



ธนาคารแห่งประเทศไทย
BANK OF THAILAND

เมื่อไทยลงทุนต่างประเทศน้อยเกินไป: สืบสาวปัจจัย โยงใยผลกระทบ

“Putting All Eggs in One Basket”

Thailand's Under-Investment Abroad: Impacts and Explanations

พรพิณ สดศรีชัย
สัทกะภพ พันธุ์ยานุกูล
นันทพร พงศ์พัฒนานนท์

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พรเพ็ญ สดศรีชัย สักกะภพ พันธุ์ยานุกูล นันทพร พงศ์พัฒนานนท์*

ธนาคารแห่งประเทศไทย

ตุลาคม 2554

ข้อคิดเห็นที่ปรากฏในบทความนี้เป็นความเห็นของผู้เขียน
ซึ่งไม่จำเป็นต้องสอดคล้องกับความเห็นของธนาคารแห่งประเทศไทย

บทคัดย่อ

ในช่วงที่ผ่านมา หลายประเทศในเอเชียที่มีโครงสร้างและพัฒนาการทางเศรษฐกิจใกล้เคียงกับไทย อาทิ มาเลเซีย ได้เพิ่มการลงทุนในต่างประเทศอย่างต่อเนื่อง ขณะที่การลงทุนของภาคเอกชนไทยทั้งการลงทุนในหลักทรัพย์และการลงทุนโดยตรงยังจำกัดอยู่ภายในประเทศค่อนข้างมากหรือมีระดับของ Home-bias สูง และการปรับลดของ Home-bias ของไทยช้ากว่าประเทศอื่นในระยะที่ผ่านมา

บทวิจยนี้มุ่งที่จะตอบคำถามสำคัญสองประการ ได้แก่ (1) Home-bias มีผลเสียอย่างไร และ (2) อะไรเป็นสาเหตุหลักของ Home-bias เพื่อนำไปสู่ข้อเสนอแนะเชิงนโยบายในการผลักดันให้ภาคเอกชนเพิ่มการลงทุนในต่างประเทศ อาทิ นโยบายการเปิดเสรีเงินทุนเคลื่อนย้าย นโยบายภาษี มาตรการที่ช่วยลดต้นทุนในการระดมทุนโดยเฉพาะของธุรกิจขนาดกลางและเล็ก รวมทั้งการบริหารจัดการความเสี่ยงของภาคเอกชน โดยการปรับตัวของภาครัฐและเอกชนต้องดำเนินการอย่างทันทีและเร่งด่วน เนื่องจากการปรับตัวมักใช้เวลานาน เพื่อที่ท้ายสุดประเทศจะเพิ่มความสามารถในการแข่งขัน รักษามาตรฐานความกินดีอยู่ดี และช่วยลดความเสี่ยงของระบบเศรษฐกิจ

* ผู้เขียนขอขอบคุณคุณทรงธรรม ปิ่นโต และคุณรุ่ง มัลลิกะมาส ผู้อำนวยการ ฝ่ายนโยบายเศรษฐกิจการเงิน สำหรับข้อเสนอแนะและแนวคิดที่เป็นประโยชน์อย่างมาก ซึ่งช่วยให้บทความมีความสมบูรณ์ยิ่งขึ้น นอกจากนี้ ผู้เขียนขอขอบคุณ คุณอังณา ไวกวามดี คุณไพบุลย์ กิตติศรีกังวาน คุณเมธี สุภาพงษ์ คุณอัมพร แสงมณี คุณปฤถษณ์ต์ จันทน์หอม และคุณปิติ คิชยทัต สำหรับข้อชี้แนะและความช่วยเหลือที่เป็นประโยชน์

บทสรุปผู้บริหาร

ในช่วงที่ผ่านมา หลายประเทศในเอเชียที่มีโครงสร้างและพัฒนาการทางเศรษฐกิจใกล้เคียงกับไทย อาทิ มาเลเซีย ได้เพิ่มการลงทุนในต่างประเทศอย่างต่อเนื่อง ขณะที่การลงทุนของภาคเอกชนไทยทั้งการลงทุนในหลักทรัพย์และการลงทุนโดยตรงยังจำกัดอยู่ภายในประเทศค่อนข้างมากหรือมีระดับของ Home-bias สูง บทวิจัยนี้จึงต้องการตอบคำถามสำคัญสองประการ ได้แก่ (1) Home-bias มีผลเสียอย่างไร และ (2) อะไรเป็นสาเหตุหลักของ Home-bias เพื่อนำไปสู่ข้อเสนอแนะเชิงนโยบาย

