

**HOUSEHOLD DEBT'S IMPACT ON ECONOMIC GROWTH,  
DETERMINANTS AND SIGNAL TO SYSTEMIC BANKING  
CRISES**

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**UNIVERSITI SAINS ISLAM MALAYSIA**

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DETERMINANTS AND SIGNAL TO SYSTEMIC BANKING  
CRISES**

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## AUTHOR DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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## ABSTRAK

Peningkatan hutang isi rumah yang pesat telah menimbulkan kekhawatiran tentang pengaruhnya terhadap pertumbuhan ekonomi kerana kesan buruknya telah dibuktikan. Bukti empirikal menunjukkan hubungan yang negatif antara hutang isi rumah dengan pertumbuhan ekonomi didorong oleh kenaikan harga rumah. Namun begitu, tidak banyak kajian menumpukan kepada pembangunan industri kewangan dalam mempengaruhi hutang dan pertumbuhan isi rumah, yang secara tidak langsung memicu krisis perbankan. Memandangkan terdapat kesan risiko ekonomi dalam pembangunan kewangan melalui peranan hutang isi rumah dan pembangunan ekonomi, senario tersebut menandakan peranan hutang isi rumah sebagai petunjuk penting dalam Signal Peringatan Awal (EWS) untuk krisis perbankan sistemik. Secara amnya, kajian ini bertujuan untuk membincangkan isu hutang isi rumah, puncanya, dan kesan kepada pertumbuhan ekonomi dalam tiga aspek: hubungan antara hutang dengan pertumbuhan ekonomi, penentu hutang isi rumah, dan kebarangkalian krisis perbankan sistemik. Objektif kajian ini adalah, pertama, untuk mengkaji pengaruh hutang isi rumah terhadap pertumbuhan dan kedua, untuk melihat peranan kualiti institusi dalam model pertumbuhan. Ketiga, untuk membincangkan lebih lanjut mengenai peranan pembangunan kewangan sebagai pemangkin hutang isi rumah. Akhirnya, kajian ini bertujuan untuk menyiasat peranan hutang isi rumah sebagai petunjuk awal dalam EWS untuk meramal kebarangkalian krisis perbankan sistemik. Kajian ini menganalisis 43 negara terdiri daripada negara maju dan negara membangun untuk tempoh 1980 hingga 2018 dengan menggunakan kaedah *biased corrected Least Square Dummy Variable* (LSDVC) dan regresi logit. Penemuan empirik utama menunjukkan hubungan yang negatif antara hutang isi rumah dengan pertumbuhan ekonomi. Walaupun kualiti institusi mempunyai kesan positif yang lemah terhadap pertumbuhan, menariknya, penemuan kajian menunjukkan bahawa kesan negatif hutang isi rumah terhadap pertumbuhan lebih kuat pada tahap kualiti institusi yang lebih rendah. Hasilnya juga menunjukkan perkembangan kewangan merupakan antara penentu utama dalam menentukan pengumpulan hutang isi rumah. Oleh itu, hasil kajian secara tidak langsung menunjukkan bahawa peningkatan hutang isi rumah berpunca daripada pembangunan kewangan berisiko dan seterusnya menggugat kestabilan ekonomi. Malah, hasil kajian mendapati bahawa hubungan hutang isi rumah ada kesan kepada pertumbuhan ekonomi dan meningkatkan kemungkinan krisis perbankan untuk negara maju sahaja, namun tidak signifikan untuk negara membangun. Seterusnya, ia membolehkan pemahaman praktikal yang lebih luas untuk membantu para pembuat dasar dalam melakukan usaha untuk mengelakkan kesan buruk daripada hutang isi rumah terhadap pertumbuhan ekonomi di masa depan. Kajian ini memberikan garis panduan dalam membantu penggubal dasar merancang polisi yang sesuai dengan karakter negara masing-masing bagi mengekalkan kestabilan ekonomi. Khususnya, penemuan ini membantu Bank Negara dan pihak berkuasa dalam memantau pengukuran dan pengaturan institusi kewangan yang relevan dalam memastikan peranan positif hutang isi rumah terhadap pertumbuhan. Jadi, penemuan ini dapat memberi amaran awal kepada pemerintah untuk lebih berwaspada terhadap perubahan hutang isi rumah yang mendadak dan bersiap sedia menghadapi risiko ekonomi. Seterusnya, kajian masa depan boleh mempertimbangkan proksi alternatif untuk institusi dan meneroka menggunakan metod berbeza.

