing a unique sense of place based on an attractive public realm, ability to meet the needs of customers and retailers, safety and security in deterring retail crime and anti-social behaviour and the reduction of regulatory costs and financial burdens on property and business. BIDs are now expanding their remit in promoting and implementing key aspects of urban strategy, in particular the raising of additional finance to address local problems supported by a robust business plan. In this regard the challenge is in coping with the gradual decline of the high street, increased vacancy, and downward pressure on property values.

In a recent report produced by Business in the Community (May 2011), it is recognised that businesses working with local partnerships can produce complementary benefits to respond to the economic challenges threatening the vitality and viability of our city/town centres. In this regard, an effective "town centre first" policy is expected to achieve distinctive

and attractive town centres, create quality places and provide strong and sustainable local economies. The need for business engagement and investment is also paramount in regeneration locations (Adair et al, 2009). BIDs are seen to have cumulative policy actions that can complement wider strategic regeneration to build local confidence and commitment. Collaboration between local stakeholders and businesses is vital to harmonise funding streams and attract new investment. Within BID-led regeneration areas there is a need to research the competitive capacity of BIDs as a funding mechanism compared to other local asset based financing vehicles, targeting new and innovative financing models, leveraging of new funding streams, financing of infrastructure and regeneration, and assessing the risk-return profile on investment in BID-led regeneration areas.

The Nationwide Bid Survey (2011) highlights the advantage of using BIDs in parallel with other initiatives such as Tax Incremental Financing/Accelerated Development Zones/Enterprise Zones in complementing anticipated future increases in tax revenues to finance infrastructure and regeneration and to enable local authorities to trade anticipated future tax income for a present benefit.

3.0 Research Approach

The paper draws on three strands of research undertaken by the University of Ulster and a range of partners into the financing of public sector property. The first is research into Public Private Partnership/Public Finance Initiative by the Universities of Ulster and Aberdeen which was commissioned by RICS in 2010 with a focus on Australia, Canada, India, UK and US (RICS, 2011a). This research comprises a detailed content analysis of the literature on infrastructure investment challenge and the evolution of PPP, stake-holder interviews and forum based discussions with key practitioners. The research also comprised the analysis of quantitative evidence from the Infrastructure Journal (IJ) online database.

The Tax Incremental Financing research (RICS,2011b) analyses US TIF models to consider whether lessons can be learned from their experience in the US, paying particular attention to the manner in which TIF areas are designated, the governance and legislative procedures necessary to set up a TIF, and the variety of risk sharing schemes in operation. In addition the success and weaknesses of TIF models in the US in raising property values and the methodology used to measure performance is also evaluated. The potential application of the TIF model in the UK is assessed. The first and second strands of research were undertaken by the Universities of Ulster and Aberdeen.

To understand the mechanisms of TIF programs in the UK, their purposes, the criteria required, and their evaluation models, three case studies were undertaken based on face-to-face interviews conducted with participating parties, business cases and local authorities' committee reports.

The third strand of research comprises an analysis of Business Improvement Districts more specifically the Nationwide BID Survey 2011 (BID, 2011). The survey was carried out by a joint research team comprising Alliance Boots, British BIDs, and the University of Ulster together with the RICS. The survey represents the most comprehensive assessment of the rapidly growing BID industry in the UK. The online questionnaire survey covers 112 BIDs across the UK and Ireland achieving a response rate of 73%, which is a significant sample size.

Following the drafting of the BID questionnaire, a consultation session with five BIDs was held to examine the scale and extent of the questionnaire and to ensure appropriate lines of enquiry. The second revised questionnaire was then subjected to a pilot exercise whereby two BIDs were asked to test the online survey and feedback any technical and comprehension issues. These comments were then integrated into the final online version of the survey.

4.0 Research Findings

4.1 Role of PPP in Infrastructure Funding

More than 40 countries around the world have implemented a PPP model. The research examined global PPP deals reaching financial close 2005-2010. In the period 2005-2010 1,046 PPP deals with a capital value of circa US$350bn achieved financial close around the world. The global PPP market peaked in 2007, when 241 projects with a capital value of circa US$79.1bn reached financial close. In 2010, the global PPP market continued to grow, albeit at a much slower pace than was evident in the previous five years. In total, 122 deals achieved financial close in 2010, a decline of 28% on the previous year, but perhaps of greater significance is the realisation that the total capital value of deals reaching financial close continued to increase, from US$48.5bn per annum in 2009 to US$51.6bn in 2010.

Whilst the roll-out across PPP markets has gathered pace over the course of the last decade, it is clear that different markets are at very different stages of development and

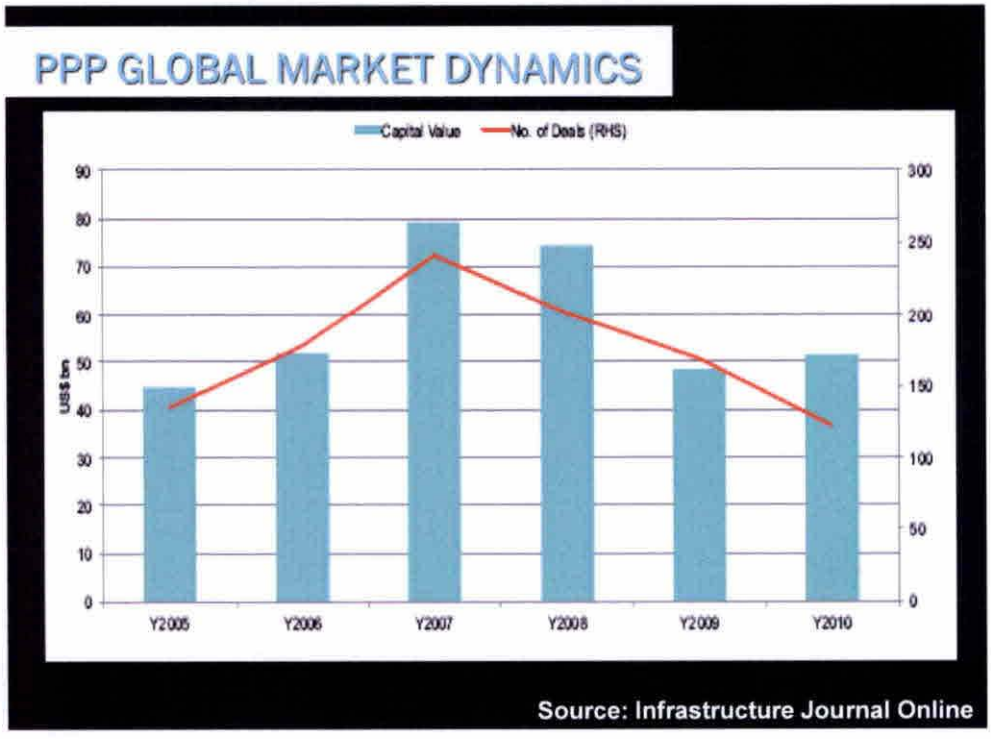

Figure 1: PPP Global Market Dynamics

maturity. The position of different countries along the maturity curve is shown in Figure 2. Maturity is determined by two dynamics – the level of activity and the levels of sophistication – this in essence depicts the type and forms of infrastructure procured through PPP. In most instances countries introduce PPP on hard 'infrastructure' such as road and bridges – as there is a strong international precedent for these forms of structure. As understanding of the model improves it can then be applied to more sophisticated projects such as social infrastructure in the form of schools, hospitals, correctional facilities etc. Most recently the move has been towards renewable energy provision in the form of wind farms and off-shore hydro projects.

The GFC had a profound impact on PPP markets around the world manifest through a marked decline in the number of PPP deals at the global level. The decline is due to macro-economic uncertainty as well as ongoing illiquidity within the international banking sector which has resulted in many PPP projects around the world being shelved, at least in the short-term. Ongoing illiquidity within the global banking system is manifested through the financial restructuring of PPP deals pre and post GFC. Debt funding for PPPs at the global level peaked in 2007 at US$60.5bn but has subsequently fallen to circa US$30.75bn in 2010, the lowest level since 2004.

The increased cost of debt finance post-financial crisis has pushed deal margins on PPP transactions at the global level out to over 200bps. As a consequence the average capital value of deals have continued to expand to ensure economic viability and to some degree explains the continued uplift in the capital value of PPP projects per annum in spite of the decline in deal numbers. Analysis of the financial

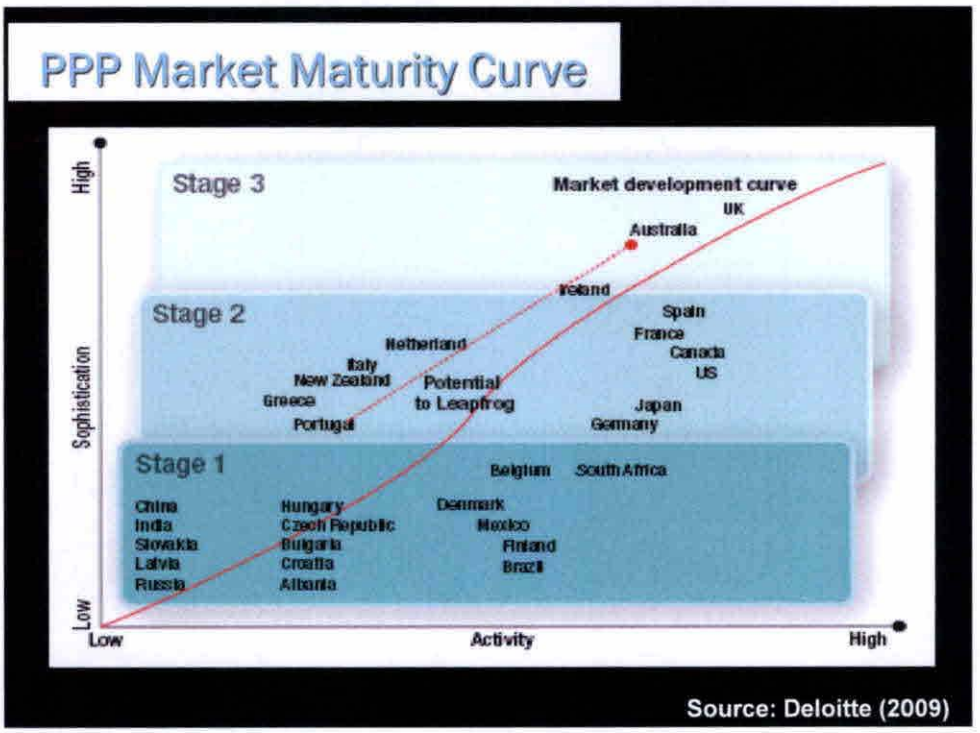

Figure 2: PPP Market Maturity Curve

makeup of PPPs reaching financial close in the UK over the six year period 2005-2010 highlights the dependency on debt finance (Figure 3). The Infrastructure Journal (IJ) online database contains profiles of 334 PPP deals which achieved financial close in the UK over the six year time frame 2005-2006. Total project finance on the 334 deals amounted to circa £75.3bn (US$121.9bn), comprising £60.7bn (US$98.3bn) debt finance, £8.1bn (US$13.1bn) equity finance and £6.5bn (US$10.5bn) Multilateral and Government (M&G) Finance.

Across the range of countries we see a similar pattern of debt finance as the key source of funding for PPP pre-financial crisis (Figure 4). The wholesale availability and comparatively low costs of debt ensured that private sector partners could secure favourable margins on infrastructure deals. The contraction in debt provision within the global banking system is manifest through the financial restructuring of PPP deals pre and post the 2007 global financial crisis.

The challenge for governments is to unlock the capital resources which have the financial wherewithal to invest in large scale infrastructural projects but which also have the long term investment horizons conducive to infrastructural investment. In this respect pension funds remain a largely untapped financial resource. With many pension funds underwater and in need of alternative strong income producing opportunities, the potential for 'mutually' derived benefits needs in-depth exploration.

Despite the success of PPP/PFI in other counties in delivering infrastructure, in the UK a consensus exists (even amongst proponents of PFI) that the 'PFI' model is 'tarnished' – public perception is that assets

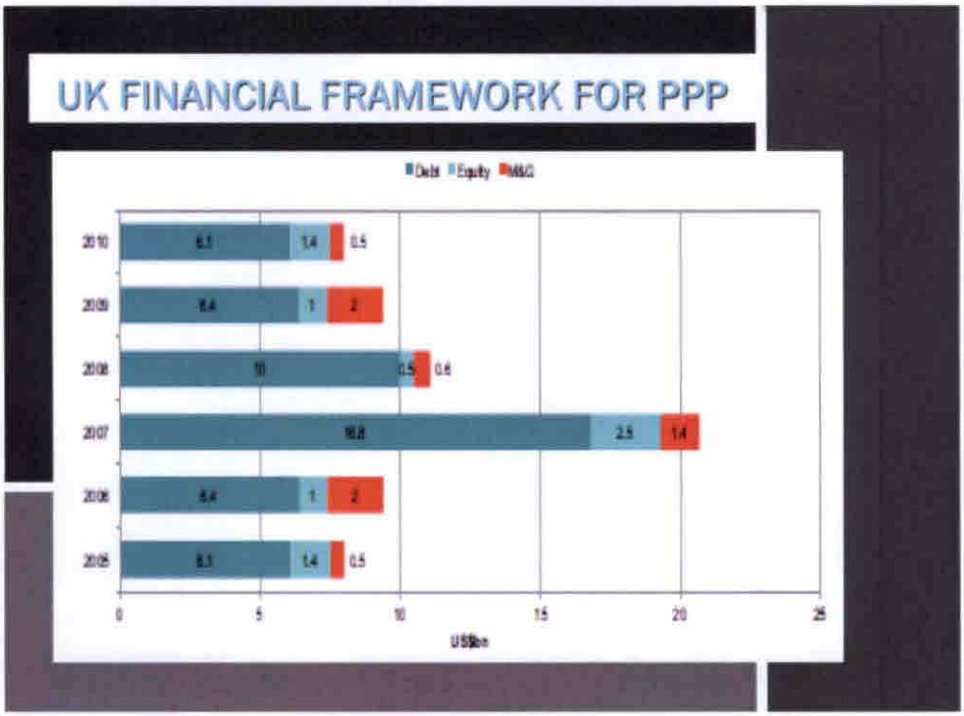

Figure 3: UK Financial Framework for PPP

delivered under PFI represent poor value for money and will be a cross generational burden on tax payers. This view has been compounded within certain elements of the print media who have sensationalised the facts pertaining to private sector profiteering/exploitation, the lack of genuine risk transfer and the poor quality of service provision relative to associated costs and/ or other forms of procurement.

This view does not recognise the value that PFI has delivered as a procurement strategy to deliver a significant quantum of infrastructure assets on time and on budget and to a high level of specification. Moreover, whole life costing and the advent in lifecycle FM contracts (encompassing reactive and planned maintenance) have ensured assets continue to be maintained to a high standard – preserving their asset value and functional capacity. It is widely recognised that one of the key deficiencies within the existing PFI framework is the costs associated with 'private sector capital'. The higher costs are reputed to be offset through the innovation and efficiencies pertaining to private sector involvement but there is little evidence to suggest that the 'innovation' and efficiencies derived represent 'value for money'. There is a requirement to reduce the cost of capital and to explore alternatives to the debt funded (bank lending model) which has been a mainstay of PFI deals across the UK.

Institutional investors have been identified as a potential source of alternative funding. However, knowledge and understanding of the infrastructure asset class within the institutional investment community is limited. There is a requirement to convey the investment potential of the asset

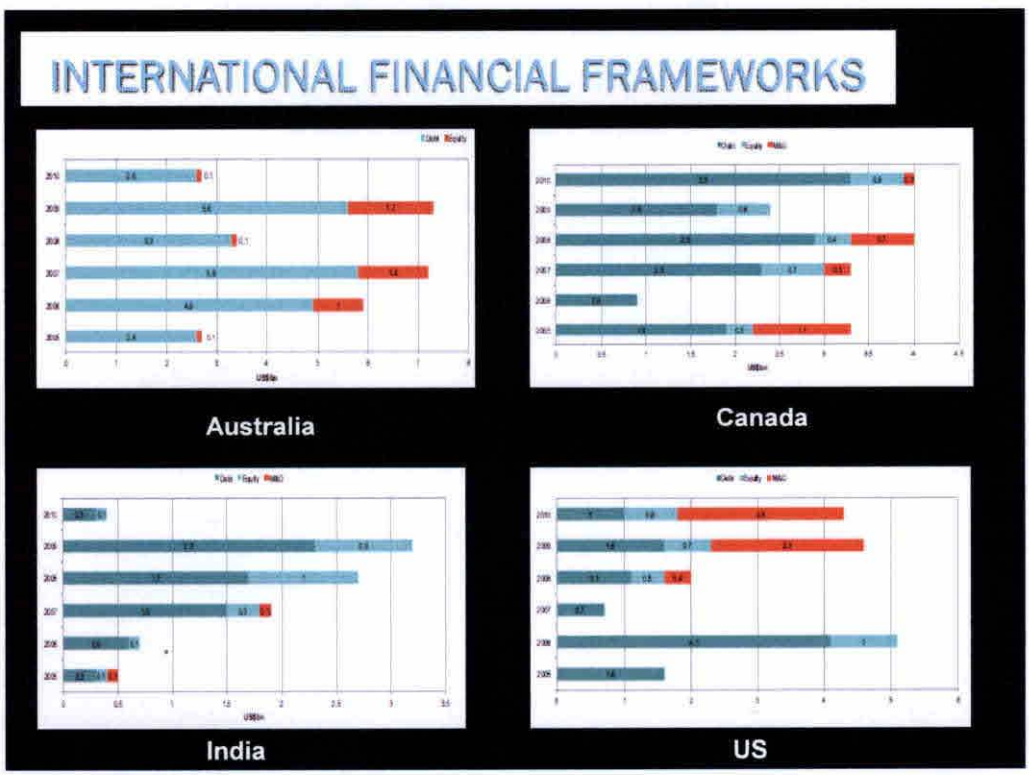

Figure 4: International Financial Frameworks

class to key investors and to develop their appreciation of the asset class attributes. From a practical perspective there is a requirement to develop innovative investment structures that enable institutional investment to be channelled into infrastructure in a co-ordinated manner. Additionally, given the risk adverse nature of institutional investors, it is probable that the public sector will be required to facilitate investment by de-risking projects either through under writing/project guarantees or entering into co-funding/joint venture models.

The ***'inflexibility'*** of PFI model and the 'fixed' nature of the unitary charge mechanism over the lifecycle of the contract has a number of deficiencies. Firstly, it restricts the capacity of public sector clients to strategically plan for the future as they are contractually bound to pay for an asset which could later prove to be technically/ functionally/economically obsolete prior to the end of the contractual term. Secondly, the unitary charge is not conducive to nor does it encourage continuous improvement/ lifecycle innovation on the part of the private sector. Thirdly, future PFI/procurement frameworks should be designed with flexibility to accommodate or incorporate change mechanism which allows the client flexibility to capture technological innovation/material enhancement in a cost effective manner and at the same time affording a reasonable level of return to the private sector provider – ***'mutual incentivisation'***.