การศึกษาพบว่าไทยมี Home-bias สูงกว่ามาเลเซียทั้งในด้านการลงทุนโดยตรง การลงทุนในตราสารหนี้ และการลงทุนในตราสารทุน นอกจากนี้ การปรับลด Home-bias ของไทยช้าในระยะเวลาที่ผ่านมา โดย Home-bias ของไทยปรับลดหลังการผ่อนคลายข้อจำกัดด้านเงินทุนเคลื่อนย้ายในปี 2545 แต่ก็ยังเป็นไปอย่างช้าๆ ซึ่งสะท้อนให้เห็นว่าภาคเอกชนต้องใช้เวลาในการปรับตัวหลายปีจึงจะไปลงทุนต่างประเทศได้ แม้ปัจจัยด้านนโยบายจะเอื้อเพิ่มขึ้นแล้วก็ตาม

สำหรับประโยชน์ของการมี Home-bias ต่ำ คือ ช่วยรักษาระดับการบริโภค หรือมาตรฐานการครองชีพของประชาชนให้ค่อนข้างสม่ำเสมอ แม้การผลิตในประเทศถูกกระทบจาก Shock ที่เกิดกับเศรษฐกิจของประเทศ ทั้งนี้ เนื่องจากการลงทุนในต่างประเทศช่วยกระจายความเสี่ยงของระบบเศรษฐกิจ จากการศึกษาเชิงเปรียบเทียบพบว่าผลของ Home-bias ทำให้ความสามารถในการรองรับ Shock ของไทยต่ำกว่ามาเลเซียเกือบ 1 เท่าตัว กล่าวคือ หากเศรษฐกิจได้รับ Shock ที่ทำให้การผลิตในประเทศลดลงร้อยละ 10 การบริโภคของมาเลเซียจะลดลงร้อยละ 1 ขณะที่การบริโภคของไทยจะลดลงร้อยละ 2

การศึกษายังพบว่าการเปิดเสรีด้านเงินทุนเคลื่อนย้ายเป็นปัจจัยที่จำเป็นต่อการลด Home-bias โดยในกรณีของการลงทุนโดยตรงต้องอาศัยทั้งการเปิดเสรีเงินทุนเคลื่อนย้ายและความเชี่ยวชาญของนักลงทุน เป็นปัจจัยที่เกื้อหนุนกันในการลด Home-bias ขณะที่การเปิดเสรีเงินทุนเคลื่อนย้ายเป็นปัจจัยหลักที่จะช่วยเพิ่มการลงทุนในหลักทรัพย์ต่างประเทศ และจากการวิเคราะห์ข้อมูลเชิงคุณภาพพบว่าไทยด้อยกว่ามาเลเซียในทุกด้าน ทั้งนโยบายสนับสนุนของทางการ ความสามารถของนักลงทุน และปัจจัยแวดล้อมด้านตลาด โดยมาเลเซียมีการส่งเสริมการลงทุนในต่างประเทศอย่างต่อเนื่องและเร่งขึ้นมากในระยะหลัง

ดังนั้น ภาครัฐและภาคเอกชนต้องร่วมมือกันในการลด Home-bias ของประเทศ โดยปัจจัยสู่ความสำเร็จ มีดังนี้

ประการแรก รัฐบาลควรกำหนดเป็นยุทธศาสตร์ชาติเพื่อส่งเสริมการลงทุนต่างประเทศอย่างต่อเนื่องและจริงจัง เพื่อสร้างความมั่นใจแก่นักลงทุนถึงความต่อเนื่องเชิงนโยบาย ทำให้สามารถวางแผนการลงทุนได้อย่างราบรื่น