## ABSTRACT

The rapid increase in household debt has raised concerns over its influence on economic growth since it has proven to be detrimental to growth. Extensive empirical evidence shows that the unfavourable household debt-growth nexus is driven by a surge in house prices. Nevertheless, very few studies have focused on the link between household debt and growth was led by the supply side (financial development), which indirectly leads to banking crises. Due to the downside risk integral in the supply side through the role of household debt and growth, the scenario signals the role of household debt as an indicator in the Early Warning Signal (EWS) model for systemic banking crises. This study aims to discuss the issue of household debt as well as its cause and impact on economic stability in three aspects: debt-growth nexus, the determinants of household debt, and the probability of systemic banking crises. The objectives of this study are, first, to examine the impact of household debt on growth and second, to investigate the role of institutional quality in the growth model. Third, this study seeks to discuss the role of financial development as a catalyst to household debt. Finally, the study aims to investigate the role of household debt as an indicator in the EWS for predicting the probability of systemic banking crises. This study analysed 43 countries of advanced and emerging economies for the period from 1980 to 2018 by employing a bias-corrected Least Square Dummy Variable (LSDVC) estimator and the logit regression method. The main empirical findings are a negative association between household debt and economic growth, while institutional quality has a weak positive effect on growth. Notably, the evidence shows that the negative effect of household debt on growth is stronger at a lower level of institutional quality. The results also reveal financial development as an important variable in determining the household debt accumulation. Hence, the results indirectly highlight that the rapid build-up of household debt arising from financial development has an inherent risk leading to economic instability. This study finds household debt is a significant indicator for the EWS of systemic banking crises. The findings suggest the growing influence of financial development as a leading cause of the detrimental effect of household debt on growth and in increasing the probability of crises. Nevertheless, the negative effect of household debt on growth can be reduced through the conditional role of institutional quality. Also, the findings of the study found that the relationship between household debt and growth is stronger and increases the probability of banking crises for advanced economies, but not for emerging economies. Hence, this study provides a broad practical understanding that will assist scholars and policymakers in finding ways to avoid the harmful effect of debt on growth in the future. Besides, this study offers an informative guideline for policymakers in designing suitable policies that suit countries' characteristics in ensuring a favorable effect of debt in sustaining economic stability. In particular, the findings are expected to assist central banks and other government authorities in monitoring the accessibility and size of financial institutions and the relevant institutional settings in ensuring the positive effect of household debt on growth. Thus, the results are expected to be beneficial in alerting the government to be more cautious of any unexpected change in debt and prepared for the downside risk so that the risk could be managed properly. Future studies may consider alternative proxies for institutions and explore using different estimator methods.