'Risk apportionment' remains an area of contention within the confines of the PFI framework. Risk is considered to be most effectively allocated when its rests with the stakeholder 'best placed' to manage it. Evidence would suggest however that public sector clients need to further develop capacity in terms of the skills, capabilities and expertise of procurers to be able to allocate risk appropriately and understand the commercial outcomes of risk retention and risk transfer. Moreover, the capacity to evaluate, manage and price risk within the private sector also needs enhancement. Whilst the private sector has become proficient in managing risk across the construction phase the same levels of sophistication, understanding and effective management of risk are not being manifest over the operational phase.

PFI projects by their very nature are capital intensive, complex and time consuming. Preparation prior to procurement commencing can involve lengthy time periods with complex client-side organisational structures. Future procurement models should look to create ***'early Engagement'*** of the private sector supply chain to assist in the assessment, forecasting and confirmation of demand. A fully developed brief leading to the production of output based specifications for delivery of 'fit-for-function' facilities should continue to be recommended in promoting innovation from the supply-side as well as curtailing 'gold plating'/ aspirational specifications. In the UK, financial close can take up to 36 months, compared internationally with 18 months in Canada.

The procurement process pertaining to PFI needs refined and streamlined. It is elongated and as a consequence is unduly expensive. The recommendations of the Lean Procurement Initiative to support the UK Government Construction Strategy should be implemented for less complex projects to deliver time and costs savings culminating in better value for money. The creation of a more 'intelligent' client will improve project definition, procurement and contract management of public infrastructure projects funded through private finance.

The difficulty with assessing and evaluating the performance of PFI relative to other procurement strategies/routes/models is the lack of transparency pertaining to a robust and ***'credible data framework'***. As a consequence, evidence based analysis depicting credible and objective quantitative evaluation is problematic. This necessitates the creation of a standardised and accepted data collection framework which can be retained and accessed within a centralised repository.

4.2 Role of Tax Increment Financing (TIF) in Infrastructure Funding

Currently in the USA 49 states, the District of Columbia and the US Virgin Islands have enacted enabling legislation for TIF. It is difficult to calculate the total number of TIF districts operating in the US because not every state requires their registration (BPF, 2008). A study by Webber and Goddeeris (2007) highlighted that in the state of California alone there were 386 active TIF districts in 2003. Meanwhile, at the end of August 2011 Chicago had 163 TIF districts generating circa $500m in additional property tax collections each year (Chicago TIF Reform Panel, 2011). It is estimated that between 175 and 225 bond financed TIF transactions are conducted annually within the US (PPP Journal, 2011).

The assessed values of all properties within the TIF are frozen at the moment of designation. This is known as the "base value" or "initial assessed value". In most US states, the base value stays the same for the lifespan of the TIF, in some states however, the base value increases with inflation. Property owners within the TIF district pay their "normal" tax burden (based on the current assessed value of their property), therefore TIF is not a new tax (Johnson and Kriz, 2001; Webber & Goddeeris, 2007). Each year, an increment is calculated as the difference between the amount of tax at the current value of the improved property and the base value. Instead of sharing these increments with the overlapping jurisdictions, tax increments are channelled to the TIF authority and used to finance any debt the authority accumulated when making improvements during the lifespan of TIF. The allocation of tax based on the assessed value is shown in Figure 5. Once a TIF project is terminated, other overlapping jurisdictions will be entitled to a share of the increment revenues.

As a result of the time difference between TIF expenditures and receipts, TIF projects require upfront funding. Funding can be raised through the "pay as you go" method, which requires the developer to pay for their own development expenses, with the tax increment generated within the TIF district then used to reimburse the developer. Bond financing is another method that is commonly used. Unlike traditional general obligation bonds, in most states, TIF bonds are not subject to municipal debt limits or public referendum requirements. Revenue to repay bonds is generated from the incremental taxes levied on the TIF districts' new assessed valuation after a given base year (Johnson, 2001).

The third method for front-funding TIF projects is issuance of short term, higher-interest debt securities known as Tax Anticipation Notes (TANs). Such notes are provided by the public sector to the developer, who then sells them to the highest bidder, ordinarily banks and institutional investors.

In May 2011 the Mayor of Chicago called for TIF reform and set up a task force charged with brining "TIF back to its roots"[1] . The reform was commissioned on the premise that TIF within Chicago had become 'maligned' in recent years due to a lack of transparency, accountability as well as perceived inefficiencies. The final report of the task force published in August

2011 acknowledged the success of TIF in stimulating economic and community development in underperforming areas across Chicago. Nonetheless, the task force report offered six recommendations to improve accountability and promote more effective use of resources including a requirement that the objectives of a TIF at designation is in compliance with the overall strategic objectives and economic development plans of the city. It is noteworthy that in the ensuing economic climate calls for reform to TIF legislation are currently being pursued across a number of other US states. New York, for example is seeking to reform its TIF legislation to encompass school districts to make the model more viable. In stark contrast, the Governor of California has motioned a proposal to end TIF initiatives in the state citing that the model is no longer sustainable given the dramatic change in the financial landscape of a state which has historically embraced tax innovation (Youngman, 2011).

Experience in the US has shown that TIFs can significantly enhance economic development both in terms of scale and speed, as well as reducing the burden on public sector finances. However TIFs are not without their critics. Issues include definitions of 'blight' and the 'but for' test have been abused to create TIF districts that could be developed without public subsidies; development may result in increased demand for services in a TIF area which are supplied by overlapping jurisdictions who have no access to uplift in the tax base for the duration of the TIF; and no guarantees that the renewal effort will increase tax base.

TIF is not a new concept and there is a significant evidence base from the US to inform current thinking. At the outset, clear criteria require to be laid down on the rules and procedures that should be adopted to screen TIF applications, otherwise there is the potential for abuse. For example, the rules should give clear guidance on the 'but for' and blight tests, the calculation of the displacement figure and extent to which the TIF area can extend beyond the immediate development area. Local authorities should be required to regularly evaluate

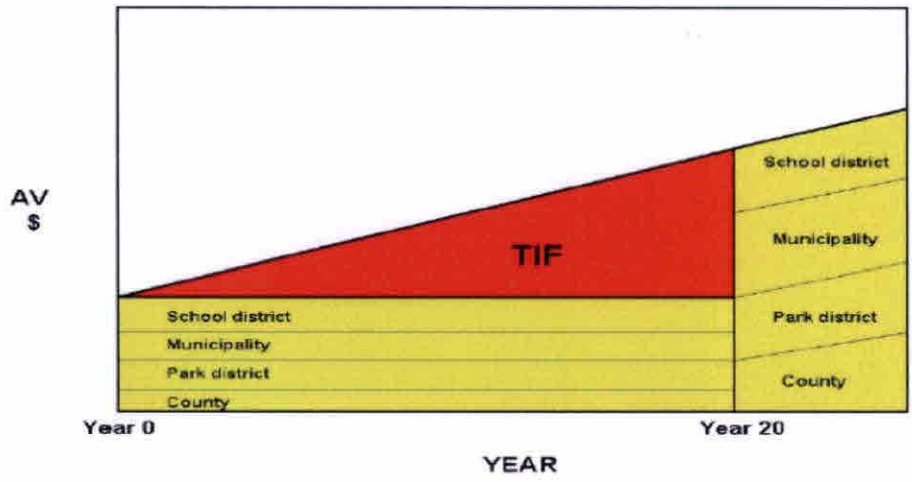

Figure 5: TIF Allocation of Tax* (*lifespan of the TIF = 20 years)

Adapted from Webber and Goddeeris (2007),

the success of TIF schemes against broad economic objectives. Success needs to be judged against wider criteria than simply whether the scheme has been built out.

The UK case studies comprising existing TIF projects in Edinburgh and Ravenscraig Scotland and proposed project in Battersea London in Table 1 demonstrate that each project area is different, with its own unique set of ownership issues, development partners, scale of development, timeframe and agreed end use. TIF schemes are by their very nature long term and flexibility is important in order to be able to respond to changes in the property market, as well as to political and economic circumstances. The partnership agreement between the public and private sector needs to include detailed agreements on the required performance of all parties, with arrangements in place to address the risk of non-performance.

TIF is not "one model fits all". While the first two TIFs in Scotland require relatively large funding utilising TIF for smaller projects may be appropriate. The public sector needs to understand the risk involved in such schemes and the restrictions on prudential borrowing. As the market matures, institutional investors may become more interested, and a bond market may emerge - but the development of TIF is still at early stage.

In 2011, the UK Government ordered a review of TIF and proposed two options in which TIF could be operated within a business rates retention scheme (DCLG, 2011).

Option 1: Local authorities would be allowed to determine themselves whether to invest in a TIF scheme but would not exempt the revenues from the impact of the retention scheme. (E.g. subject to a possible levy and revenues would be taken into account in any reset of top ups and tariffs.) Thus there is no special treatment of the revenues in the TIF area. Local authorities would have certainty about how the levy is applied to recoup a share of disproportionate benefit and would be able to plan borrowing and TIF projects on that basis. The number of TIF schemes would not be limited.

Option 2: Stronger government controls on the ability to bring forward a scheme, but would guarantee revenues, without the risk of loss to the levy and reset process. Business rate growth resulting from a TIF scheme would be retained for a defined period of time. Clear benefit of a guarantee that business rate growth could be used to service debt. However, from a government perspective less money would be available in the levy pot to manage volatilities and potentially smaller proportion of resources would be available for re-balancing at any reset. This approach would require government control on the number of TIF schemes with competition or bidding process introduced.

For TIF to attract funding legal certainty is required so that the uplift in rates revenue can be used to finance the borrowing costs. Based on this fundamental decision rule, only Option 2 as put forward by DCLG in their consultation document has any credence, but should be subject to the phased roll out of the scheme to ensure its orderly introduction. Option 2 is the preferred option but the introduction of TIFs should be phased in order to ensure orderly and better informed adaptation. In preparing the rules and procedures clear guidance should be given on criteria local authorities should use to judge the 'but for' and 'blight test' and calculation of displacement effects. The Government should require that local authorities are regularly required to evaluate the success of TIFs against the business case including the contribution to the implementation and integration of local economic strategy.

Table 1: Comparison of UK TIF Case Studies

Location	Edinburgh Waterfront Scotland	Ravenscraig Phase 2 Scotland	Vauxhall Nine Elms Battersea Opportunity Area, London
Status	TIF in operation	TIF in operation	TIF being considered TIF not operational in England
Area	500 acres		
Existing use	Dockland	Steelworks	30 sites; former Battersea Power Station is key site
Infrastructure funded by TIF	New link road between Seafield Road and Constitution Street; Public esplanade and events hub outside Ocean Terminal; New finger pier for the Royal Yacht Britannia and visiting cruise liners; New lock gates for Leith Harbour	A723 road upgrade and dualling; Airbles Road dualling and upgrade to the VVVM74; Strategic site infrastructure works and land acquisitions	Redevelopment proposal for the power station site consists of mixed use scheme residential (3,400 new homes), retail, office, hotel, leisure, conference centre, museum and gallery space, and community facilities
Estimated cost	£84 million	>£73 million	Developer's analysis to phase the Northern Line Extension cost to £406m for phase 1 (completion of NLE and Battersea Stations) with phase 2 circa £160m for the Nine Elms station. Further infrastructure at Nine Elms brings total cost to circa £908m for roads, schools and community facility provision
Commencement	2012	2012	
Outputs	Unlock circa 810,000 sq ft of new commercial space, 1,100 new hotel beds, and 1,240 residential units, 25% will be affordable housing	620,000 sq ft shopping centre in addition to a range of leisure, restaurant and community facilities	Potential for 16,000 new homes
Jobs created	Circa 5,000	4,450 net additional full time equivalent jobs. 500 full time construction jobs during the four year construction period with associated construction GVA of £25 million	Potential for 25,000
Gross value creation to economy	£140 million per annum	£100 million GVA added to the Scottish economy Infrastructures are projected to attract £425 million of private investment	
Displacement	29% weighted by floorspace	24.8% Weighted by NDR and floorspace	
TIF length	25 years	21 years	
Developer contribution	0	£19 million	
Risk management by Council	Enabling infrastructure delivery is phased Council can pull out at any time Forth Ports PLC will face penalties if fail to deliver on time	Back-to-Back agreement still in negotiation Town centre developer will not commit without major anchor tenant and pre-lets in place	

4.3 Role of Business Improvement Districts (BID) in Infrastructure Funding

The BID industry is now significant with an estimated 60,000 businesses investing through BID levies across the UK raising a combined total levy income of around £61m (US$97m). Beyond that base level, additional income is leveraged into the BIDs totalling around £69m (US$109m) plus an additional £38m (US$60m) representing investment leverage in BID areas. So, in the region of £168m (US$266m) investment in urban areas is being raised via the BID model across the UK.

The essence of BIDs is about innovative interpretation of local needs delivered through partnerships at many different levels. They have become highly focused delivery bodies with wide-ranging agenda and highly-tuned and effective governance structures that ensure a good breadth of engagement at local level. At a time when policymakers are focusing their minds on local solutions to local problems through the localism agenda, BIDs provide real and tangible evidence of impact on the ground. The Local Government Resource Review (DCLG, 2011) suggests that the local retention of business rates uplift will help to incentivise local authorities to take action to promote growth. It also indicates that local authorities would be able to choose to borrow against this future growth in business rates through Tax Increment Financing (TIFs) schemes to help fund the provision of infrastructure and wider area regeneration. In short the retention of business rates proposed as part of the localism agenda will help restore the link between local authorities and their business communities, thereby enabling local areas to see the financial benefits of allowing commercial development.

The concept of the investment multiplier is used to illustrate the amount of additional regeneration investment that has been generated in a BID area. This investment does not directly benefit the BID financially but the knock-on impact for the BID area or city in general is likely to be significant. The additional investment multiplier refers to indirect investment attracted beyond the BID bank account.

The ratio of the combined BID Levy and Additional Income to the Additional Investment helps us calculate for every £1 of combined BID income how much the wider BID area is benefiting in terms of indirect investment revenue. The total combined Income (£36,477,223) and the total Additional Investment (£38,869,398) (Table 2) provides a cumulative combined income-additional investment ratio for 2010/11 of 1:1.07, meaning that for every £1 of BID income generated across the 35 BIDs, that we have indirect investment and direct income information for, a further £1.07 was levered in additional indirect investment.

Examination of Table 2 highlights that the highest income-investment ratios were evident amongst a variety of both renewed and advanced First Term BIDs with the Heart of London Business Alliance ratio of 1:22.62 the clear leader. This ratio illustrates that for every £1 of BID income Heart of London managed to lever a further £22.62 in additional investment demonstrating very impressive leverage ratio of private sector investment over and above the BID generated income. A high ratio was returned by Alloa Town Centre BID (1:14.96) which was all the more significant given that Alloa has yet to reach first renewal stage. Of those renewed BIDs, Birmingham Broad Street (1:7.28) and Waterloo Quarter BID (1:4.22) see an upsurge in indirect investment return. In total 9 of the 35 BIDs (25.7%) displayed ratios over 1:1 while a further 5 of the 35 (14.3%) leverage 1:0.5 or better showing they were contributing the generation of at

least half of their combined BID income in further indirect regeneration investment for the area.

The future of Business Improvement Districts will be influenced by their ability to attract private sector investors especially institutional investment in line with the decentralisation agenda within the Localism Bill and Government proposals for local retention of the uplift in business rates. The report notes that BIDs are already playing a crucial role as champions within a local area and as such could be described as 'localism in action'.

Under the Local Government Resource Review (DCLG, 2011) proposals to enable local authorities in England to retain a share of the growth in their local business rates should potentially provide the financial stimulus to facilitate economic growth in local communities. In essence, local authorities will be incentivised to promote growth through proactive development and investment in partnership with the private sector.

The investment leverage ratio of 1:1.07 provides further evidence of BIDs wider regeneration impacts. Furthermore, the wider role of BIDs in areas such as tourism and the possible introduction of Tourism BIDs, or TBIDs as they are being referred to, demonstrates the further potential of BIDs to expand beyond the traditional BID model.

5.0 Conclusions

Despite the success of PPP/PFI funding across a number of countries the impact of the GFC and the increased cost of debt financing has tarnished the public perception of PPP/PFI and restoring confidence in future models is vital to their success. Any review of PFI and the establishment of innovative alternative funding models must be presented within a new framework. The RICS argue that irrespective of funding streams, the common public perception is that the current model doesn't work. This view has been fuelled within certain quarters of the media and in many instances is borne out of a lack of understanding of whole life costing and how the PFI model works. A consensus exists among the experts that large components of PFI have worked and it is imperative that these are retained and built upon. In relation to PPP/PFI there is a recognition that the industry needs to improve how it shares knowledge, learning and data cross sectorally and internationally and professional organisation such as the RICS have a key role in communicating

Table 2: City/Town Centre BID Additional Investment Multiplier

BID	BID Levy (L)	Additional Income (I)	Combined Income (C)	Additional Investment (In)	R=(In/C) 2010/11
Alloa TC BID	104,000	70,000	174,000	2,603,000	14.96
Birmingham Broad Street	400,000	40,000	440,000	3,205,000	7.28
Falkirk BID	170,000	159,020	329,020	1,220,000	3.71
Great Yarmouth BID	97,602	85,000	182,602	237,500	1.30
Heart of London Business Alliance	667,000	258,000	925,000	20,930,000	22.62
Kings Heath Partnership	120,000	21,500	141,500	500,000	3.53
Waterloo Quarter BID	446,940	74,362	521,302	2,200,000	4.22
Total	**29,049,371**	**7,427,852**	**36,477,223**	**38,869,398**	**1.07**

objective and accurate information on the performance of such funding vehicles.

While TIF can be a workable model to finance regeneration during a period when public sector expenditure is likely to be severely constrained, the model is predicated on value uplift and this may be difficult to achieve during a recessionary period. The current downturn in the economy should nonetheless be seen as chance to prepare the enabling legislation in order for the funding tool to be available post-recession.

Amidst a background of economic stagnation and recurring financial uncertainty, new and innovative approaches are required to deliver the economic growth that countries so desperately need. Moreover, the economic impasse represents a window of opportunity to make radical, but widely acceptable, reforms to the local government finance system to promote local economic growth and foster local financial autonomy. It is imperative however, that local authorities are furnished with the 'tools' to support localised economic strategy. In this respect, the US offers a credible evidence base underpinning the TIF model as a means of promoting economic expansion, supporting job creation and facilitating neighbourhood regeneration.

The ongoing consultation on TIFs is to be welcomed, equally the levels of due-diligence and the requirement for robust legislative frameworks that permit flexibility/ adaptability are to be endorsed, particularly in light of recent TIF reforms within the US. The requirement to stimulate economic activity is nonetheless immediate and it is imperative that the momentum and energies channelled into the introduction of TIF within the UK is not lost – at present they represent the only viable solution for funding major infrastructure schemes.

