THE EFFECTS OF FLOODING ON HOUSE PRICES: TWO CASE STUDIES IN MALAYSIA

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2011

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**THESIS SUBMITTED IN FULFILMENT
OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY**

**FACULTY OF BUILT ENVIRONMENT
UNIVERSITY OF MALAYA
KUALA LUMPUR
MALAYSIA**

2011

UNIVERSITI MALAYA
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Name of Degree: **Doctor of Philosophy**

Title of Project Paper/Research Report/Dissertation/Thesis ("this Work"):
The Effects of Flooding on House Prices: Two Case Studies in Malaysia

Field of Study:
Real Estate Performance Measurement

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ABSTRACT

Flooding of residential property is a real and growing phenomenon in the Malaysia and is causing short and long-term detriment of various kinds to its victims. The issue of potential decrease in value of those properties which are located on the floodplain, though much discussed in the media, has received scant attention in the Malaysian research literature. An extensive literature survey of Anglo-Saxon and US origin has revealed a need for methodological innovation in the field of temporal impact of flooding and the inadequacy of the current paradigms for inclusion of insurance into flood modelling.

The main thrust of this research is to determine whether flooding has any effect on housing prices in Malaysia. The ancillary objectives of this study are limited to a search for evidence that expected annual flood damages borne by flood plain activities are or are not capitalized into the fair market value of floodplain properties in Malaysia.

Addressing this question is more involved than just comparing the actual price of a floodplain property to a hypothetical, otherwise identical, non-floodplain property. This study defines this difference as the discount for floodplain location. The discount for floodplain location, however, does not necessarily equate to discount for primary flood damages. The location discount represents the net effect of all attributes, positive and negative alike, associated with floodplain location which affects property value. Examples of positive attributes are access to recreational boating and river views. Negative attributes include clean-up costs and loss of income during a flood.

Hedonic price models are used to empirically measure a discount due to primary flood damages, separate from the discount for floodplain location. Hedonic price models describe the contribution of a property attribute to the overall price. The models are empirically assessed with multi-variety regression models where sale price is the dependent variable and the property attributes are the independent variables.

This study reviewed existing academic literature on hedonic price models of the floodplain real estate market. In addition, two hedonic price model cases were studied to answer some of the questions raised in the literature review. The case studies used price data on Damansara and Dungun.

The output from this study makes a contribution to the understanding of the impact of flooding on house prices, allowing for better valuation advice. Empirical findings are that the understandable concerns of residential property owners at risk of flooding regarding long term loss of property value are largely unfounded. Price discounts are observed for some recently flooded areas but they are temporary.

The output from the study also makes a methodological contribution in extending concepts relating to the relationship between flooding, insurance and house prices. This development is anticipated to facilitate refinement and updating of the empirical findings with reduced effort in the light of future events.

ABSTRAK

Banjir di kediaman hartabenda adalah suatu fenomena sebenar dan berkembang di Malaysia dan ianya menyebabkan pelbagai kesan kerugian jangka pendek dan panjang. Isu potensi penurunan nilai hartabenda yang terletak di kawasan dataran banjir, meskipun telah banyak dibahas di media, sedikit sebanya menarik perhatian kajian penyelidikan di Malaysia. Sebuah kaji selidik menyeluruh (komprehensif) dari literature-literatur Anglo-Saxon dan Amerika Syarikat telah mendedahkan keperluan kepada inovasi metodologi di dalam bidang kesan berangkaian banjir (sequential impact of flooding) dan kekurangan paradigma semasa untuk dimasukkan ke dalam model insurans banjir.

Motivasi utama kajian ialah untuk mengetahui samada banjir telah mempengaruhi harga perumahan di Malaysia. Objektif tambahan kajian ini adalah terhad untuk mencari bukti bahawa jangkaan kerosakan banjir tahunan ditanggung oleh kegiatan di dataran banjir atau tidak dimodalkan kepada nilai-nilai wajar pasaran hartabenda di dataran banjir di Malaysia. Menangani persoalan ini perlu lebih penglibatan bukan sekadar membandingkan harga sebenar hartabenda di dataran banjir kepada hipotetis, sebaliknya mengenalpasti, hartabenda bukan di dataran banjir. Kajian ini mendefinisikan perbezaan ini sebagai diskaun untuk lokasi dataran banjir. Diskaun untuk lokasi dataran banjir, bagaimanapun, tidak harus sama dengan diskaun untuk kerosakan banjir utama. Diskaun lokasi merupakan kesan bersih dari semua atribut, positif dan negatif sama, berkaitan dengan lokasi banjir yang mempengaruhi nilai harta. Contoh atribut positif ialah akses kepada rekreasi berperahu dan melihat pemandangan sungai. Atribut negatif termasuk kos pembersihan dan kehilangan pendapatan semasa banjir.