## الملخص

الزيادة السريعة في ديون الناس تثير القلق وتشكل خطرًا على النمو الاقتصادي للبلد، وهو أيضا عرضة للصدمات المالية السلبية. في حالة الولايات المتحدة، أدى الارتفاع اللاحق لديون الرهن العقاري إلى جانب الزيادة الكبيرة في أسعار المساكن إلى تحفيز فقاعة الإسكان التي أدت إلى الأزمة المالية، والمعروفة باسم أزمة الرهن العقاري الثانوي. إن دين الأسرة المتزايد يؤدي ببساطة إلى إستقرار التباطؤ الإقتصادي، كما أدت الزيادة الكبيرة والمستمرة في ديون الأسر إلى التساؤل حول الدور الذي يلعبه الجانب المالي الذي ينتهي عادة بالأزمة. وبالتالي، يصبح سلوك دورة الدين مجالاً مهماً يستدعي إجراء فحص دقيق، حيث يعمل كإشارة إنذار مبكر لإندلاع الأزمات. ويعتبر خطر ارتفاع ديون الأسر المعيشية حقيقي لأي بلد في هذا الشأن، إذ أجدب انتباه صانعي السياسة بشأن امتداده إلى كارثة. وفي ضوء هذه المسألة، يسعى البحث الحالي إلى تقييم ثلاثة أهداف رئيسة تهدف إلى تحقيق؛ أولاً: أسباب الزيادة السريعة في ديون الأسرة، وثانياً: دور ديون الأسرة في النمو الاقتصادي، وثالثاً: إمكانية دين الأسرة في تحديد الأزمة المصرفية الشاملة. ولتحقيق الهدف الأول، سيتم استخدام تحليل بيانات اللوحة (Panel) للتحقق من عينة مكونة من 43 دولة للفترة من عام 1980 حتى 2018 من خلال تقدير تحيز المربعات الصغرى للمتغير الوهمي الأقل تصحيحاً (LSDVC). وتساهم الدراسة في؛ أولاً: تسلط الضوء على دور التنمية المالية الذي يلعب دوراً حيوياً في نموذج ديون الأسر. ثانياً: يوسع النموذج الأساسي من خلال التأكيد على الجودة المؤسسية في نموذج نمو ديون الأسر المعيشية. وثالثاً: ليس فقط ديون الأسرة يمكن أن تؤدي إلى أزمات مصرفية نظامية، ولكن يمكن أن يحتوي سعر المنزل الذي تطرقت إليه الدراسة على جزء مهم أيضاً، ورابعاً: استخدام طريقة تقدير قوية من خلال استخدام LSDVC الذي يناسب الأقسام العرضية الصغيرة من مجموعة بيانات اللوحة. أظهرت النتائج أدلة جديدة تتمثل في؛ أولاً: يلعب التطور المالي دوراً حيوياً في التأثير على تراكم ديون الأسر. ثانياً: الجودة المؤسسية الأفضل لها تأثير كبير على النمو، حيث أن الأثر السلبي لدين الأسرة على النمو ينحسر على مستوى أعلى من الجودة المؤسسية، وثالثاً: الزيادة في دين الأسرة وسعر المنزل يزيد من احتمالية إندلاع الأزمة المصرفية النظامية. تُعد النتائج قوية باستخدام أساليب وتقنيات تقدير مختلفة، وتسمح بفهم أعمق للعوامل التي تساهم في زيادة دين الأسرة، كما تثبت الحجة القائلة بأن زيادة ديون الأسر بسبب توسع النظام المالي يمكن أن تؤدي إلى الأزمة الاقتصادية. سيسمح هذا أيضاً بفهم نظري أكثر شمولاً لمساعدة العلماء وصانعي السياسات على طرق مبتكرة في تجنب دورات الديون القصوى للاحتتمالات المستقبلية. على هذا النحو، من المتوقع أن تقدم نتائج هذه الدراسة إرشادات مفيدة لواقعي السياسات في تصميم السياسات المناسبة فيما يتعلق بالديون وإدارتها للبلد. بالنسبة للدراسة المستقبلية، قد تأخذ في الاعتبار التحليل التجريبي في عينة منفصلة من الاقتصادات المتقدمة والناشئة لأن هذه الدراسة تدمج كلا الاقتصاديين. إلى جانب ذلك، تقتصر الدراسة على 43 دولة من أجل ضمان البيانات الموحدة لديون الأسرة المقدمة من بنك التسويات الدولية فقط، في حين أن هناك دراسات أخرى أجريت في نطاق أوسع. ومع ذلك، فإن البيانات التي تم تحليلها لم تقدم حساباً شاملاً وتعريفًا واضحًا لديون الأسر، لذا يمكن تناول بحث آخر في المستقبل لتحدي التعريف الحالي لديون الأسر في المزيد من البلدان.

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## LIST OF ABBREVIATIONS

2008 SNA	System of National Accounts 2008
BIS	Bank for International Settlements
CON	household consumption
CRISIS	Systemic Banking Crises
CVAR	Cointegrated Vector Autoregression
DEP	depreciation (currency/nominal)
ECM	error correction model
EMU	economic and monetary union
EWM	early warning system model
EWS	early warning signal
f	function
FC	financial contagion
FD	financial development
FISCAL	fiscal surplus
GCF	gross capital formation
GDP	gross domestic product
GDPC	GDP per capita
GDPG	real GDP growth in percentage
GDPPCG	real GDP per capita growth in percentage
GMM	generalised method of moments
HC	human capital
HD	household debt
HD*INS	interaction between household debt and institutional quality
HPI	house price index
<i>i</i>	cross country
IMF	international monetary fund
INF	inflation
INS	institutional quality

K	capital
L	labour/human capital
LCH	Life cycle hypothesis
LIR	lending interest rate
LL	liquid liability
LSDVC	a-bias corrected least square dummy variable
Max	maximum
Min	minimum
N	number of countries
NPL	non-performing loan
Obs	observation
OECD	organisation for economic cooperation and development
PCDM	private credit deposit money by banks
PIH	Permanent income hypothesis
POPG	population growth
RO	research objective
Std.Dev.	standard deviation
T	technology
$t$	time index
TO	trade openness
UN	unemployment
UNCTAD	United Nations conference on trade and development
UNSC	United Nations Statistical Commission
VAR	vector autoregression
WPOP	working population