BIDs will continue to play an important role in terms of innovative local service delivery and the co-ordination of funding in response to public sector finance efficiencies and ongoing policy changes. The strength of the BID model continues to grow especially as BIDs reach maturity and the lessons learnt from these renewed BIDs get fed back into the wider BID community. There will be a need for BID management teams to ensure that they have the necessary skills and resources to contribute to the implementation of town centre retail planning policies.

However the dynamic nature of BIDs will become increasingly tested through a continued squeeze on public spending and the changing investor risk profile which will see only the most robust business plans gain additional funding. This income generation and the wider investment potential of the BID model needs to be safeguarded and supplemented where necessary by complementary financing models such as TIFs and Local Asset Backed Vehicles to ensure town and city centres maximise their regeneration delivery capabilities. However, it is clear that the BID model continues to deliver and while this is still the case then the benefit of this BID approach will stand up to scrutiny.

The challenge for BIDs over the coming years will be to continue to deliver effective solutions for the benefit of the private sector whilst providing commensurate efficiency savings to their members. Meanwhile, managing the pressures of the public sector financial squeeze could prove a difficult balancing act – identifying opportunities to innovate and commercialise previously public sector activities whilst being cautious not to take on cost pressures thereby failing to ultimately achieve additionality.

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THE SIGNIFICANCE OF REAL ESTATE IN ASIAN PENSION FUNDS

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Abstract

Pension funds are major institutional investors, with over $30 trillion in assets. Typically, real estate accounts for 5-10% of their portfolios in the developed markets. Importantly, pension funds in Asia are significant players, with five Asian pension funds in the top ten pension funds globally. However, Asian pension funds typically have low levels of real estate in their portfolios; often having no real estate. A number of critical drivers are now seeing an environment of pension fund reform in Asia, eg: rapid demographic change. This is seeing pension funds in Asia reviewing their strategic asset allocations to meet future obligations; this includes assessing the level of real estate in their portfolios. This paper will highlight this changing pension fund environment in Asia and the activities of various pension funds in Asia strategically increasing their levels of real estate. This includes case studies of South Korea's National Pension Scheme, Malaysia's Employees Provident Fund and other Asian pension funds, as well as interviews with leading pension funds in Asia to assess the implementation of their changing real estate strategies. Enabling strategies are also identified to facilitate other pension funds in Asia to increase their real estate allocations. These increased levels of real estate in Asian pension funds will see significant benefits across all sectors of the real estate industry in Malaysia and Asia.

INTRODUCTION

Pension funds have taken on increased importance in recent years, with their long-term investment horizon and their need to select assets to match their long-term liabilities. Globally, pension fund assets were over $30 trillion in 2011. Whilst many of the leading pension funds are based in the mature US/European economies, pension funds in Asia are significant contributors to this global pension fund context. This sees pension funds in Japan (Global Pension Investment Fund: #1 globally) and South Korea (National Pension Scheme: #4 globally) amongst the world's leading pension funds.

Pension funds have typically tended to be conservative investors; typically focused on fixed income assets and their domestic markets. Importantly, real estate has been an attractive asset for pension funds in many countries. The investment characteristics of high quality, income-producing real estate, its low risk and portfolio diversification benefits sees real estate as a secure long-term asset; well-placed to meet the future long-term liabilities of pension funds. This has seen numerous pension funds in the US, Canada, Europe and Australia being long-standing investors in commercial real estate; developing multi-billion dollar real estate portfolios via a range of real estate investment vehicles as an essential element in their strategic asset allocations. This includes leading pension funds such as CalPERS and CALSTRS in the US, CPP Investment Board and the Ontario Teachers Pension Scheme in Canada, and ABP and the British Telecom Pension Scheme in the UK/Europe. This has seen indicative levels of real estate in their portfolios of 5-10%; with some major pension funds having significantly higher allocations to real estate in their portfolios. In Asia, real estate currently does not make up a significant level in most pension fund portfolios.

However, there are deficiencies in many of the pension schemes in Asia; particularly concerning significant under-funding and the ability to meet future long-term financial liabilities. This has been the catalyst to considerable reform in the pension systems in Asia; particularly concerning improved pension fund coverage rates and suitable asset allocations to manage risk and deliver higher returns to meet these future long-term liabilities of Asian pension funds. These substantive pension fund challenges and reforms for Asia highlight the potential added-value role that real estate can play in pension funds in Asia.

As such, the objectives of this paper are:

- to highlight the significant opportunities for pension funds in Asia to increase their real estate exposure
- to highlight the leading pension funds in Asia that are effectively including real estate in their portfolios
- to survey Asian pension funds and leading real estate professionals in Asia regarding real estate in Asian pension fund portfolios
- to identify effective strategies for the inclusion of increased levels of real estate in Asian pension fund portfolios.

PENSION FUNDS IN ASIA

Asian pension fund context

Asia has some of the largest pension funds globally, including Japan's Government Pension Investment Fund (#1 globally), South Korea's National Pension Scheme (#4 globally), Japan's Local Government Employee's Fund (#7 globally) and Malaysia's Employees Provident Fund (#9 globally). This sees Asia as having five

of the top 10 pension funds globally and eleven of the top 50 pension funds globally. Table 1 lists the major pension funds in Asia, with representation across most major countries in Asia.

Pension funds in Asia have tended to be conservative in their asset allocations; largely focused on domestic fixed income assets. For example, recent major asset allocations include:

- Government Pension Investment Fund (Japan): fixed income (77%), stocks (22%)
- National Pension Scheme (South Korea): fixed income (71%), stocks (22%), alternatives (6%)
- Government Pension Fund (Thailand): fixed income (77%), stocks (17%), real estate (4%)
- Employees Provident Fund (Malaysia): fixed income (72%), stocks (27%).

This asset allocation focus on low-yield fixed income assets clearly presents potential difficulties in meeting future obligations for an aging population in Asia.

Drivers for pension fund reform in Asia

A range of important factors have highlighted major deficiencies in the current adequacy of pension funds in Asia and have been key drivers for pension fund reform in Asia in recent years. These factors include:

- Changing demographics: aging population; declining fertility rates; early retirement ages
- Structural change in the economic environment: economic growth; increased urbanisation and industrialisation; reduced focus on agriculture
- Costs and deficiencies of the previous defined benefit pension systems
- Ability to meet future long-term liabilities with current low yield asset allocations; eg: significant fixed income asset exposure
- Impact of the GFC on pension fund asset performance
- Growth in the funds management sector in Asia.

In particular, the changing demographics in Asia have significant implications for the ongoing financial viability of current pension schemes in Asia. Table 2 clearly highlights the future impact of the changing demographics with an aging population in Asia. Significant increases in the old-age dependency ratios over 2005-2050 in all countries in Asia are evident; particularly for Hong Kong, Japan, Singapore, South Korea and Taiwan, as well as major increases for China and India.

Also, deficiencies in the previous state pension systems in Asia have been highlighted; particularly the costs and inadequacies of the often generous defined benefit schemes in Asia compared to that seen in many OECD countries. Often the overall adequacy of the retirement income from pension fund schemes in Asia is insufficient from the current low coverage rates; eg: China (17%), India (6%), Philippines (14%), Thailand (21%), Indonesia (11%), with only Japan (75%) and South Korea (60%) having substantive coverage rates. This is further compounded by some pension schemes often allowing withdrawal of funds before retirement, access to lump sum payments seeing the risk of participants outliving their financial resources, and some pension schemes not always being automatically adjusted for increased living costs.

Overall, this sees most Asian countries as not adequately prepared for this rapidly aging population over the next 20 years; resulting in unsustainable and financially-constrained pension fund schemes in many cases. The lack of well-functioning pension fund systems with high levels of coverage is further highlighted by the pension fund sustainability indices for Asia shown in Table 2. Of the 44 countries surveyed, this sees Asia as having some of the countries with most need for pension system reform globally (4 in top 5); eg: India (#2), China (#3), Thailand (#4) and Japan (#5). Only South Korea (#22), Taiwan (#31) and Hong Kong (#38) rate with a lesser need for pension system reform.

Pension fund reform in Asia

Key recent pension scheme reforms have included:

- regulatory changes seeing a shift from defined benefit to defined contribution schemes (eg: Hong Kong, Taiwan, South Korea, Japan, China); this has seen an increased focus on improved asset management to deliver better returns

- introduction of new pension fund systems to improve national coverage rates (eg: NPS in India), and recognition that some of the older pension fund systems are now out-dated (eg: Singapore, Japan)

- regulatory changes to asset allocations to balance the current focus on domestic low-yielding fixed income assets versus the need for assets to be delivering higher risk-adjusted returns (eg: Japan, Taiwan, South Korea). This has seen strategic asset allocation shifts in the areas of:

  (1) reduced levels of domestic stocks and fixed income assets

  (2) increased diversification via international stocks, in both mature and emerging markets

  (3) increased levels of alternative assets (eg: infrastructure, private equity, real estate)

  (4) increased use of external fund managers

  (5) increased use of experienced investment managers in-house

  (6) review of portfolio rebalancing timeframes

  (7) establishment of separate risk management companies for more efficient asset management (eg: South Korea).

Importantly, these reforms have seen many pension fund systems in Asia strategically reviewing the way their assets are managed post-GFC and in the context of meeting future long-term liabilities. This potentially has significant implications for real estate in Asian pension funds and how this real estate exposure is managed effectively.

Table 1: Leading pension funds in Asia

Pension fund	Country	Global rank	Total assets (2011)
Government Pension Investment	Japan	1	$1,432B
National Pension Scheme	Korea	4	$289B
Local Government Employees	Japan	7	$190B
Employees Provident Fund	Malaysia	9	$146B
Central Provident Fund	Singapore	10	$145B
National Social Security	China	14	$130B
Pension Fund Association	Japan	16	$125B
National Public Service	Japan	21	$104B
Public School Employees	Japan	31	$78B
Employees Provident	India	42	$60B
Organisation of Workers	Japan	46	$54B

Source: P&I (2011)

Table 2: Demographic factors in Asia: 2005-2050

Country	Population	Population over 65	Old-age dependency ratio*		Pension sustainability index
			2005	2050	
China	1,329M	7.7%	11%	39%	#3
Hong Kong	7M	12.0%	16%	58%	#38
India	1,169M	5.0%	8%	21%	#2
Japan	128M	19.7%	30%	74%	#5
Singapore	4M	8.5%	12%	59%	#17
South Korea	48M	9.4%	13%	64%	#22
Taiwan	23M	10.0%	13%	63%	#31
Thailand	64M	7.8%	11%	38%	#4

Sources: Allianz (2008, 2011), OECD (2012)

*: percentage of population aged greater than 65 years compared to population aged 15-64 years.

REAL ESTATE IN PENSION FUNDS IN ASIA

Current status

While real estate is an important asset class in many pension fund portfolios globally, the level of real estate exposure in Asian pension funds has typically been lower than that seen in the US, Canada, UK, Europe and Australia. This has largely been due to their focus on domestic low yield assets; particularly fixed income assets. As such, real estate has often been considered as a relatively new asset class by Asian pension funds and real estate investment has also often been seen as the domain of the country's sovereign wealth fund which can take on potentially more illiquid assets with higher risk levels to generate higher expected returns.

Japanese pension fund attitudes to real estate

A major survey was conducted in Japan in 2010 by the Association for Real Estate Securitisation to assess Japanese pension fund investments in real estate. Key findings included:

- 34% of pension funds included some type of real estate in their portfolio; this was down from the peak level of 42% in 2007
- average 1.1% allocation to real estate in portfolio; compared with 23% Japan stocks, 17% foreign stocks, 31% Japan bonds, 11% foreign bonds, 7% alternatives
- the 2010 allocation to real estate of 1.1% was below the 2.4% peak allocation seen in 2007
- main reasons for investing in direct real estate were portfolio diversification, stable cash flow, improved rate of return
- main reasons for **not** investing in direct real estate were low liquidity, unfavourable market conditions, lack of understanding of direct real estate.

South Korea: National Pension Scheme

South Korea's National Pension Scheme (NPS) was established in 1988, having approximately $289 billion in assets in 2011. NPS is the 4th largest pension fund globally and the 2nd largest in Asia. NPS includes real estate in the alternative asset allocation, along with private equity and infrastructure.

With a previous focus on domestic fixed income assets, the expected growth of NPS to $2 trillion by 2043 has seen NPS recently undergoing the process of diversifying their investment portfolio. By 2015, the goal is to have less than 60% domestic fixed income, less than 10% international fixed income, more than 20% domestic stocks, more than 10% international stocks and more than 10% alternative assets. In 2011, the NPS portfolio comprised domestic fixed income (67%), international fixed income (4%), domestic stocks (17%), international stocks (6%), alternative assets (6%).The NPS alternative asset sector has increased significantly since 2006; increasing from 1% to its current level of 6%, via a range of local and international external fund managers and acquisitions.

Importantly, real estate accounts for 25% of the domestic alternative asset exposure and 36% of the international alternative asset exposure. From an initial focus on domestic retail property, NPS has undertaken significant international real estate investment in the office sector since June 2009. This is part of NPS's stated strategy of acquiring more commercial properties in the major global cities to secure stable income sources as part of their long-term investment strategy. In

particular, NPS has acquired six major office properties valued at $3.6 billion since June 2009, with core office properties in London (3), Tokyo, Berlin and Sydney; see Figure 1 for property specifics.

In 2011, NPS continued this strategy with major property acquisitions in major cities including Paris, Seoul and Melbourne (eg; via Rockspring, Pramerica and Townsend), as well as issuing significant mandates (over $650M) in four value-add/ opportunistic/distressed funds with leading real estate fund managers (Invesco, Cornerstone, Colony, Tishman Speyer); additional funds have also been earmarked (over $500M) in this area of higher risk real estate. Overall, this has seen over $5 billion invested in real estate over 2009-2011 by NPS, with real estate now accounting for over 2% of their total assets.

Clearly, South Korea's National Pension Scheme sees real estate as a key component in NPS's ongoing overall investment strategy and in its alternative asset allocation, with the alternative asset sector expected to increase to over 10% by 2015. This proactive real estate strategy by NPS is expected to see an increased real estate portfolio at both the domestic and international levels in the future.

Malaysia: Employees Provident Fund

Malaysia's Employees Provident Fund (EPF) has approximately $146 billion in assets and is the 9th largest pension fund globally. The asset allocation for EPF has largely been fixed income (72%) and stocks (27%).

Since 2010, EPF has developed an international real estate strategy; seeing its first real estate investments outside Malaysia. This $1.5 billion international real estate mandate, jointly with RREEF (50%) and ING RE (50%), has seen major office property acquisitions in London; several being jointly with KWAP. EPF has also taken a 20% stake ($640 million) in a joint venture mixed development in Singapore with GuocoLand.

This sees international real estate as a key element in EPF's real estate agenda; with real estate now accounting for 2% of EPF's assets. This is part of EPF's overall strategy of increased overseas investments, increasing from 13% in 2012 to an expected 30% by 2017; requiring government approval to its maximum international asset allocation mandate.

Thailand: Government Pension Fund

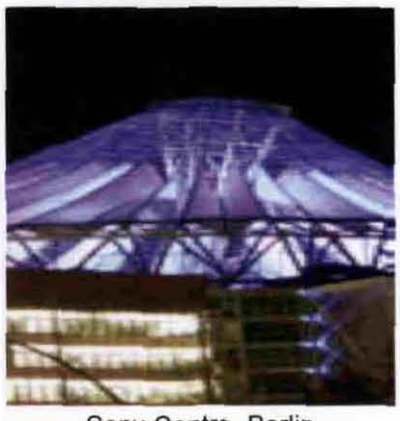
Thailand's Government Pension Fund (GPF) has approximately $16 billion in assets. The 2012 asset allocation for GPF is domestic fixed income (67%), international fixed income (9%), domestic stocks (8%), international stocks (9%), real estate (4%), alternative assets (2%).

In addition to its domestic real estate portfolio, GPF has recently allocated 2% to international real estate, initially focused on US/ Europe core/core-plus real estate investments. This will see the real estate allocation of GPF increase to 7.5%, with the domestic fixed income allocation reducing to 65%.

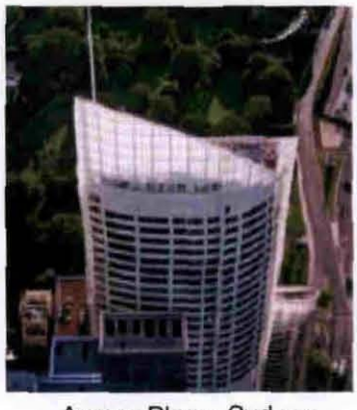
Other Asian pension funds

Other Asian pension funds are also now considering real estate in their portfolios, as part of their investment strategy to diversify risk and increase their exposure to the alternative asset classes. This includes Toshiba Employees Pension Fund ($9B), Korea Teachers Pension Fund ($9B) and Taiwan Labour Pension Fund. In several cases, they are considering real estate in their portfolios for the first time.

HSBC HQ, London
$1,275M



Sony Centre, Berlin
$768M



Aurora Place, Sydney
$626M

KDX *Toyosu Grandsquare*, Tokyo
$367M

88 Wood St, London
$292M

40 Grosvenor Place, London
$282M

Source: Real Capital Analytics (2012)

Figure 1: Recent global property acquisitions by South Korea's National Pension Scheme

Overall, these examples have clearly highlighted the lesser allocations to real estate seen in Asian pension funds, compared to many pension funds in the US, Canada, UK/Europe and Australia. This has seen most Asian pension funds focused on fixed income assets. The ability for this conservative style of asset allocation to meet future liabilities has raised major concerns and has been the catalyst of recent pension fund reform in Asia. The proactive role of South Korea's National Pension Scheme and Malaysia's Employees Provident Fund has also highlighted the ability of some Asian pension funds to effectively integrate real estate into their asset allocation via both a domestic and global real estate investment strategy. The performance of real estate in these pension funds will be watched closely by other Asian pension funds and real estate fund managers seeking their real estate mandates. Moving forward, similar strategies will need to be adopted by other pension funds in Asia to ensure the ability to meet long-term liabilities in an effective manner.

ASIAN PENSION FUND SURVEY AND INTERVIEWS WITH LEADING REAL ESTATE PROFESSIONALS

Survey of Asian pension funds

A survey was distributed to a number of the major pension funds in Japan, South Korea, Thailand, Singapore, Malaysia, Taiwan, Philippines, India and China. Most pension funds considered that they had less knowledge and less familiarity with real estate as an asset class compared to the other major asset classes, with real estate considered as an alternative asset class. The contribution by asset consultants to their real estate allocation decision-making was considered as important or essential.

The most important reasons (in priority order) for having real estate in a pension fund portfolio were:

(1) portfolio diversification benefits

(2) access to global real estate markets

(3 eq.) lower risk for real estate

(3 eq.) liquidity provided by REITs

(3 eq.) enhanced returns.