ประการที่สอง รัฐบาลเป็นผู้สนับสนุน ทั้ง (1) นโยบายเปิดเสรีเงินทุนเคลื่อนย้าย โดยภาครัฐไม่สร้างข้อจำกัดใดๆ ต่อการลงทุนต่างประเทศของภาคเอกชน (2) การสนับสนุนด้านภาษี อาทิ การลดการจ่ายภาษีซ้ำซ้อนจากการลงทุนในต่างประเทศ เพื่อลดภาระทางภาษีจากการลงทุนต่างประเทศของนักลงทุนไทย และ (3) การให้ความช่วยเหลือด้านเงินทุน เช่น การส่งเสริมสถาบันการเงิน อาทิ ธนาคารเพื่อการส่งออกและนำเข้าแห่งประเทศไทย (ธสน.) ให้ความสะดวกด้านสินเชื่อและบริการทางการเงินที่ครบวงจรแก่นักลงทุน รวมทั้งมาตรการที่ช่วยลดต้นทุนในการระดมทุนทั้งทางตรงและทางอ้อม

ประการที่สาม รัฐบาลเป็นผู้ให้บริการด้านข้อมูลที่ครบวงจร อาทิ การปรับบทบาทของสำนักงานคณะกรรมการส่งเสริมการลงทุน (บีโอไอ) เพื่อให้ข้อมูลเชิงรุกแก่เอกชนได้ทุกเรื่อง นอกจากนี้ รัฐบาลสามารถใช้ความสัมพันธ์ระดับรัฐต่อรัฐหรือการสนับสนุนเอกชนในการเจรจาทางการค้า การลงทุนระหว่างการเดินทางไปเจริญความสัมพันธ์ทางการทูต

ประการที่สี่ การปรับทัศนคติให้เป็น “Outward investment oriented strategy” เป็นสิ่งสำคัญ เพราะเป็นพื้นฐานในการสร้างสรรค์นโยบายที่เกี่ยวข้องอื่นๆ ตามมา

ในส่วนของภาคเอกชน ต้องเรียนรู้และทำการศึกษาประเทศที่ตนจะไปลงทุนให้มากขึ้น ศึกษาข้อมูลให้ครบถ้วนรอบด้าน โดยเฉพาะการถ่ายทอดความรู้และประสบการณ์ในกลุ่มนักลงทุนด้วยกันเอง หรือการ जुมือ जुกันออกไปร่วมลงทุน ซึ่งอาจจะอยู่ในรูปคลัสเตอร์ไทยในต่างแดน มีการร่วมมือกันกับนักลงทุนไทยด้วยกันเองหรือนักลงทุนท้องถิ่นในต่างประเทศ รวมทั้งมีการบริหารจัดการทางการเงินและความเสี่ยงที่ดีเพื่อให้การลงทุนประสบความสำเร็จ ที่สำคัญ การปรับตัวของภาครัฐและเอกชนต้องดำเนินการอย่างทันที่และเร่งด่วน เนื่องจากการปรับตัวต้องใช้เวลา และไม่ใช่ว่าสิ่งที่จะรอได้ ทั้งนี้ เพื่อที่ท้ายสุดประเทศจะก้าวข้ามการพัฒนาและยกระดับความสามารถของนักลงทุนไทยให้แข่งขันภายใต้เวทีโลกที่กำลังเปลี่ยนแปลงได้ รวมทั้งรักษามาตรฐานความกินดีอยู่ดีของประชากรในประเทศและลดความเสี่ยงของระบบเศรษฐกิจ

BOT Symposium 2011

“Putting All Eggs in One Basket” Thailand’s Under-Investment Abroad: Impacts and Explanations

Pornpen Sodsrichai
Sakkapop Panyanukul
Nantaporn Pongpattananon*

Bank of Thailand

October 2011

*The views expressed in this paper are those of the authors
and do not necessarily represent those of the Bank of Thailand.*

Abstract

This paper presents the degree of under-investment in foreign assets, known as a home-bias phenomenon, in 30 developed and developing countries across the world including Thailand. We find that Thailand’s home-bias is high compared to other countries’ home-bias and it decreases at a slower pace over time. The study also shows that a country with higher levels of home-bias experiences lower international risk sharing and has more volatile consumption patterns during the sample period of 1970 to 2010. To strengthen Thailand’s resiliency to unexpected economic shocks and maintain country’s economic welfare through better consumption smoothing, the policy challenges identified in this paper include capital outflow measures, tax policy, coherent institutional supports and guidelines to improve investors’ internationalized skills.