Model Harga Hedonic digunakan untuk mengukur secara empirikal diskaun kerana kerosakan banjir utama, berasingan dari diskaun untuk lokasi dataran banjir. Model Harga Hedonic memperihalkan sumbangan atribut hartabenda kepada harga keseluruhan. Model secara empirikal dinilai dengan model multi-variate regression dimana harga jualan adalah pembolehubah dependen dan atribut hartabenda adalah pembolehubah bebas. Penyelidikan ini mengupas kajian akademik sediada bagi Model Marga Hedonik dari pasar real estat dataran banjir. Selain itu, dua kes harga hedonik model dipelajari untuk menjawab beberapa soalan yang muncul dalam tinjauan literatur. Kajian kes digunakan data harga di Damansara dan Dungun.
Hasil dari kajian ini memberikan sumbangan untuk memahami kesan banjir ke atas harga rumah, membenarkan nasihat penilaian yang lebih baik. Penemuan empirikal adalah pertimbangan yang dapat difahami bagi pemilik hartabenda kediaman berhubung risiko banjir jangka panjang tentang hilangnya nilai hotel sebahagian besar tidak berasas. Harga diskaun diamati untuk beberapa daerah baru-baru ini banjir tetapi mereka bersifat sementara. Hasil dari kajian ini juga membuat sumbangan metodologi dalam memperluaskan konsep-konsep yang berkaitan dengan hubungan antara banjir, insurans dan harga rumah. Perkembangan ini diharapkan dapat memudahkan pembaikan dan pengemaskinian penemuan empirik dengan usaha mengurangkan dalam terang peristiwa masa depan.

ACKNOWLEDGEMENTS

In the name of Allah, most Gracious, most Compassionate.

Indeed, I am very grateful to the Almighty Allah whose Graciousness and Compassion have enabled me to run this far, down the road of academia. As one journey ends, another journey begins, Insyallah.

I owe a debt of gratitude to my two supervisors, Associate Professor Dr .Nasir Mohd Daud and Associate Professor Dr. Noor Rosly Haniff for their guidance, support, confidence and advice which were expended generously and without favour. Through them, I learn and ensconce the value of exploration in the quest for knowledge and they gave me a peek into the world of academia which is both exciting and rewarding, to say the least. In spite of their plethora of achievements in their respective field, their heads are firmly on their shoulder and feet on the ground. They are positive role models worth emulating.

My thanks to Puan Norzie and the support staff of Faculty of Built Environment for their patience and assistance on administrative matters which tend to bog me down almost incessantly. My comrades and fellow PhD Candidates: Abdul Aziz Abdullah, Ali Alashwal, Abdullahi Chafe and Rafikullah Draman, my appreciation for the kinship extended and for which I will always treasure. Our thirst for knowledge and common academic-related interests transcend our different nationalities and disciplines. And I hope our academic collaboration can be preserved so that we can reap what we have sown together.

As an old adage goes, always save the best for last. My deepest respect and appreciation to my parents, the late Haji Mohd Beksin Bin Idris and Hajjah Nor Binte Haji Dzafir for everything they have done for me. My dearest wife, Aniza Bte Mohd Sumsi, to whom I shall be eternally grateful. She manifests what I seek in an ideal spouse: very responsible, loving, supportive, caring, an exemplary close confidant, glue that binds my family together in my absence and many more endearing qualities. My progenies: Muhamad Azka Danish, Nor Aiman Firzanah, Fauzul Kabir, Rizkan Kareem and Khairur Raziqin, Daddy loves all of you very much and my appreciation to all of you for putting up with my frequent and protracted absence. This work is an example which Daddy has set and wants you to emulate: the values of diligence, persistence, dedication, humility and self-confidence. The road to heaven is paved with good intentions.

This academic enterprise will come to a nought if not for my family members, supervisors, close friends and faculty support staff. Only Allah can justly reciprocate for all the assistance rendered and kindness shown by all of you. Jazakallah Khayran.

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ABBREVIATIONS

ARIMA	Autoregressive integrated moving average
ACORN	ARC (Australian Research Council) Communications Research Network
Bernama	Bernama News Agency
Cagamas	Perbadanan Cagaran Malaysia or the National Mortgage Corporation
GARCH	Generalized AutoRegressive Conditional Heteroskedasticity
JPPH	Jabatan Penilaiandan Perkhidmatan Harta
JPSM	Jabatan Pemgairandan Saliran Malaysia
NAPIC	National Property Information Centre
NFIP	National Flood Improvement Programme
MRA	Multiple Regression Analysis

LIST OF EQUATIONS

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