The main factors influencing selection of real estate fund managers (in priority order) were:

(1) manager's understanding of client needs

(2) legal structure of the fund

(3 eq.) alignment of interests

(3 eq.) fund's organisational stability

(4 eq.) manager's local expertise

(4 eq.) corporate governance issues

(5) fund's previous performance.

Specific risk management strategies identified as important for real estate in a pension fund portfolio were:

- established exposure limits
- managing illiquidity risk via asset-liability management, cash management and longevity management
- real estate sector and geographic diversification
- good tenant ratings and tenant relations
- asset management strategy
- experienced real estate management team.

This range of strategies was across the strategic level, portfolio level and at the individual property level.

This survey identified several key strategic issues for real estate in Asian pension fund portfolios. Overall, pension funds in Asia are positive regarding their view on real estate, with the benefits of real estate in a portfolio clearly recognised; particularly the portfolio diversification benefits. They generally have established separate real estate teams in the pension fund asset management structure and rely strongly on asset consultants in their strategic real estate investment decision-making, with real estate generally classified as an alternative asset class, along with infrastructure and private equity. Their criteria for selecting real estate fund managers sees alignment of interest and understanding of pension fund requirements as high priorities.

However, they also recognise that they have less knowledge concerning real estate compared to the other major asset classes; reflecting real estate being a relatively new asset class in Asia for many pension funds. This lack of a fuller understanding of real estate as an asset class is seen as an impediment to making substantive real estate investment decisions by many pension funds. They also clearly recognise the need for improved real estate market information and transparency to facilitate the real estate investment process by Asian pension funds. With many countries in Asia seeing a shift from defined benefit to defined contribution schemes, these real estate issues will take on increased importance as it will see a strategic shift to an increased emphasis on asset performance and higher levels of asset management skills by pension funds in Asia.

Interviews with leading real estate professionals in Asia

Interviews were also held with twelve leading real estate professionals in Asia regarding real estate in Asian pension fund portfolios. These leading real estate professionals in Asia were in the areas of institutional real estate, real estate funds management, real estate asset consultancy, real estate advisory and real estate professional services; each having considerable interaction with Asian pension funds regarding their real estate investment decision-making. These interviews focused around five key strategic aspects concerning real estate in Asian pension funds.

#1: Why are there generally low levels of real estate in Asian pension fund portfolios?

Three key issues emerged from these interviews as to why there were generally low levels of real estate in Asian pension fund portfolios. These issues were:

- Lack of familiarity by pension funds with real estate as a credible asset class. This sees the lack of a fixed allocation to real estate in the portfolio, a lack of real estate experience at the investment decision-making level, as well as under-resourced internal real estate teams. This has been further compounded by the traditional view by Asian investors that investing in real estate was for capital growth, not for the stable income stream it produces, with real estate also seen as having higher risk

- Liquidity issues, seeing the pension fund portfolio with high allocations to fixed income assets and cash; this is often influenced by government regulatory constraints in the asset allocation process

- Lack of available institutional-grade core and core-plus real estate assets in many of the less developed Asian markets. In many cases, a significant amount of this high quality real estate in Asia is securitised already in listed real estate developer portfolios. As such, the domestic real estate markets are often considered to be too small to support decent pension fund allocations to real estate. This has seen both direct and listed real estate only at the investible asset class level in most Asian markets in the last ten years.

#2: Why is real estate important as an investment for Asian pension funds?

The strong portfolio diversification benefits provided by real estate was a key factor in the comments by all of the leading real estate professionals in Asia. Other aspects included stable income streams from core properties, less volatility, competitive returns in the longer term, and inflation-hedging; making it suitable for liability matching and fitting the nature of a pension fund's portfolio to meet future obligations. Real estate was clearly seen as a key element in the alternative investment classes portfolio in Asian pension funds by these real estate professionals.

#3: Do you see Asian pension funds increasing their real estate allocations?

All real estate professionals interviewed saw Asian pension funds increasing their real estate exposure in the future. Importantly, they saw this being done in different ways and over different timeframes, with pension funds in South Korea, Malaysia and Thailand seen as being more proactive in implementing their real estate strategy.

In some cases, it was still seen to be in the early stages, as they positioned their real estate strategies and portfolios. Evidence was being seen of increased real estate activity, but it was being done selectively. Quality stock availability was also seen as a key issue, with REITs often considered part of the equity portfolio and not part of the real estate portfolio. Direct property and core property funds were seen as popular options in the near future for increasing this real estate exposure.

#4: What strategies will Asian pension funds use to increase their real estate exposure?

A diverse range of real estate products were seen to be likely to be used by Asian pension funds as their strategies for increasing their real estate exposure. This was clearly influenced by the size and experience of the pension fund and included:

- direct investment via issuing a mandate with the real estate fund manager

- use of unlisted real estate funds

- REIT mandate

- JV with developer; with the pension fund retaining a monitoring role.

Importantly, this real estate exposure was seen to be both local and global, using a combination of private and public real estate investment products. Partnering with existing real estate managers was also seen as a key element, with these managers increasingly offering real estate products reflecting a closer alignment of interest with the pension fund; eg: low leverage or all equity funds. The need for

a clearly articulated real estate investment strategy by the pension fund was seen as essential.

#5: What can the real estate industry do to increase the levels of understanding of real estate as an asset class by Asian pension funds?

A range of initiatives were identified in these interviews to increase the level of understanding of real estate as an asset class by Asian pension funds. These initiatives included:

- actively promoting a better understanding of real estate as a credible asset class; via real estate industry organisations (eg: APREA), other related industry bodies, engaging with asset consultants, and producing additional empirical research on the added-value of Asian real estate in a portfolio. This increased understanding should cover both domestic real estate and international real estate

- engaging with pension funds to establish increased levels of client trust and confidence through long-term impartiality and transparency

- greater transparency in the availability of reliable real estate information and performance data for both unlisted and listed real estate; this includes more direct real estate performance benchmarks for the Asian real estate markets (eg: IPD) and improvements in the reliability of valuations. Lack of these real estate performance benchmarks in Asia were considered to be a key concern for pension funds

- access to more core real estate products and a validated track record of these products performing well in Asia

- lobby governments to relax the regulatory restrictions on real estate levels in pension funds in several Asian countries.

STRATEGIES FOR ENHANCING REAL ESTATE IN PENSION FUND PORTFOLIOS IN ASIA

Given that many pension funds in Asia have low levels of real estate in their portfolios, their lack of experience and understanding of real estate as an effective asset class needs to be increased. This was clearly highlighted in this survey of Asian pension funds and the associated interviews with leading real estate professionals in Asia. Importantly, this will see an enhanced understanding of the validity of real estate as an important asset class for pension funds in Asia. The following are some effective enabling strategies for increased real estate exposure in Asian pension funds; within the context of their portfolio risk profiles.

(1): Use of different real estate investment vehicles

Direct real estate is an important element in the real estate portfolio; however, liquidity concerns, fund size constraints and management issues often prevent significant levels of direct real estate in the pension fund portfolio. As such, other significant real estate investment vehicles available to pension funds in Asia include listed Real Estate Investment Trusts (REITs) and unlisted private real estate funds; reflecting the rapid growth in funds management in Asia in recent years. These real estate investment vehicles have different real estate investment characteristics (eg: differing levels of liquidity, risk, diversification), as well as providing

exposure to both domestic and international real estate markets. Both are considered key elements in a real estate investment portfolio for pension funds. The larger pension funds will also consider separate accounts and club deals to achieve better alignment of interests.

(2): Real estate risk management procedures

Pension funds need to consider a range of internal risk management procedures to establish increased levels of real estate in their portfolios. This involves establishing a clearly articulated real estate investment strategy, including:

- real estate types (eg: core) and real estate sectors prioritised
- increased use of experienced real estate professionals; often seeing an in-house real estate investment section established, as well as the use of external fund managers and asset consultants
- increased strategic involvement with the pension fund's investment committee; eg: transparent and timely reporting on real estate performance
- use of risk sharing strategies, including joint ventures and co-investment with other major pension funds, sovereign wealth funds and real estate investors; South Korea's National Pension Scheme has used this strategy effectively, with alignment of interests being a key factor in the success of this strategy
- focus on existing asset enhancement and tenant retention, as well as further real estate acquisitions
- prioritising environmental and sustainability issues in the overall real estate strategy
- increased use of asset consultants (eg: Mercer, TowersWatson) for independent strategic real estate advice.

(3): Improved levels of real estate information

A key contributor to the lack of understanding of real estate as an asset class by pension funds in Asia has been the general lack of real estate information available; particularly in comparison to the other major asset classes. This was clearly highlighted in this Asian pension fund survey and real estate industry interviews. This is a key area needing to be addressed by the real estate industry in Asia to enhance the integrity of real estate as an asset class in Asia and facilitate substantive real estate investment decisions by Asian pension funds. It will also play an important role in correcting some potential misunderstandings about real estate by some pension funds; this includes aspects such as real estate being a volatile asset class. This will take on further significance as many pension schemes in Asia move away from being defined benefit to being defined contribution, with this shift seeing an increased emphasis on asset performance and effective asset management.

Key aspects needing improvement are the availability of direct real estate performance indices for Asia, the provision of added-value real estate analytic services to facilitate real estate investment decisions for both unlisted and listed real

estate in Asia, and the improvement and standardisation in valuation procedures by the Royal Institution of Chartered Surveyors (RICS) and the International Valuation Standards Committee (IVSC).

All of the above initiatives will actively contribute to the enhanced integrity and understanding of real estate as an important asset class for pension funds in Asia, as well as facilitating increased levels of real estate in pension fund portfolios in this current environment of reform and strategic reassessment of asset allocations within the Asian pension funds.

REAL ESTATE AND ASIAN PENSION FUND IMPLICATIONS

This paper has highlighted the potential for increased real estate exposure in pension fund portfolios in Asia. The proven international experience of real estate being an important asset class for pension funds has been clearly highlighted, including the range of real estate investment vehicles available to effectively achieve this real estate exposure.

The previous focus of pension funds in Asia on low yield fixed income assets has seen major concerns over pension funds in Asia being able to meet their substantial future liabilities; particularly with an aging Asian population. This has proven to be a catalyst to reassessing Asian pension fund asset allocations and has highlighted the potential value-added contribution that real estate can make to these increasingly important portfolios. This strategy has already been recently adopted by several pension funds in Asia, including South Korea's National Pension Scheme and Malaysia's Employees Provident Fund.

Real estate is an important asset for pension funds to include in their portfolios using a variety of real estate investment vehicles. This has been further confirmed by this survey of Asian pension funds and interviews with leading real estate professionals in Asia. It is expected that real estate will also become an increasingly important asset class for Asian pension funds in future years; particularly as pension funds in Asia increase their understanding of the integrity of real estate as an asset class. Given their significant levels of assets under management, such positive actions by Asian pension funds in increasing their real estate allocations will also see a stimulus to all major sectors of the real estate industry in Asia, including real estate funds management, real estate asset management, valuation and real estate professional services. This will further benefit the ongoing development and sophistication of the real estate industry in Asia and internationally.

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IMPACTS OF NEW DEVELOPMENT PROJECTS ON PROPERTIES: MEASUREMENT AND INFLUENCE TO ENVIRONMENTAL IMPACT ASSESSMENT

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Abstract

Rapid development in Malaysia has not only led to the launching of new real estate projects but also new infrastructures and services to support the growing settlements and population. Owing to limited strategic open areas, the enaction of some of these new development projects, roads, drainage facilities and solid waste landfills unfortunately are sited quite close to housing areas. Not all new projects, infrastructural and service projects have to conduct a detailed environmental impact assessment (DEIA). Where such projects fall under the "prescribed activities", a DEIA has to be done. Apart from assessing the physical impacts, a DEIA has mandated that an economic valuation of the environmental impacts has to be studied and presented to the DEIA panel at the Department of the Environment, Putrajaya for deliberation. Here lies the opportunity for the impacts upon property values including that of other externalities be discussed.

Proposed development projects and of infrastructural and service activities have impacts upon the public living surrounding these projects. These impacts may take many forms ranging from health, safety, livelihood, environmental resource loss and pollutions and also on changes to property values. Awareness on the outcome of the environmental impact assessment for such projects are being made known by the Department of the Environment, although this could be improved especially for those living within the vicinity of these new proposed developments. Economists have established a framework and empirical methodologies to place values to environmental and socio-economic impacts and a discussion on these will be provided.

Keywords: *impacts, environmental impact assessment, economic valuation*

Introduction

Rapid development in Malaysia has led to the launching of new real estate projects, infrastructures and services to support the growing settlements and population. Owing to limited strategic open areas, the establishment of many new development projects, roads, drainage facilities and solid waste landfills unfortunately are sited quite close to housing areas. When these projects falls under the "prescribed activities" a detailed environmental impact assessment (DEIA) has to be done. Apart from assessing the physical impacts, a DEIA has mandated that an economic valuation of the environmental impacts has to be studied and presented to the DEIA panel at the Department of the Environment, Putrajaya for deliberation. This mandate has open an opportunity for economists to investigate the value of the environmental impacts.

EIA is essentially a planning tool for preventing environmental problems due to an action. It seeks to avoid costly mistakes in project implementation, either because of the environmental damages that are likely to arise during project implementation, or because of modifications that may be required subsequently in order to make the action environmentally acceptable. In Malaysia, EIA is required under section 34A, Environmental Quality Act, 1974.

The aim of the environmental impact assessment is to assess the overall impact on the environment of development projects proposed by the public and private sectors. The EIA procedure adopted in Malaysia consists of three major steps. The steps in the EIA procedure are as follows:

1. Preliminary environmental impact assessment (PEIA) of all prescribed activities;
2. Detailed environmental impact assessment (DEIA) of those prescribed activities for which significant residual environmental impacts have been predicted in the preliminary assessment;
3. Review of assessment reports;

To assist in the preparation of environmental impact assessment reports, the Department of the Environment (DOE) has provided for reference "A Handbook of Environmental Impact Assessment Guidelines" and EIA guidelines for specific activities.

A PEIA for prescribed activities are normally initiated during the early stages of project planning and it involves

- to examine and select the best from the project options available.
- to identify and incorporate into the project plan appropriate abatement and mitigating measures.
- to identify significant residual environmental impacts

The PEIA should follow certain Standard Procedural Steps provided by the DOE and the assessment might be conducted "in house", or by a consultant. Some form of public participation is mandatory. Environmental data collection may be necessary and close liaison between the assessor and relevant environment related agencies is encouraged. The results of the PEIA are reported formally for examination and approval by the project approving authority and the Director General of Environmental Quality. PEIA requires resources that are a small proportion of the man-hours, money, skills and equipment committed to a pre-feasibility study.

The second form of an EIA report - DEIA is mandatory for those prescribed activities for which significant residual environmental

impacts have been predicted in the preliminary assessment; The objectives of DEIA for prescribed activities with potentially significant residual environmental impact include

- to describe the significant residual environmental impacts predicted from the final project plan;
- to specify mitigating and abatement measures in the final project plan; and
- to identify the environmental costs and benefits of the project to the community.

It is in this last objective, that environmental economist have a significant role to play. The specific knowledge base required is economic valuation.

DEIA should continue during project planning until the project plan is finalised. Standard procedural steps are provided and specific terms of reference based on the results of the PEIA are issued for each project. The Assessment might be conducted "in house" or by EIA consultants registered with the Department of the Environment (DOE) . The assessment method is selected according to the nature of the project; some form of public participation is required. Environmental data collection is almost certainly necessary. The results of the DEIA is **reported formally**.

The EIA Review Process for the DEIA include:

- to critically review the Detailed Assessment reports;
- to evaluate development and environmental costs and benefits of the final project plan; and
- to formulate recommendations and guidelines to the project approving authority relevant to the implementation of the project.

Review of EIA Reports is carried out internally by the DOE with the assistance from the relevant technical agencies for PEIA reports and by an ad hoc Review Panel for DEAI reports. Recommendations arising out of the review are transmitted to the relevant project approving authorities for consideration in making a decision on the project. The DOE maintains a list of experts who may be called upon to sit as members of any Review Panel established. The selection of the experts depends on the areas of environmental impacts to be reviewed.

Application of Economic Valuation on Significant Impacts of a Prescribed Activity

The purpose when undertaking the economic valuation of environmental impacts is to assess in monetary terms changes in the flow of goods and services provided by the environment. In line with the objective of the DEIA process, an economic valuation is required to

i. identify and quantify the environmental impacts of the project and
ii. to make an economic assessment of these impacts into environmental costs and benefits.

In scoping for the environmental impacts, the 'with' and 'without' project scenarios are adopted. Adequate considerations have to be taken with regard to identifying

i. potentially significant environmental impacts,
ii. the area over which these impacts are identified,
iii. a clear discussion of the different stakeholders who may be affected by the environmental impacts of the project, and
iv. the time horizon over which these impacts would occur.

For each of these environmental impacts, appropriate economic valuation methods are selected. These impacts that are valued are then aggregated into a total economic valuation framework to indicate the extent of their monetary value. This total economic valuation would then serve as an additional information input into the overall environmental impact assessment process.

To illustrate how an economic valuation of environmental impacts of a project is undertaken a hypothetical case study involving the establishment of a sanitary landfill is provided. For the purpose of anonymity, the hypothetical project site is not disclosed. The purpose of this exercise is to merely illustrate how an economic valuation of potential environmental impacts could be undertaken. To be more consistent with the DOE's Guidelines on Economic Valuation of Environmental Impacts for EIA Projects, a matrix is provided in Table 1 linking the physical impacts of the proposed project to affected stakeholders.

Valuing the Environmental Impacts Loss of land and water ponds used in various economic activities located at the Project site.

i. Pond angling
Water ponds are popular angling site to local angling enthusiasts. This site is operated by a private venture for more than 10 years. It has attracted average visits of about 10 anglers per working day and 45 anglers per day during the weekends. The water ponds operate daily from the morning until late nights into the morning hours especially during the weekends depending on the presence of clients. The pond is slightly less than an acre with fish stocks claimed at around 10,000kg comprising of various fisheries including Patin, Pacu, Luhu, Keli and Tilapia. The pond is daily restocked from angling catches by the anglers that are resold back to the pond operators at an average price of RM2/kg. The pond is also restocked regularly every 2 – 4 weeks with fish frys.

Table 1: Physical Environmental Impacts of the Project to Affected Stakeholders.

No.	Stakeholders	Physical Impacts of Project	Suggested Economic Valuation Methods
1.	Local communities establishing economic activities on land and in ponds at the project site	Loss of land and water ponds used in various economic activities located at the Project site.	Market prices – capitalised value of future streams of net returns from i. crop cultivations, and aquaculture ii. Pond angling services
2.	Local communities living in the vicinity of the project and nearby township	Exposure to pollution from domestic waste transported and dumped at project site especially odour	Contingent valuation method of valuing the negative impacts from odour
3.	Angling enthusiasts frequenting water ponds	Potential decline in quality of recreational benefits owing to noise from frequent transporting of domestic wastes to the Project and odour from blowing wind	Travel cost method to valuing a decline in angling fishing trips

The pond is operated by a clerk and an assistant, as well as a cook in a small canteen facility provided. The canteen sells drinks and snacks to the anglers. There is an angling fee charged according to the following rates:

Duration	Fee
3 hours	RM25
1 hour	RM12
½ hour	RM4

Electricity is available by operating a turbine and water is taken from the small river prying through the forest upstream. Water is also sourced from this river to irrigate the pond which would assure that the pond is regularly filled with fresh and clean water.