* The authors are very grateful to Songtum Pinto and Roong Mallikamas for their encouragement, guidance, support and suggestion of ideas, which greatly improve the paper. We also wish to express our deep appreciation to Atchana Waiquamdee, Paiboon Kittisrikangwan, Mathee Supamongse, Amporn Sangmanee, Parisun Chantanahom, and Piti Disyatat for their helpful comments and suggestions. All remaining errors are the authors’ own.

Executive Summary

Over the past decades, Thailand's under-investment in foreign assets, known as a home-bias phenomenon, has been evidently existed. Also, over time Thailand's home-bias situation improves very slowly relatively to other countries. Compared to countries with similar economic and social developments and fundamentals such as Malaysia, their outward investments have continuously increased. In this paper, we attempt to address the following questions: (1) how does home-bias affect countries' diversification and consumption risk sharing and (2) why does the country have home-bias, with an aim to come up with policy guidelines to public and private stakeholders. Thailand needs to reposition its country's outward investment strategies if it wants to keep pace with others.

With regard to benefits of low home-bias, our analysis shows that a country with lower levels of home-bias experiences higher international risk sharing and has less volatile consumption patterns. Due to the difference in home-bias, Thailand suffers more negative consumption shock than Malaysia given the same level of shock in income in two countries. For example, using the data of 2009, a negative GDP shock of 10% in Thailand and Malaysia resulted in a negative consumption shock of 2.0% and 1.1% in Thailand and Malaysia, respectively. Currently, Malaysia's ability to maintain the level of domestic consumption when the economy is affected by internal and external income shocks is almost twice as much as Thailand.

Our analyses indicate that the key determinants of cross-border under-investments are restrictive international capital outflow policy and lack of proper investors' internationalized skills. Our study also shows that the liberalized capital outflow measure is a necessary condition for cross-border investment or decreasing home-bias in general. However, to reduce home-bias in direct investment in particular, the relaxation of capital outflow measures and improvement of investors' skills in international business experience are simultaneously required. If we compare Thailand and Malaysia, Thailand has inferior and less supporting policies and investors' skills than Malaysia, which has promoted overseas investments strongly and continuously.

Accordingly, to strengthen Thailand's resiliency to unexpected economic shocks and maintain country's economic welfare through better consumption smoothing, Thailand must become a more outward-investment-oriented country. When going abroad with cross-border investments, things are always challenging. Therefore, all relevant stakeholders both public and private sectors, must work together very closely to ensure that all infrastructures and policy initiatives are conducive to overseas investments. Policy guidelines are suggested as follows.

First, in order for all stakeholders to cooperate and promote overseas investments holistically, Thailand needs to stipulate a concrete national road-map supportive to outward investments. This helps increase investors' confidence in a continuation of governmental policies; hence it causes more and better foreign investment decisions in the longer term.

Second, the public sector should play a vital role in implementing various policies to support outward investments, namely more relaxation of capital outflow measures, encouraging tax policies and providing easier access to financial facilities.

Third, the public sector should provide more comprehensive information and advice to Thai investors to venture abroad. For example, the governmental agency such as Thailand's Board of Investment (BOI) should be a one-stop information center to provide advice to Thai firms to invest abroad.

Concurrently, the private sector needs to improve its internationalized skills and better understand in-depth information of the host country, especially in terms of regulations, cultures and business opportunities. Moreover, Thai investors should be well-equipped with risk management capabilities in order that they can insure their returns from investments.

Most importantly, all stakeholders need to adjust their mindset into more outward investments oriented. Both public and private sectors should be better-coordinated to support each other more efficiently. In addition, all recommendations discussed above should be put in place as soon as possible since they take time before they become effective and materialized.

1. Introduction

The global economy experienced a major slowdown amid the worsening financial crisis since 2008; however, Asia has taken a good stance to weather this storm given its substantial official reserves, sound economic fundamentals, prudent banking systems as well as the robust corporate balance sheet in general. Accordingly, Asia is regarded as the newly main economic growth engine for the world's economy, which results in hefty net capital inflows into Asia, including Thailand, and appreciating and volatile Asian currencies.