A cost and earning structure of the angling pool is provided below (Table 2). With an estimated monthly gross income of RM14,504 and a operating cost of RM8,256.67, a monthly net return of RM6,247.33 is obtained. This cash flow stream is estimated to provide an annual net income of RM74,968.

The information above is useful in determining the foregone property value of the pond if the water pond is utilised as part of the project site. There will be a loss in economic value of the streams of incomes from the angling business. The pond could be considered as a capital that is generating a series of income that are capitalized into the (asset) value of the natural pond. The pond is similar to agricultural and forest land where their value is based on the land expectation value (Klemperer 1996) that could be computed based on the net present value (NPV) of future streams of income emanating from the asset.

Hence the NPV of the investment onto the water pond and its annual cash flow streams into the future could be used as a basis to compute the value of the pond and land property. Using a discount rate of 5%, it is possible to obtain the value of the water pond estimated to be RM1.5 million. The conversion of the water pond for use as part of the sanitary landfill project would incur this estimated economic loss.

Table 2: Cost and earning structure of the angling pool

Revenue	**RM/month**
Fishing fees	13,776.00
Canteen sales	728.00
Total	14,504.00
Costs	**RM/month**
Bimonthly Winning angling gifts	1,500.00
Workers salary	4,160.00
Restocking fish fry	600.00
Repurchasing of fish caught	1,096.67
Other overheads	900.00
Total	8,256.67
Monthly Net Revenue	**6,247.33**
Annual Net Revenue	**74,968.00**
Net Present Value*	**1,499,360.00**

* computed using a discount rate of 5%

ii. Crop cultivations

There is no official records of the number and size of agricultural farms at the potential project site. Various crops are being planted including bananas, corn, water melon, oil palm and lime. Farms located within the potential project site would have to be closed and the production of farm produces would be loss. It is the objective of this investigation to estimate the value of the loss in environmental resources.

From interviews of twenty farmers and workers, both located in and outside of the project site, it was possible to estimate the cost and earning structure of several farms in the project area. Bananas and yams have longer production period of between 8 to 9 months and are anticipated to be planted with a one year production cycle. For corn and water melons that have shorter production periods are expected to be rotated with other short term crops. Water melons are planted twice a year as it requires a dry season during harvesting and have to be rotated with other crops. These crops cost and earning breakdowns are provided in Table 3.

Using the above cost and earning information, net present values of the utilisation of land for these crops are provided in Table 4. These NPVs could be used as a means of estimating the loss in economic values when these farm lands are closed to give way to the project. The range of losses could range from as low as RM60,000 per ha to as high as RM450,000 per ha. If the project is to close down 50 to 100 ha of cultivable land, then the economic value loss could be large ranging from RM10.4 million to RM20.8 million.

Table 3: Cost and earning structures of several crops planted on land at the project site

	Banana[1]	Corn[2]	Water melon[3]	Yam[4]
Revenue	12,350	8,645	11,733	17,290
Cost	-	-	-	-
Seedling/sucker	2,470	494	235	1,235
Insecticide	247	301	161	247
Fertilizer	247	494	741	1,235
Salaries	4,940	3,952	865	11,115
Depreciation of machinery & water pumps	192	206	72	463
Total cost	8,096	5,447	2,073	14,295
Net Revenue	4,254	3,198	9,660	2,995

[1] production period of bananas is 8 months
[2] production period for corn is 4 months
[3] production period for water melon takes 2 months
[4] production period of yam is 9 months

Table 4: NPVs from alternative agricultural land use

Land uses	NPVs (RM)[1]	NPV (50 ha) distributed evenly	NPV (100 ha) distributed evenly
Banana only	85,078	850,778	1,701,556
Yam only	59,898	598,975	1,197,950
2 seasons of water melon with corn in between	450,347	4,503,469	9,006,937
2 seasons of corn with water melon in between	321,108	3,211,082	6,422,165
Yam with corn	123,854	1,238,540	2,477,081
Total		10,402,844	20,805,688

[1] discounted at 5% level

iii. Aquaculture

There is no official records of the number and size of fish farming ponds at the potential project site. According to a local pond operator there might be around 20 to 30 ponds in the project site. Ponds located within the project site would have to be closed and the production of fish from the area would be loss. It is the objective of this investigation to estimate the value of the loss in environmental resources.

From interviews of ten fish pond workers, it was possible to estimate the cost and earning structure of fish farming ponds in the project area. Using a 1 ha pond as illustration, fish farming would involve 8 months of production process followed by a four months harvesting season. A 1 ha pond could produce about 5 m.t. of fish per month yielding a sales value of about RM24,000 for a year (Table 5). The total cost of production would take up RM56,100 with the bulk of it coming from the costs of fish frys, salaries of two workers and feedstuffs (Table 6). Over the long run, the fish farming would provide a NPV of RM467,125 (Table 7).

When such ponds are closed. A project impact on a 1 ha pond would generate a permanent loss of the above amount (-RM467,125). If 25 of such ponds are affected, the economic value loss would escalate to as high as - RM11.7 million.

Exposure to pollution from domestic waste transported and dumped at project site especially odour and health

The local community is likely to be affected by the proposed Project. A major concern among households living in the vicinity of the project, is the concern of being forced to experience odour pollution from domestic waste transported using the roads close to their homes and work place, and wastes dumped at project site that would provide odour pollution depending on the directions of wind flows. These perceived fears could be unfounded and would be mitigated by the authorities. But the perceptions linger until the project could prove their worries are unnecessary. A contingent valuation survey was undertaken with the objective to determine the economic value of the above perceived environmental impacts of the proposed project to the community. This survey was carried out using a questionnaire. The survey involved 100

household heads of villages and housing projects.

The respondents were briefed on the concept and planned implementation of the sanitary landfill. They were probed about their opinions and perceived impacts of the project. Then they were asked to imagine the situation where a sanitary landfill will be constructed and implemented at the potential land site. They are aware that this area have long been used by settlement, including possibly themselves to rear fish, cultivate crops and rear cattle. The sanitary landfill will not be seen by settlements including themselves, as it is located in the pond land area 2.5 to 5 km away from their homes. But for housing owners will experience a rise in traffic of lorries carrying domestic waste which possibly bring about odour, risk of traffic accidents, noise among others. Before and without this project, this problem does not arise.

Then the respondents were asked how much taxes on their land/home are they now paying?

As a result of this project, their welfare are affected and most likely to reduce. They were then ask: How much reduction in the above taxes on their land/home per year do they feel they should receive to

Table 5: Sales value of fish harvests in a 1 ha pond

Species	Weight (mt/month)[1]	Value (RM/year)[2]
Tilapia	3	15000
Lohu	2	9000
Total	5	24000

[1] computed based on fish production of Grades A, B and C with proportions of 3:5:2.
[2] computed using prices ranges from RM.2 to 7.5 per kg for Tilapia and ranges from RM2 to 7 per kg for Lohu

Table 6: Costs of fish farming in a 1 ha pond

Cost items	Quantity	Costs (RM/year)
Frys	100,000/year	30,000
Salary (workers)	2	24,000
Feedstuff eg restaurant rice bottles of 8.5 kg	17kg/month	11,952
Depreciation on nets, water pumps		300
Total		66,252

Table 7: NPV of fish farming in a 1 ha pond

Revenue	Cost	NPV[1]
96000	66,252	467,125

[1] computed using a discount rate of 5% over a long period (60 years)

compensate the loss of their welfare as a result of the rise in environmental impacts?

This information is then used to compute the Willingness To Accept compensation estimates that the community is willing to receive in lieu of their welfare loss cause by the Project.

The range of the taxes on their land/home that these respondents are currently paying range from RM50 to RM120 per year. With the potential loss cause by the environmental impacts, these respondents have a Willingness To Accept compensations in the form of reduced average taxes on their land/home of RM39,50 per year (Table 8). Using a discount rate of 5%, the net present value of the loss in economic value is RM791.01 per household. There is no record of the total number of households living in the vicinity of the project but using 1,000 households, it is estimated that a net present value loss of RM791,011 would occur. This is a measurement of the loss in economic value perceived by the affected households within 2.5 to 5 km of the project site.

Potential Impacts on Recreational Services: Angling Services

Within the 5km radius of the project area, there is an angling pond. As mentioned earlier, a closedown of the angling pond would incur a loss to the pond operator. On the demand side, consumers namely angling enthusiasts would also incur a loss of opportunity to fish recreationally. This loss in consumer surplus is computed.

An investigation was undertaken with the objective to determine:

- how important the fish pond is to the anglers and how much they value the trip to the pond?
- whether the recreational services are perceived to be affected by the proposed project and if so by how much?

The travel cost method (TCM) is the appropriate valuation procedure to use when estimating the value of outdoor recreation such as angling from the water pond. The TCM requires first fitting a trip generating function (TGF) that represents

Table 8: Loss of economic values from the perceived environmental impacts of the proposed project to households living in the vicinity of the project site

Willingness to accept compensation	Mean
Average household per year	RM39.50/year
Net present value per person[1]	RM791.01
Average willingness to pay value[2]	RM791,011

Note:

[1] using a discount rate of 5%

[2] *working on 1,000 households living within 2.5 – 5 km from project site.*

the demand for the angling activity. The economic value is obtained by calculating the consumers surplus which is the area below the demand curve but above the travel cost of the anglers.

A survey of 100 anglers was undertaken at the pond. A common functional form for a TGF to estimate is the semi-logarithm form that has the advantage of obtaining the consumer surplus for a visit directly. The estimated TGF is provided in Table 9 that gives the following function:

Ln Visit = -0.6138 – 0.0184Travel Cost – 0.00034Income + 0.0188Education + 0.0956 Age

The function is overall relatively well-fitted with an F statistic statistically significant at the 1% level and a coefficient of multiple determination (R2) of 44.1%. The age coefficient is statistically significant at 1% while the coefficients for travel cost and income are statistically significant at the 10% level. The negative coefficient for income is interesting suggesting that pond angling is mainly a recreation activity engaged by relatively lower income anglers.

From the TGF function the average consumer surplus per visitor is estimated by the following formula (Hanemann):

Consumer Surplus = - 1 / coeffiecient of Travel Cost

= 1 / 0.01835

= RM54.50

The economic values gain by anglers for the fishing trip to the water pond is estimated to worth RM54.50 per person. In 2011 for the first 6 months, an angler made on average of 14.5 trips. Hence, the average economic value per visit is RM3.69.

The second component of the investigation is to estimate how much losses in recreational services would anglers suffer from the proposed project. From the survey of the anglers, it was found that 'with the project' they perceived a reduction of 21.9% in recreational satisfaction arising among others from the sewage odour and air quality. This allows a computation of the reduction of economic value 'with the project' to RM2.88 per fishing visit or a decline of economic value of RM0.81 per fishing visit (Table 10). Using this information and an annual visitation of

Table 9:Trip generation function for angling at The angling pond

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.06138	1.385597	-0.0443	0.965087
Travel cost[1]	-0.01835*	0.010767	-1.70392	0.103149
Income	-0.00034*	0.000172	-1.94674	0.065066
Education (years schooling)	0.018757	0.098806	0.189838	0.851259
Age	0.095596***	0.028755	3.324438	0.003221

[1] travel cost inclusive of angling fee

***,* statistically significant at 1% and 10% levels respectively

R2 = 44.1%

F statitistic = 4.14 statistically significant at the 1% level

6,720 trips, it was estimated that the decline in economic value from angling activity 'with project' of RM5,413 would occur. If the pool is not closed in a situation where it is at the outskirt of the project, the net present value (NPV) loss is estimated at RM108,253 at 5% discount rate. If the pool has to be closed down, then the NPV loss is raised to RM495,352.

Total Economic Value of the Environmental Impacts

Total economic value can be used to illustrate the aggregated extent of environmental impacts of a project. It is an estimate of the total, rather than the incremental value of the environmental impacts of the project to society. This

Table 10: Economic value from a decline in angling activity at the pond (RM/year)

Impacts	NPV[1] (RM)	NPV[2] (RM)
Loss of angling pond	(108,253)	(495,352)
Loss of Land used for crop cultivation	(10,402,844)	(20,805,688)
Loss of Ponds used for fish farming	(11,678,133.66)	(11,678,133.66)
Welfare loss from exposure to odour and other environmental pollution	(791,011)	(791,011)
Loss of recreational fishing services from the pond	(108,253)	(495,352)
TEV	-23,088,495	-34,265,537

[1] Computed using (i) annual visitation rate of 6,720 and (ii) the assessed maximum WTP per visit 'wihout project' of RM12.11 and average decline in values from recreational ambient including from potential negative odour from the sanitation landfill activities of RM2.65 per visit.

[2] Using a discount rate of 5% a net present value loss of (i) is obtained if the pond is not used for the sanitation landfill project and angling activity could continue and (ii) loss of RM495,352 if the pond is closed and used for the sanitation landfill project.

Table 11: Total Economic Value of Major Environmental Impacts

	RM/visit	RM/year	NPV if pool is not closed (RM)[2]	NPV if pool is closed (RM)[2]
Economic value from angling activity 'with project'	2.88	19,355	387,099	-
Economic value from angling activity 'without project'	3.69	24,768	495,352	495,352
Economic value from a decline in satisfaction from angling activity 'with project'[1]	-0.81	(5,413)	(108,253)	(495,352)

[1] & [2] refers to low and high estimates

method is not a formal decision-making tool like cost benefit analysis, however it is important in highlighting to the decision-maker the value of the different environmental impacts of the project and, therefore, the appropriate decisions to mitigate against these potential impacts.

The total economic value of the environmental impacts associated with the proposed project is given in Table 11. The future series of impacts that occur are aggregated and converted on net present value terms by discounting at 5% rate. The aggregated value formed the total economic values of the impacts of the Project. The low TEV estimate is a loss of RM23.9 million while a high estimate is RM35.1 million.

Conclusion

This paper highlights the need to conduct EIAs for "prescribed activities" according to the Environmental Quality Act, 1974. In the DEIA an additional step was introduced to value the potential impacts of a project to the environment. The valuation principles adopted is based on economic theory. This requirement provides a mandate for economists to exercise their expertise in a formal investigation. This provides an opportunity for economist specialising in economic valuation to practice. An illustration is provided on the valuation of potential impacts of a hypothetical sanitary land fill project whereby assessments are made of the potential loss to society. The size of these losses could provide inputs to DEIA panel of assessors of the trade offs that are involved with the approval of the project and the significance of the mitigation measures to be established.

NATURAL DISASTERS AND PROPERTY MARKETS: A GLOBAL ISSUE

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Abstract

The past decade has seen an increase in the number of significant natural disasters that have seen considerable loss of life and damage to all property markets in the affected areas. In many cases these natural disasters have not only caused significant property damage but in numerous cases have resulted in the total destruction of the property in the location.

With these disasters attracting considerable media attention, the public are more aware of where these affected property markets are, as well as the overall damage to properties that have been damaged or destroyed.

This heightened level of awareness has to have an impact on the participants in the property market, whether, a developer, vendor, seller or investor.

To assess this issue a number of residential property markets that have been affected by significant natural disasters over the past two years have been analysed to determine the overall impact of the disaster on buyer and vendor behaviour, as well as prices in these residential markets.

This paper will be based on data from the Christchurch earthquakes in September 2010 and February 2011, the Brisbane flood in January 2011 and the North Queensland cyclones in February 2011. All these natural disasters resulted in considerable loss of life and partial and total devastation of considerable residential property sectors. Data will cover sales listings, sales transactions, rental listings and sales performance on a location and socio-economic basis.

Keywords: *Natural disasters, floods, earthquakes, cyclones, residential property, property returns, buyer and seller behaviour, property sales.*

Introduction

As world populations increase a greater percentage of a country's land area is taken up with increased urban development and an increase in infrastructure requirements.

Increasing population also results in an increase in the number of residential properties and commercial properties, often in areas that in the past have been considered unsuitable for urban development. This increased number of properties, development in marginal areas and changes in water collection and flows has led to the situation where; worldwide, commercial and residential property markets are becoming more exposed to the consequences of natural disaster.

A severe climatic or geological event that would have resulted in some inconvenience 50 years ago can now be a natural disaster in many cities and countries. Following such natural disasters there is often a tally of the cost of the disaster in respect to the number of lives lost, injuries and infrastructure replacement costs and the cost of damaged and destroyed property. However, the actual impact of such disasters on the minimally affected or nearby non affected property markets and consumer behaviour in those property markets is rarely quantified.

There have been a number of studies detailing the short term and long term impact of floods on property markets on property prices and values (Proverbs, Eves, 2002b, 2004, 1999), bushfires (Eves 2002a, Warren Myers, 2010) hurricanes/ cyclones and earth quakes.

This paper will analyse three residential property markets before and after three different types of natural disasters to determine the response of buyers and sellers in those markets to the impact of the disaster on the residential property market in question. The initial analysis will concentrate on changes in sale listings, rental listings, sales volume and median house prices. The final section of this paper will compare these results across the different natural disasters to determine differences and similarities in the residential property market response.

Defining Natural Disasters

A natural disaster has been defined as climatic or geological events that cause great financial and emotional hardship for individuals or communities and can lead to loss of life (Australian Government, 2012). A more definitive definition is provided by Guha-Sapir et al (2004) being:

"A situation or event of overwhelming local capacity, necessitating a request to the national or international level for external assistance, or is recognised as such by a multinational agency or by at least two sources."

These natural disasters can also be defined by the extent of damage, loss of life or affectation. According to EM Dat (2012) to classify as a natural disaster the event must:

- Result in loss of life greater than 10
- A minimum of 100 people have to be affected
- A declaration of a state of emergency has to be declared

or

- A call for international assistance needs to be made.

Natural disaster can be weather or climate based or geological events. The climate and weather based natural disasters include floods, wind storms and drought related events, with the geological events

being: earthquakes, volcanic eruptions and tidal waves. A detailed breakdown of natural disasters is shown in Table 1.

Statistics collected by Guha-Sapir et al (2004) show that during the period 1900 to 2003, there were a total of 9,000 events that could be classified as natural disasters and of these more than 80% actually occurred in the period 1973 to 2003.

Since 2003, this increasing trend in natural disasters has been continuing, with some of the most severe climatic natural disaster occurring in the past 10 years, including the 2011 Japan earthquake and tsunami, Hurricane Katrina in 2005, the 2004 Indonesian earthquake and tsunami and the Haiti earthquake.

With increasing populations and the subsequent continued urban development, a severe climatic or geological natural disaster has the potential for increasing loss of life, injury and loss of infrastructure and property.

Cost of natural disasters

The actual severity of a natural disaster is measured by both the loss of life and injury to the population and the economic cost to the community.

Based on loss of life, the most severe natural disasters have occurred in Asia, as shown in Table 2, with earthquakes and floods resulting in the greatest loss of life.

Figure 1 provides a list of the worst natural disasters based on insured and economic loss. This list varies significantly with Table 2, as natural disasters in countries with higher populations and less developed property sectors and infrastructure do not have the same level of economic loss compared to loss of life. The 2004 Indonesian tsunami ranks 7th in loss of life but does not rank in the list of worst economic natural disasters, as the economic loss of this disaster was only US $14 billion. Figures stated by EM DAT (2012) also confirm that over the past 30 years there has been considerable loss of life from major droughts in third world countries, but the actual economic loss in these drought disasters has not been as significant as the economic losses suffered in the more recent climate and geological natural disasters.

Figure 1 also confirms that the economic loss from earthquakes (including subsequent tsunamis) have been the most significant since 1965, representing a total of 10 of the most severe natural disasters from 1965 to 2011. During the same period floods resulted in five of the worst

Table 1: Natural Disaster Types and Occurrence

Flood Events	Windstorms	Geological	Drought Related
Floods (84%)	Storms (31%)	Earthquakes (83%)	Drought (58%)
Landslides (8%)	Typhoons (20%)	Volcanic eruptions (16%)	Bushfire (21%)
Mudflows (5%)	Cyclones (16%)	Tidal waves (1%)	Extreme temp. (21%)
Avalanches (3%)	Hurricanes (13%)	Tsunamis	
	Winter storms (9%)		
	Tornadoes (7%)		
	Tropical storms (4%)		

(Source: EM DAT 2012)

economic natural disasters and severe storms (hurricanes/cyclones) three of the most severe natural disasters over this time period.

According to Reibeek (2005), the average annual economic cost of a natural disaster as recently as the 1950s was only US$3.9 billion, but these costs have been increasing since the 1950s. Since 1970, there have been 14 years where the average annual economic costs of natural disasters has exceeded US$50 billion (Reibeek, 2005).

It is also important to note that the worldwide economic cost of natural disaster during 2011 was estimated to be US$380 billion, with US$210 billion attributed to the Japan earthquake alone. Munich Re (one of the largest reinsurance companies in the world) states that the number of natural disaster due to geological events has been relatively stable since 1960, but the number of natural disasters due to climate factors has been increasing (New Scientist, 2012).

Table 2: Worst Natural Disaster: Loss of Life

Rank	Death toll (estimate)	Event	Location	Date
1	1,000,000 - 2,500,000*[1]	1931, China floods	China	July, November, 1931
2	900,000 - 2,000,000[2]	1887, Yellow River flood	China	September, October, 1887
3	830,000[3]	1556, Shaanxi earthquake	Shaanxi Province, China	January 23, 1556
4	500,000[1]	1970, Bhola cyclone	East Pakistan (now Bangladesh)	November 13, 1970
5	316,000[4]	2010, Haiti earthquake	Port-au-Prince, Haiti	January 12, 2010
6	300,000[5]	1839, India Cyclone	India	November 25, 1839
7	230,210 - 310,000	2004 Indian Ocean Tsunami	Sumatra, Indonesia and also affected India, Sri Lanka, Maldives	December 26, 2004
8	250,000 - 300,000	526 Antioch earthquake	Antioch, Byzantine Empire (now Turkey)	May 5,26
9	242,419 (the death toll has been estimated to be as high as 665,000)[1]	1976 Tangshan earthquake	Tangshan, Hebei, China	July 28, 1976
10	234,117[1]	1920 Haiyuan earthquake	Haiyuan, Ningxia-Gansu, China	December 16, 1920

Source: Wikipedia 2012

A study by Chen (2004) found that cyclones have accounted for approximately 30% of all damage to residential property in the 20th century, followed by flood 20%, bushfires approximately 19% and hailstorms 11%.

Natural disaster in Australia/ New Zealand

Different geographic regions have shown differing occurrences and types of natural disasters and this is the case in relation to Australia and New Zealand. Severe natural disasters in Australia and new Zealand over the past 35 years have included fatal bushfires in Sydney, Canberra and Victoria, floods in Queensland, Brisbane and northern NSW, cyclones in Northern Queensland and in New Zealand earthquakes in Napier and Christchurch. Each of these events has seen significant loss of life, extreme damage and costs associated with the damage to infrastructure, buildings and personal property.

Over the past ten years various residential property markets throughout Australia in general and NSW in particular have been subject to substantial natural disasters. These occurrences have included floods, bushfires and hailstorms. In extreme cases the actual rectification costs can be measured in the $billions for property losses alone and there is now additional losses in relation to global economies and stock markets in affected countries (Worthington, 2008).

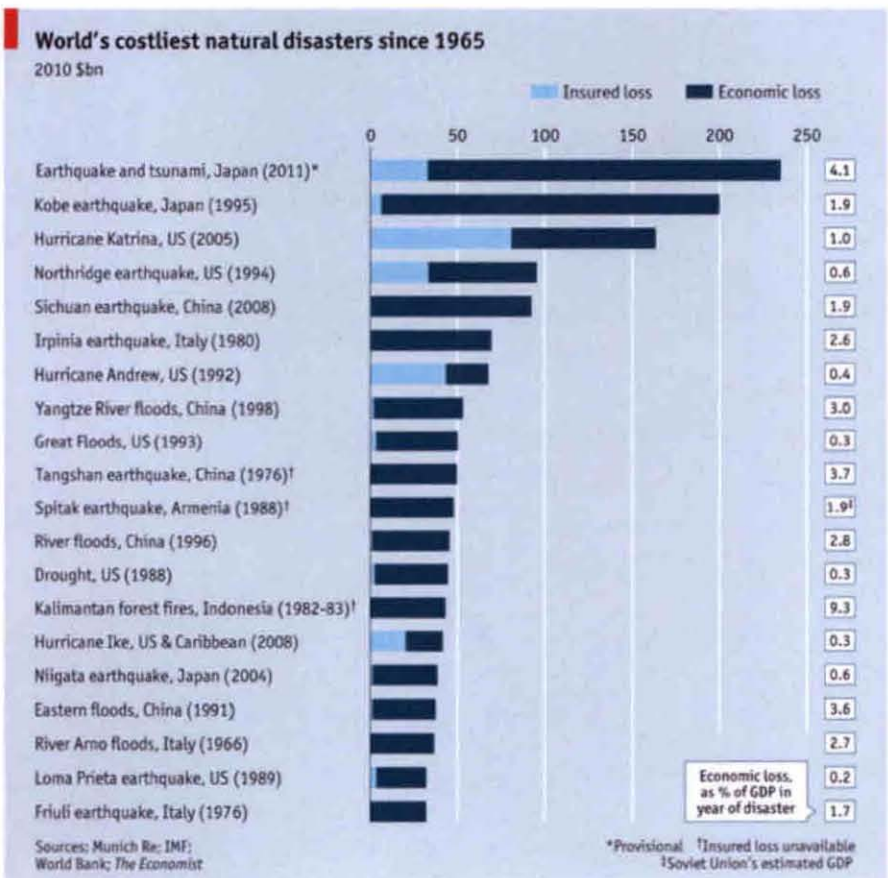

Figure 1: Worst natural Disasters: 1965 to 2010

Natural disasters such as severe storms and hailstorms have tended to be very indiscriminate in relation to frequency and the actual location of damage, whereas the nature of bushfire and flooding tends to be more defined, with risk prone areas more easily identifiable (Eves, 2002, 2004a, 2004b).

Although these extreme natural disasters tend to be infrequent, occurrences of floods and bushfires in residential property areas are becoming more common, particularly as urban sprawl encroaches closer to National Parks, State Recreation Parks and State Forests.

Considerable work has been carried out on flood effects on property markets by Bell (1999), Donnelly (1988), Skrantz and Strickland (1987) in the US, and Chou and Shih (2001) in Taiwan. Fibbens (1994), Lambley and Cordery (1991) and Eves (2004; 2002) have carried out studies in relation to the effect of flooding on residential property values in the Sydney region, including the tracking of flood prone property values over time. However, limited rigorous research has been carried out in relation to the impact of bushfires and earthquakes on residential property markets in the main Australian and New Zealand urban regions.

Table 3 ranks these most severe natural disasters based on total damage costs, normalised to 2010 values. This table shows that during this period the most costly natural disaster based on 2011 prices have been the 2011 eastern Australian floods followed by the Newcastle earthquake. Damage from five (5) of the most severe hailstorms have totalled $8.86 billion during the same period, followed by bushfires $4,466.

Table 3: Natural Disasters in Australia: 1974-2011

Year	Natural Disaster Event	Location	Normalised Loss (2011) (AUD$ millions)
2011	Flooding	Eastern Australia	5,600
1989	Earthquake	Newcastle	4,810
1974	Cyclone	Darwin	4,083
1999	Hailstorm	Sydney	3,691
2009	Bushfire	Victoria	2,643
1974	Flood	Brisbane	2,338
2010/2011	Earthquake	Christchurch	2,300
1985	Hailstorm	Brisbane	1,913
1983	Bushfire	Victoria/South Australia	1,823
1990	Hailstorm	Sydney	1,644
1973	Cyclone	QLD/NT/WA	1,286
1976	Hailstorm	Sydney	817
1986	Hailstorm	Sydney	794
1984	Flood	Sydney	738

Source: Sharechat, 2012, Australian Government, 2011; Victorian Government, 2010; Crompton and McAneney, 2008; NSW Fire Brigades, 2003; Department of Community Services, 2002.

In all the discussion above the actual economic loss has been calculated on the physical loss of property (real estate and personal), cost to repair infrastructure and property and business losses. One aspect of a natural disaster that is not addressed in these stated losses is the potential loss in value for property that has been subject to minor damage or in areas that are perceived higher risk following the natural disaster.

This paper will now analyse the impact that a natural disaster has on residential property values following a major natural disaster and the response to these natural disasters by participants in the respective residential property markets, particularly focussing on the 12 months following such events.

Study areas and events

The study focuses on three separate natural disasters that occurred in 2010 and 2011. These natural disasters were significant, with loss of life and severe property damage in all cases. These events were:

- Christchurch earthquakes 2010 and 2011
- Brisbane floods 2011
- North Queensland cyclone Yasi 2011.

In all these events the damage to infrastructure and property exceeded $AUD 2 billion and the events resulted in the damage or destruction of significant numbers of houses. Table 4 shows that the extent of the damage to the residential housing markets in the affected areas was significant.

These figures represent substantial portions of the residential markets in these affected suburbs, cities and towns and therefore provide a sound basis to examine the impact of these natural disasters on residential property markets and buyer/ vendor behaviour.

Research Methodology

Data has been collected for the Brisbane flood and North Queensland cyclone events for the month prior to the event and the following 12 months after the event in respect to average weekly sales and rental listings. Sales data has been collected for the 12 months prior to the event and the 12 months after the flood and cyclone. In the case of the Christchurch study, data for the 12 months prior to and following the event have been obtained.

Table 4: Natural Disaster Property Losses: Study Locations

Location	Houses destroyed/ uninhabitable	Houses damaged
Brisbane	11,900	14,700
North Queensland	150	2,925
Christchurch	10,000	100,000

The data has been analysed to determine:

- The change in the number of average weekly residential property sales listings over the study period.
- The change in the number of average residential property rental listings over the study period
- Volume of residential property sales over the period and comparison with the previous 12 months
- Changes in median house prices in the affected locations (North Queensland and Christchurch)
- Comparison of median price trends between flood affected and non-flood affected suburbs in Brisbane.

Sales data has been obtained from RP Data Pty Ltd for Brisbane and North Queensland and real Estate Institute of NZ for the Christchurch sales. All sales listings and rental listings have been obtained from realestate.com.au and realestate.co.nz.

Results and Discussion

The research results will be discussed on a location basis with the conclusions providing a comparison between the various natural disasters and their respective property market performance. For this paper, the focus will be on free standing residential property, with some general comment on the residential unit market in the subject areas if applicable to the results. A full analysis of the residential unit/townhouse market in the subject areas will form part of another research paper.

Brisbane Floods

The Brisbane flood in January 2011 was the first major flood in Brisbane since 1974. The nature of the flood, although lower than the 1974 level, actually resulted in greater property losses compared to previous floods.

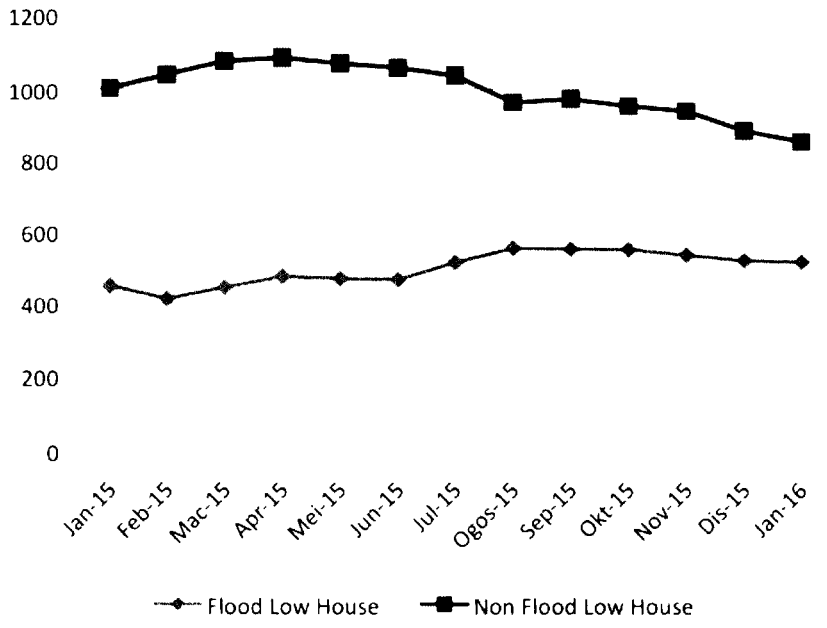

Figure 2: Socio-Economic comparisons: House Sale Listings Low Value Suburbs

For this study the results have been presented on the basis of the overall classification of suburbs on a value basis. In all the study compares a total of 48 Brisbane suburbs, 24 suburbs that had flooding issues and 24 suburbs that were not flood affected in anyway. Not all houses in the flood affected suburbs were inundated. However, extensive media coverage of the flood made people aware that these suburbs were subject to flooding.

Sales listings Houses

Figures 2 to 4 show the average weekly residential house sales listings for the month prior to the floods and the following 12 months after the floods. Each figure compares listing for flood affected suburbs and non-flood affected suburbs.

From Figure 2, it can be seen that in the month following the flood, there was a significant drop in the number of sales listings in the low value flooded suburbs but a corresponding increase in sales listings in the flood free suburbs. However, after one month the number of sale listings in the flood affected low value suburbs started to increase, with this increasing trend continuing until October 2011. During the same period the actual number of properties listed in the flood free lower value suburbs was decreasing. This decreasing trend in the non-flood suburbs also reflected the general softening of the Brisbane housing market over that period.

In the middle value suburbs there was a decrease in sales listings for both flood affected and non-flood suburbs in the two months following the floods. Again, while the number of sales listing continued to decline for the non-flood suburbs throughout 2011, there was an increasing trend for property listings in the flood affected middle value suburbs. This again suggests that despite a softening of the residential property market, people in the flood affected suburbs were more anxious to sell.

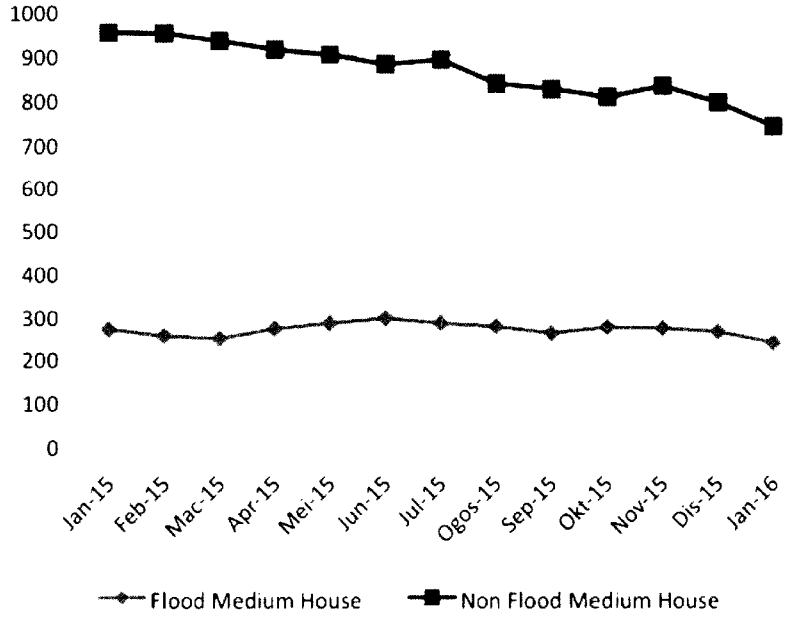

Figure 3: Socio-Economic comparisons: House Sale Listings: Middle Value Suburbs

Figure 4 shows the trend in house sale listings for the high value suburbs. Interestingly, the impact of the floods on sale listings was not as pronounced in these higher value suburbs compared to the lower and middle value suburbs. Both flood and non-flood suburbs showed a declining trend in sales listings from January 2011 to September 2011, at which point both saw an increasing trend in sales listings. Figure 4 also shows that the trend in sales listing were very similar (although volumes were different), indicating that the decision to sell was more a market decision rather than the impact of the flood.

Rental Listings Houses

Any significant flood event causes housing stress for the affected parties, with a requirement to seek alternate accommodation pending repair to the affected house. Based on this assumption, it is expected that immediately after a severe flood there will be a decrease in the number of residential properties being offered for rent, as this short term demand issue is resolved.

Figures 5, 6, and 7 show the change in average weekly residential house rental listings, from January 2011 to January 2012, across suburbs in the study area.

Regardless of the value status of the flood and non-flood affected suburbs, there was a decrease in the number of residential houses available for rent immediately after the flood (within one week). However, after the first week following the flood, the market reaction differed according to the socio-economic status of the suburb. Figure 5 shows that in the first month following the flood there was a drop of approximately 50 house rentals in both non-flood and flood affected lower value suburbs. However, after 2 months a considerably higher number of rental houses were listed for rent in the flood affected low value suburbs compared to a trend of declining house availability for rent in the non-flood lower

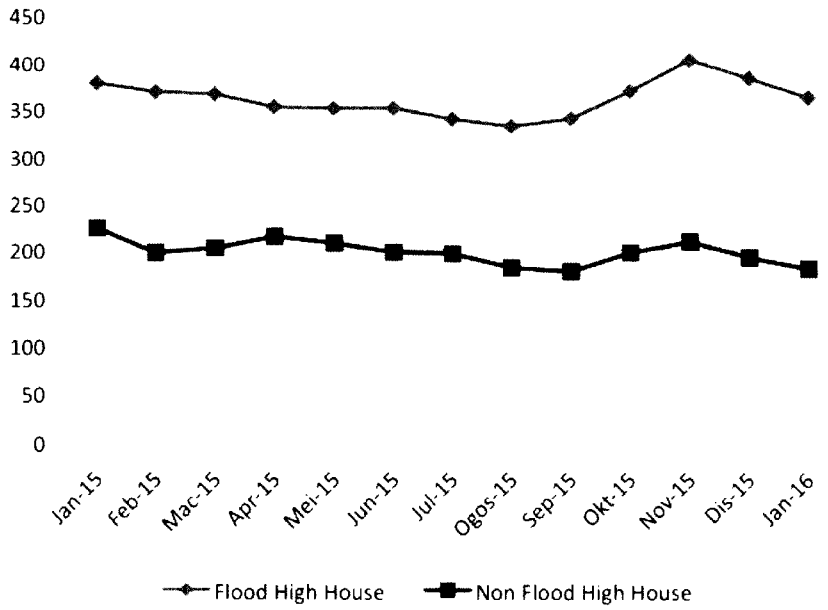

Figure 4: Socio-Economic comparisons: House Sale Listings: High Value Suburbs

value suburbs. This indicates people renting in these lower value flood affected areas took the opportunity to move to other areas after the flood.

The impact of the floods on the middle value suburbs of Brisbane does not appear to be as significant as the low and high value suburbs. Figure 6 shows that while the volume of rental properties available in the suburbs was different, the monthly trend in rental listings was reasonably similar. The high value rental property market in the flood free suburbs has shown a relatively stable number of houses available for rent over the 12 months following the flood (refer to Figure 7).

However, in the two months following the flood, the number of houses available for rent in the high value flood affected suburbs decreased from a weekly average of 198 homes to 100 homes. This suggests that many of the home owners whose properties were flooded immediately sought nearby rental accommodation until their properties could be repaired.

It is also interesting to note that the number of rental properties being listed in all suburbs increased after 6 months from the flood, which would suggest that owners of the flood affected properties only took short term leases to cover the repair period for their own homes.

Median Price

Although the study compares suburbs that were subject to flooding and suburbs that were flood free, it is important to note that not all houses in the flood affected suburbs were actually affected in any way. However, based on previous studies by Proverbs (2006) and Eves (2004, 2006) the stigma of flooding can also have an effect of property in the immediate vicinity of the severe flood damage.

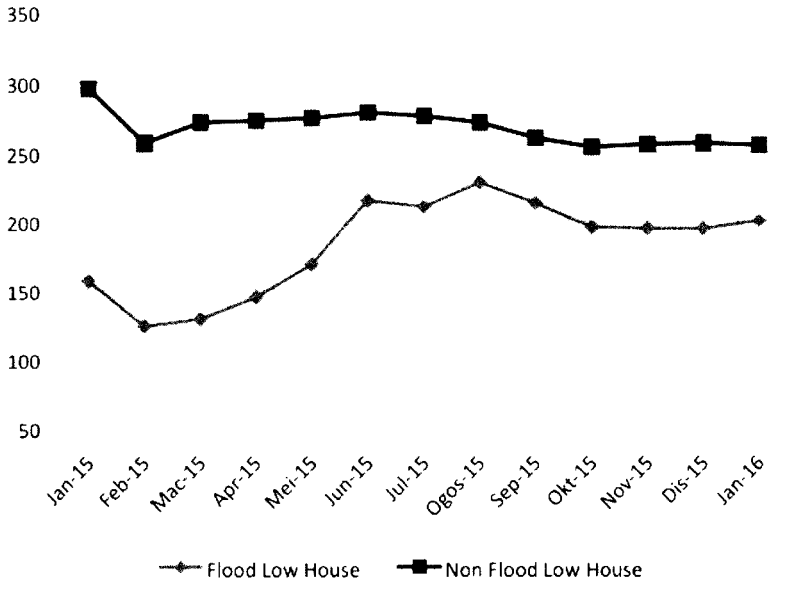

Figure 5: Socio-Economic comparisons: House Rental Listings Low Value Suburbs

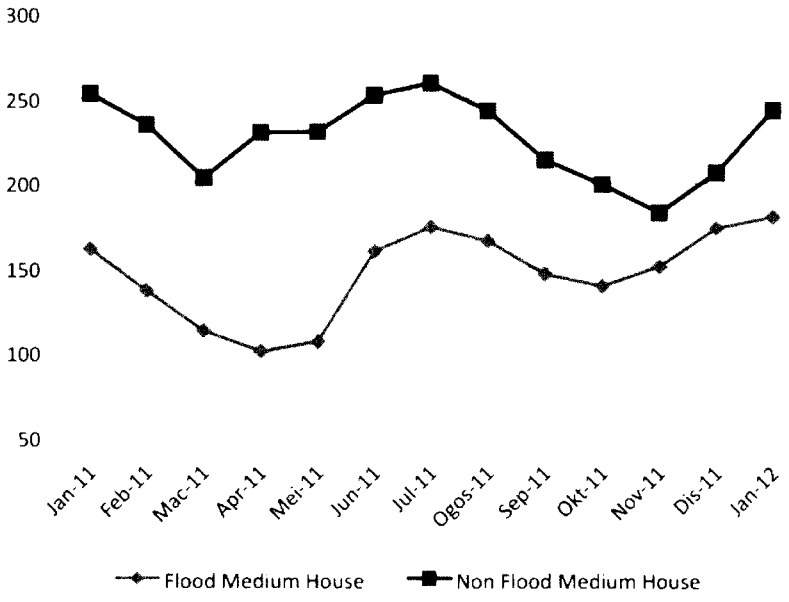

Figure 6: Socio-Economic comparisons: House Rental Listings: Medium Value Suburbs

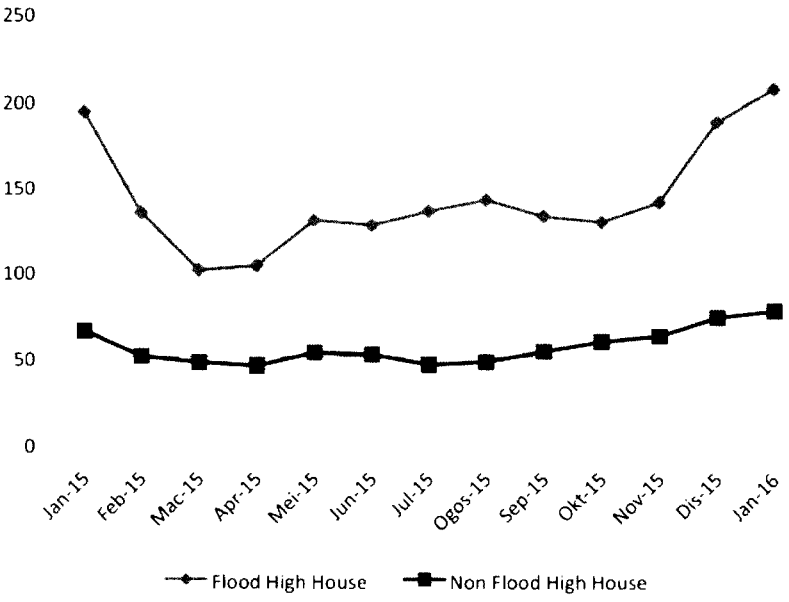

Figure 7: Socio-Economic comparisons: House Rental Listings: High Value Suburbs

Table 5: Brisbane Median House Price Comparison

2011	Low Flood	Low Non-Flood	Med Flood	Med Non-Flood	High Flood	High Non-Flood
Q1	423000	409333	597667	545667	882333	792333
Q2	327333	385667	620333	514000	816000	723333
Q3	345333	376000	584667	516000	750000	739333
Q4	388667	378000	608333	517000	741667	736000
2011 Return	-8.12	-7.65	1.78	-5.25	-15.94	-7.11

Table 5 compares the change in the quarterly median price for houses in the study area for the 12 months following the flood. This table shows that the low value flood affected suburbs had a 22.7% fall in median house prices in the three months immediately following the flood. In this period the only sector that did not show a decrease in the median house price were the flood affected medium value suburbs.

This table also shows that over the 12 month period following the floods there has been a general decline in the median house price for all sectors other than the flood affected medium value suburbs. This can be explained to some extent by the type of flood affectation across the flood prone suburbs. The higher value suburbs were all on or near the Brisbane River and the lower value suburbs affected by the floods were all in very low lying parts of Brisbane and these low lying areas covered a significant portion of the affected suburbs. Only parts of the medium value suburbs were close to the Brisbane River or low lying.

In the 12 months after the flood, the most significant difference in the median price between flood affected and flood free house prices has been in the high value suburbs of Brisbane, which recorded a fall in median price of 15.94%, compared to a decline of 7.11% for non-flood high value suburbs for the same period.

Actual sales in the various suburbs have also had an impact on the median price for houses in those areas. Table 6 compares the sales transaction volume between

Table 6: Sales Transactions Brisbane 2011

	2011/1	2011/2	2011/3	2011/4
Flood Total Houses	84	133	104	121
Non Flood Total Houses	177	237	194	177
Flood Low House	25	52	40	47
Non Flood Low House	72	102	84	60
Flood Medium House	29	49	39	52
Non Flood Medium House	81	113	87	93
Flood High House	30	32	25	23
Non Flood High House	23	23	23	24

the flood affected and non-flood suburbs. In the case of the higher value suburbs, over the past 12 months, there have been 100 houses in the flood affected suburbs to 93 sales in the flood free suburbs. This contrasts significantly to the lower and middle value suburbs, where the sales in the flood free areas have been greater than sales in the flood affected suburbs (164/318 and 169/374 respectively).

Sales to listings

Figures 8 to 10 compare the number of residential house sales each month to the average weekly sale listings for that month across the suburbs in the study. These figures show that the trend in sales to listings has been significantly different across the various socio-economic areas of Brisbane.

Figure 8 shows that both the trend in monthly sales transactions has been virtually the same for flood free and flood low value suburbs over the past 12 months, despite the higher number of sales in the flood free suburbs. The actual percentage turnover in the low value suburbs has been as low as 4.2% to a maximum of 11.9% for the flood affected suburbs, with the flood free suburbs showing a minimum turnover of 3.95% and a maximum turnover of 12%.

Although the general trend in sales to listings has been similar in the middle value suburbs, the actual turnover to listings has been consistently higher in the flood affected suburbs compared to the non-flood suburbs.

Figure 9 shows that over the past 12 months the sales to listing turnover for the flood affected suburbs in the middle value suburbs has been as low as 6.8% in January 2011, but this rate increased in each successive month to a 20% in May 2011 and a year high of 23%. These sales to listings rates were nearly double the rates for flood affected properties in the low and high value suburbs.

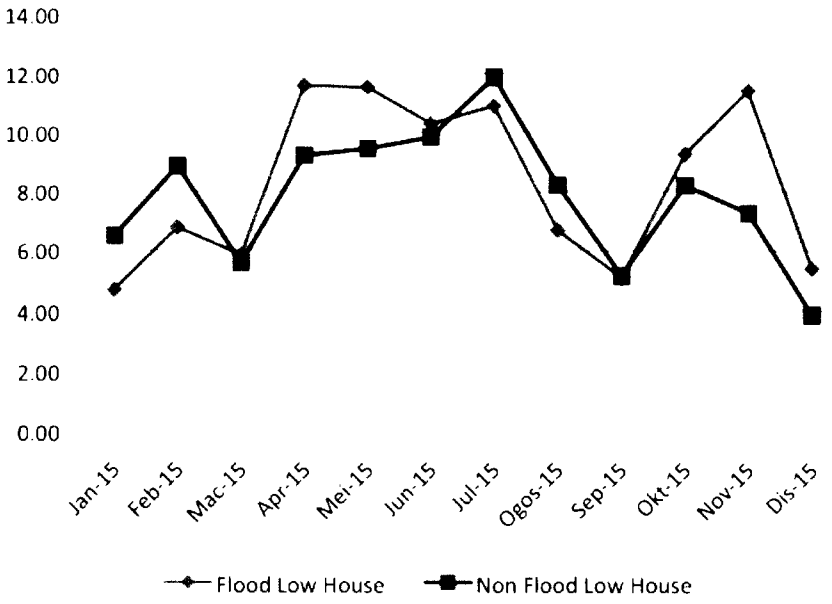

Figure 8: Monthly Sales to Average Weekly Listings: Low Value Suburbs

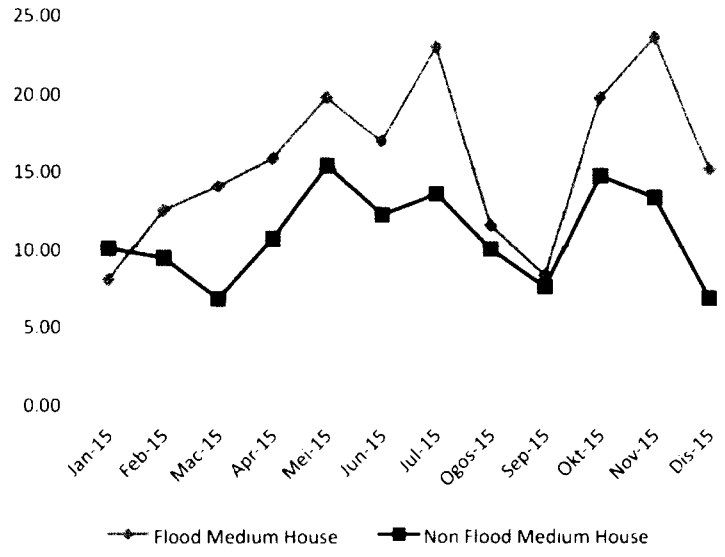

Figure 9: Monthly Sales to Average Weekly Listings: Medium Value Suburbs

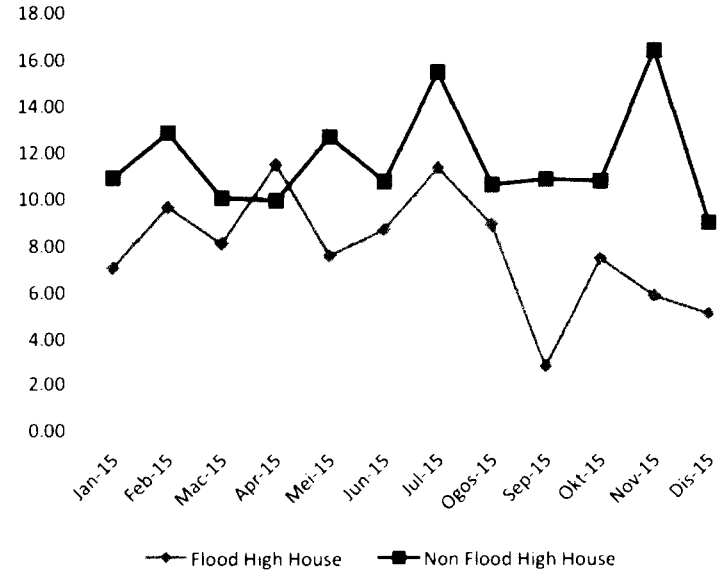

Figure 10: Monthly Sales to Average Weekly Listings: High Value Suburbs

During the same period, the percentage rate of sales to listings in the non-flood middle value suburbs was consistently lower than the flood affected suburbs, with lowest conversion percentage of 5.7% in December 2011 and a highest rate of 15% May 2011. However, these rates were still higher than the low and high value suburbs for either flood free or flood liable residential property.

Figure 10 shows that the rate of sales to sale listings in the higher value suburbs has not been similar to the other property sectors. In the case of the higher value suburbs the predominant sales activity has been in the flood affected suburbs but the conversion rate of sales to listings has been much lower in the flood affected suburbs compared to the non-flood suburbs. In September 2011 sales in the flood suburbs were only 2.6% of average weekly listings for that month and the highest conversion percentage was 11.7%. In the flood free suburbs the highest conversion percentage was 16%, with a low rate of 8.5%.

North Queensland cyclones

Cyclone Yasi was one of the most severe storms that hit Australia since the devastation of Cyclone Tracy in Darwin in 1974. The February 2011 cyclone in Northern Queensland had its greatest impact on four coastal towns being Cardwell, Innisfail, Mission Beach and Tully. The following analysis is based on the sales, sale listings and rental listings for residential property in these towns from January 2011 to January 2012. Due to the lower volume of sales in these towns, they have been grouped for this analysis and the data presented on a quarterly basis, with sales volume and median prices being compared for the 12 months prior to the cyclone and the 12 months following the cyclone.

Median Prices

Table 7 compares the median price for houses across the 4 towns in the quarters before and after the cyclone. From this table it can be seen that the median price of houses in the cyclone affected areas have fallen significantly in the 12 months following the cyclone, with an average decrease of 23.8%. On a comparison of quarterly median house prices form 2010 and 2011, it can be seen that the difference in the median price has been most significant (29.5% decrease) from Q4 2010 to Q4 2011. This decrease in median house price has been more severe than the corresponding decrease in median house prices following the Brisbane floods in the same year.

Table 7: Median House Price: Cyclone Affected Towns: 2010 to 2011 Sales Volume

	2010 Pre Cyclone	2011 Post cyclone	% Return
Q1	275000	282000	2.5
Q2	266000	229000	-13.9
Q3	258000	220000	-14.7
Q4	305000	215000	-29.5
Annual Return %	10.9	23.8	

Sales Volume

Figure 11 provides a comparison of the actual residential house sales in the cyclone affected towns in 2010 and 2011. The immediate impact of the cyclone is shown in Q1 2011, where the number of sales in 2010 was 36 for the quarter but this dropped to 9 following the cyclone. In the six months after the cyclone the sales activity in these towns increased and was actually at higher rates than the corresponding periods in 2010.

Sales Listings

The comparison of the average weekly total residential property and residential house listings for the 4 towns are shown in Figure 12. The total listings include all residential property types and the average weekly listings have fallen from 1098 properties per week in January 2011 to 1033 per week in January 2012 (a decrease of 5.9%).

During the same period the average weekly listings for residential houses in the same locations have fallen from 967 in January 2011 to 809 in January 2012, representing a decrease of 16.3%. This indicates that the unit and townhouse sectors of the market were not as severely impacted as the freestanding residential property sectors.

Rental Listings

Following the cyclone there was a very significant decrease in the number of residential properties available for lease in the four towns. The market acted in a similar way to the flood affected areas, with the most rental take up in the unit market and this take up lasting six months. Within 3 months of the cyclone, the declining trend in available rental houses was reverted and the number of residential houses available for rent increased through to January 2012. Again, the demand for rental accommodation was immediate but

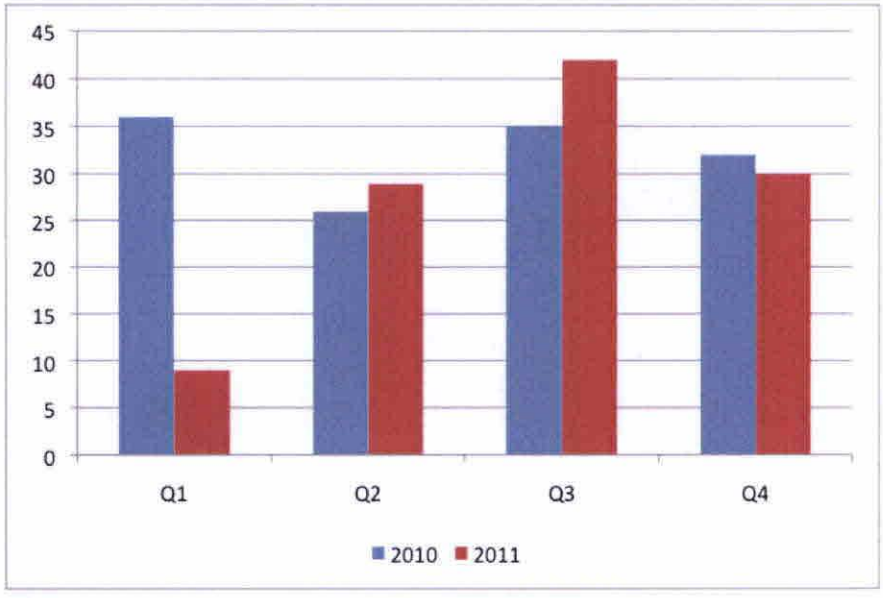

Figure 11: Comparison of House sales: North Queensland Cyclone affected Towns: 2010 and 2011

most was for a short term lease to allow for repairs on damaged houses. Once these repairs were made home owners did not renew their short term leases. In the town of Tully, there are currently no residential houses or units available for rent.

Sales to listings

The actual sales to average weekly listings per quarter are shown in Figure 14. From this figure, it can be seen that in the Q1 2011, the level of sales declined rapidly after the cyclone, with only 0.93% of houses listed for sale actually selling. During 2011 this rate of sales to listings peaked at 4.8% in the third quarter, which was also in the time period that most minor to medium level damage to houses had been repaired. However, it is also interesting to note that these rates of conversion form sales listing to actual sales are well below those levels being achieved in the flood affected suburbs of Brisbane.

Christchurch earthquakes

Christchurch has been subject to two major earthquakes in the 18 months, with the first quake in September 2010, followed by a second major earthquake in February 2011. Although the February 2011 quake was less severe from a geological basis, this quake resulted in greater loss of life and property damage than the larger quake in 2010.

Residential property damage was widespread throughout Christchurch but was discriminate in relation to individual residential properties, with houses being totally destroyed but the neighbouring properties being undamaged or only slightly damaged. This differed to the cyclone and flood events, where properties in the affected areas tended to have similar levels of damage.

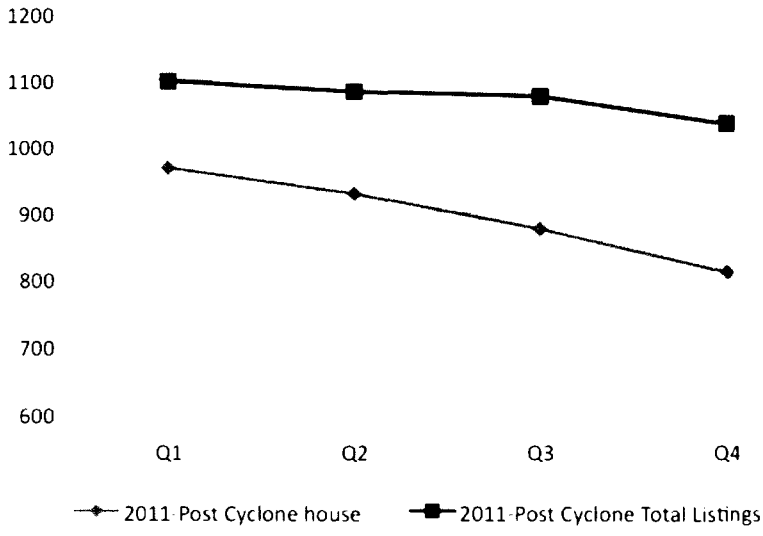

Figure 12: Comparison of House sale Listings: North Queensland Cyclone affected Towns: 2010 and 2011

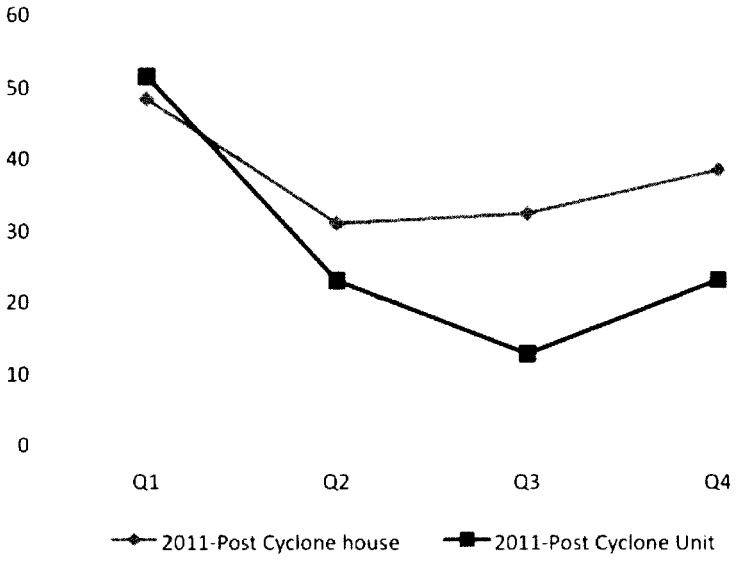

Figure 13: Comparison of House rental Listings: North Queensland Cyclone affected Towns: 2010 and 2011

Figure 14: Comparison of sales to Listings: North Queensland Cyclone affected Towns: 2011

The following analysis compares the residential house sales and rental markets before and fate the 2010 and 2011 earthquakes and provides details of the volume of sales, sale and rental listings and the time on market for residential property sales.

Figure 15 shows the monthly median residential house price for low value, medium and high value residential suburbs of Christchurch. From this figure, it can be seen that the price of residential property in the lower and middle value suburbs of Christchurch have been relatively stable over the period September 2009 to January 2012, with the median price for lower value houses increasing from $257,000 to 268,000 (4.3%) and the median price for medium value suburbs increasing from $351,000 to $375,000 (6.8%) over the same 2.3 year time period. However, this figure also shows that for these two property sectors there was a decrease in the median price of residential property from August 2010 to March 2011 (the period following the first and second earthquake) from $255,000 to $247,000 for lower value suburbs and $364,000 to $340,000 for medium value suburbs.

Although the trend and change in median residential house prices in the lower and medium value suburbs were similar, this was not the case fop the higher value suburbs. Over the period September 2009 to January 2012, the median house price in the higher value suburbs decreased from $503,000 to $478,000, with a lowest level of $430,000 in August and October 2011. Following the quake in September 2010, the median house price fell from $539,000 to $466,000, a decrease of 13.5% in 3 months. However, the decrease after the second quake was not as significant at 8.5% .

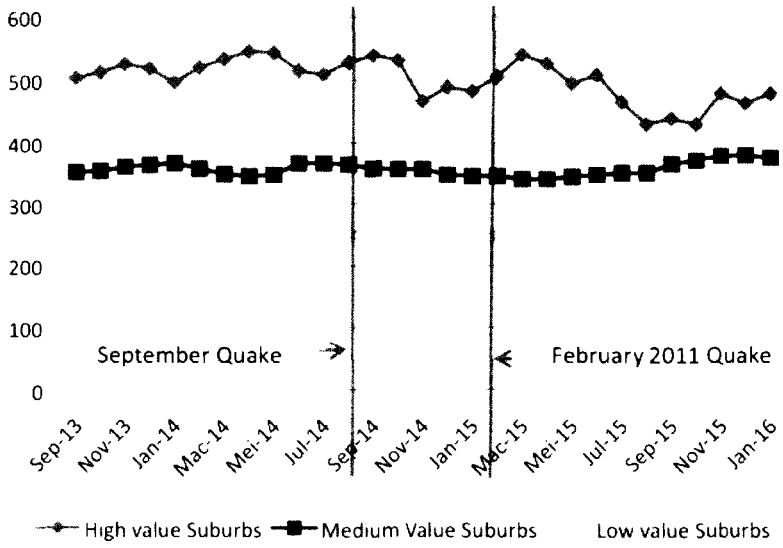

Figure 15: Christchurch Median House Prices: Socio-Economic: 2009 to 2012

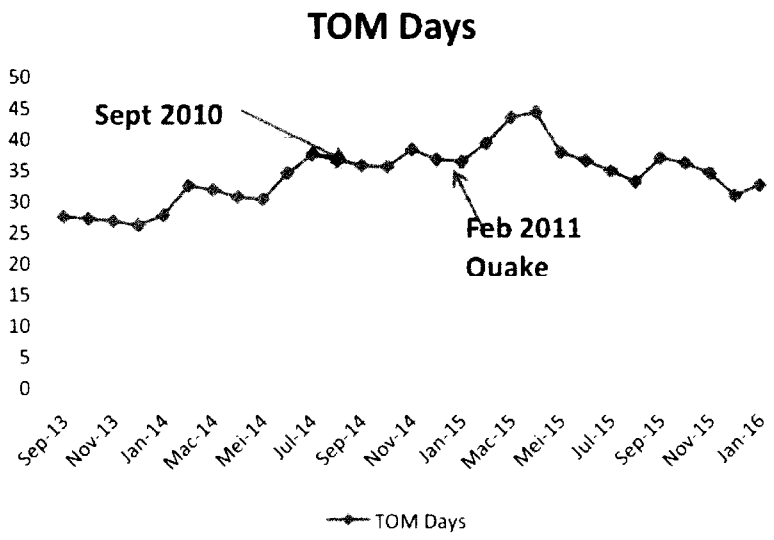

Figure 16: Christchurch residential Property sales: Time on Market: 2009-2012

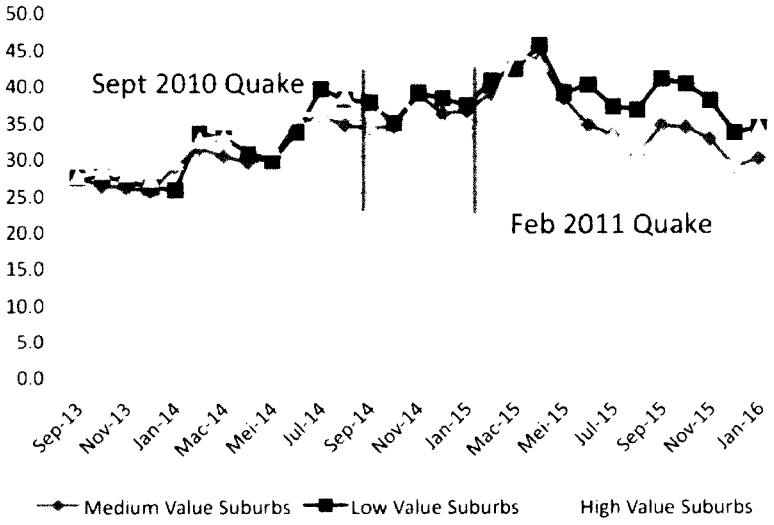

Figure 17: Christchurch Sales transactions: Socio-Economic: 2009-2012

Figure 16 shows the change in time on market for residential property in Christchurch over the period September 2009 to January 2012. This figure shows that leading up to the earthquake in September 2010, it was taking longer to sell residential property with the TOM increasing from 27 days in September 2009 to 37 days in September 2010. Following the February 2011 quake, the TOM increased to 44 days in April 2011. However, since May 2011 the TOM has fallen to a low of 31 days in December 2011.

During the 12 months prior to the September 2010 quake all Christchurch suburbs were showing an increasing and similar trend in sales transactions (refer to Figure 17). However, following the first earthquake the drop in sales transactions for the higher value suburbs was greater than the sales transactions in the middle and lower value suburbs of Christchurch. It is also interesting to note that sales transactions actually increased for all residential property sectors following the February 2012 quake and did not decline until May 2012, which followed a similar to the previous year for the same time period.

Figure 18 provides the details of the average weekly residential house sale listings from January 2009 to January 2012 based on the socio economic status of 15 Christchurch suburbs. This figure shows that the higher and middle value suburbs have had the higher average weekly listings compared to the lower value suburbs and that the reduction in sales volume from Q3 2009 to Q1 2010 was reflected in increasing sales listings for the same period. Following the September 2010 quake, weekly sales listings for the lower value suburbs fell from an average of 170 houses per week to 116 in Q2 2011(31.7% decrease). During the same period listings in the middle value and high value suburbs decreased by 25.4% and 14.9% respectively.

Conclusions

The common factor in relation to each of these individual natural disasters has been the reaction of the market participants immediately following the event. In all cases the first 3 to 6 months after the event saw am immediate drop in residential house prices but the drop was not consistent. In

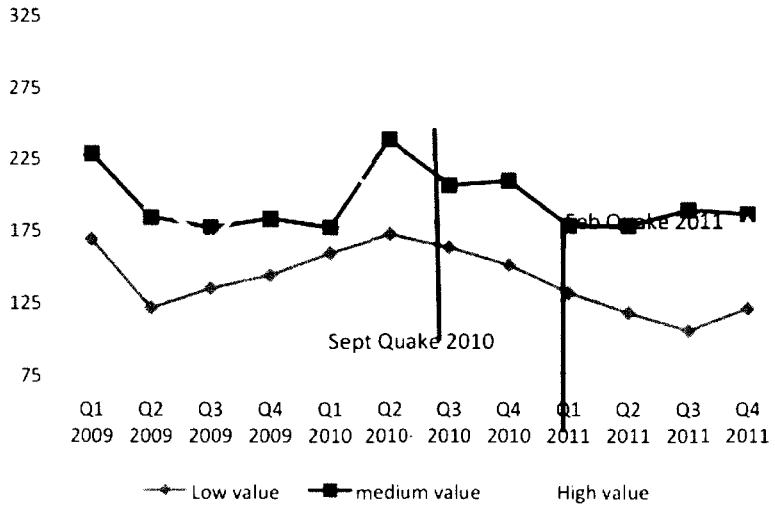

Figure 18: Christchurch Sales to Listings: Socio-Economic: 2009-2012

the Brisbane floods, the lower and high value suburbs saw significantly greater price falls compared to the middle value suburbs. In the case of the Christchurch earthquakes, the decrease in the median price for houses in the lower and middle value suburbs was lower than the decrease in price for the higher value suburbs. This indicates that a natural disaster will have the greatest impact on high and low residential property sectors.

House sales listings do not decline immediately after a natural disaster but the affected areas can maintain or increase sale listings as house owners take the opportunity to leave the affected areas. In such cases there is a corresponding decrease in the sales listings for nearby non affected suburbs.

In cases where the damage from the natural disaster is widespread, the impact on sale listings is consistent and results in an overall decline in listings until such time as major repairs are undertaken.

Following a significant natural disaster, there is an immediate impact on the rental property market in the subject area. Rental property listings decrease immediately after the event as people seek alternate accommodation. The drop is more prominent in the higher value suburbs as these people generally have greater access to funds to rent, whereas the alternatives are not as great for house owners/renters in the lower value areas. The take up of rental units is greater than houses as the rental period is only for a short period not long term. After 6 months there is an increase in available rental property as those who rented while their own properties were repaired, move back in.

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Updated February 08, 2011 07:36:00
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Christchurch Earthquake: 100,000 homes damaged, 10,000 unsavable

By Maggie Tait of NZPA | Tuesday, March 1, 2011 9:40
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The publication Board of this journal invites original papers from real estate professionals on any of the following areas:

- areas of major interest and practical relevance to the real estate profession;
- new techniques, applications, theories as well as related concepts relevant to the real estate profession;
- policy issues and regulations and their impact on the real estate market.

The journal focuses on Asia, with particular emphasis on Malaysia, but papers that promote cross-national learning on the real estate industry world wide are welcome. Each issue will also present practise notes relevant to the practice of valuation and property services written by senior professionals.

Further details on the journal are available from:

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Notes To Contributors

1) Submission

Contributors can submit their papers before the 31st July of each year to:

The Editor
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A prospective contributors may submit a summary of a proposed paper to editor for preliminary consideration as to its suitability for publication in the journal. The receipt of each paper submitted will be acknowledged. The Editor reserves the right to accept, modify or decline any article.

2) Reviewing Process

All contributions will be reviewed by one or more referees. Contributors will be informed about the acceptance (or otherwise) of their papers after the comments of referees have been received. The entire reviewing process will be conducted in complete confidentiality. For this purpose, the name, address and affiliation of the contributor should not be on the first page of the paper, but only on the accompanying letter.

3) Style

Papers should be the original, unpublished work of the contributors. They should not be under consideration for publications elsewhere. Submissions can be in either Malay or English language. Papers should be written in a clear and simple style and should have a carefully considered structure.

Contributors are encouraged to adopt the most effective way of communicating their information to the reader. Illustrations may be used to elucidate the issues raised.

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Paper should preferably be in the range of 4,000 to 6,000 words, including illustrations. A brief (max 60 words) profile of the contributor should accompany each article.

All manuscripts for publishing are to be typed in double-spacing on one side of A4 sized paper with 1.5 inch margin on the left-hand side. The pages should be numbered consecutively.

(a) First Page

The full title of the paper must be shown on the first page of the manuscript. Also to be included on the first page are an abstract of not more than 200 words and to up five keywords to facilitate indexing. The abstract should summarise the objectives, main finding and conclusions of the paper.

(b) References

Only references which are cited in the text should be included in the Reference List. The Havard reference system is adopted in the journal. References within the text will be shown in bracket, by quoting first, the author's name followed by a comma and year of publication all in round brackets, e.g. (Agus, 1994).

Reference should appear at the end of the article, arranged in alphabetical order by the first author's surname as follows:

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For journal: surname, initials, (year) "title", journal, volume, number, pages.

Example

References:

Book
Lim, K.K. (1990), *Valuation Methods,*

Journal
Zahuruddin A. (1994), "The New Economic Policy and the Integrated Housing Model", *Ilmu Alam,* Vol. 2 No. 7, pp 23-25

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Illustrations such as diagrams, tables, graphs and similar materials should not be part of the text but should be submitted separately with the text. Tables of values used to generate graphs must be included to ensure accurate representation. All illustrations should be identified correctly in the order in which they are referred to in the text, e.g. "Figure 1 or Table 1., etc". The exact places where illustrations are to be inserted in the text should be clearly shown in the manuscript. Photographs should be black and white glossy paints. The contributor's name, figure number, caption and an indication of which in top, should be written lightly of the back of each photograph.

Acknowledgements, Footnotes and Endnotes are to be listed at the end of the article on separate piece of paper in the following format:

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