Given this changing global economic landscape, together with the ongoing regional economic integration and rising China's growth, Thailand confronts new challenges, which call for public and private stakeholders to stay vigilant and be prepared to respond promptly and flexibly for maintaining and enhancing Thailand's competitiveness and welfare.

In order to improve the country's competitiveness and welfare amid the new economic prospects, among other things, Thailand needs to increase its opportunities to invest abroad, both in the forms of direct and portfolio investments, to diversify wealth, expand customer bases and explore resources. This helps the country to upgrade its competitive edge with other countries as well as to gear toward more balancing capital flows (which in turn lead to less volatile foreign exchange movements). The strong preference for domestic assets that investors exhibit, despite the well-documented gain from international diversification¹ and more integrated and freer trade markets remains an important yet unresolved empirical puzzle in financial economics. In Thailand, the degrees of home-bias toward domestic investment have been astonishingly high comparing to its peer countries.

In this paper, we review the development of home-bias in Thailand and other developed and developing countries. We also empirically investigate and analyze impacts of under-investment in foreign assets on countries' diversification and risk sharing. Importantly, we identify the possible factors, which result in home-bias, with an aim to come up with policy guidelines to public and private stakeholders to adjust themselves to keep pace with other countries. Specifically, we attempt to address the following three questions: (1) does Thailand have home-bias in direct and portfolio investments (2) how does home-bias affect countries' diversification and consumption risk sharing and (3) why does the country have home-bias? However, to keep our analysis focused, we select Malaysia as a representative country that Thailand deems to catch up with.

The remainder of this paper is structured as follows. Section 2 discusses the development of Thailand's home-bias in investments and compares home-bias of Thailand with other developed and developing economies. Section 3 explains the impacts of home-bias on countries' diversification and consumption risk sharing. Section 4 identifies the possible determinants of home-bias. Last section concludes and offers policy recommendations to relevant stakeholders.

¹ Grubel (1968), Solnik (1974), Eldor, Pines and Schwartz (1988) and De Santis and Gerard (1997) are among others who document significant benefits from diversifying internationally.

2. Thailand's home-bias in investments

2.1 Definition of home-bias

According to international portfolio theory, it indicates that optimal portfolios should be well diversified internationally. Also, the International Capital Asset Pricing Model (I-CAPM) implies that the total portfolio risk can be reduced by holding foreign assets whose returns are negatively correlated with the returns of the home country assets (Faruquee, Li and Yan, 2004). The international CAPM optimal weight equals the relative world market capitalization shares². Take an example of equity, the proportion of domestic stocks in investors' equity portfolio should equal their country's relative market capitalization in the world. However, in practice investors tend to invest primarily in domestic assets and do not exploit such international diversification opportunities. This phenomenon is commonly called the home-bias, representing one of the unresolved puzzles in the international finance literature.

Specifically, by investing in foreign assets, investors can reduce the total risks in their portfolios as foreign investments are less affected by fluctuations in domestic markets. Portfolios which are internationally diversified are less risky, as the risks spread across a number of markets, representing gains from diversification (Smith, 2007). As a consequence, a country with home-bias foregoes diversification benefits even when all transaction costs are taken into account³.

In our analysis, we define the home-bias as the degree to which investors of a given country are overweight in domestic assets and underweight in international assets, as compared to the benchmark portfolio. As suggested by I-CAPM, the benchmark weight is given by the market capitalization weight of the rest of the world seen from the viewpoint of a given country. We use the nominal gross domestic product (GDP) instead of market capitalization to estimate the benchmark weight⁴. If actual foreign portfolio weight is equal to the benchmark weight, the home-bias equals to zero. By contrast, if a country has no foreign holdings at all, the home-bias degree equals one.

The study employs data on foreign holdings from 30 countries around the world, both developed and developing economies, for the period 1970 to 2009 to explore how domestic investors from a wide range of countries make foreign investment decisions in the foreign assets of equity, bond and direct investment abroad.

The data on outward direct investment outstanding are from Bank of Thailand, International Monetary Fund and United Nations Conference on Trade and Development (UNCTAD). Outstanding of outward portfolio investment in equity and bond are from International

² Another approach to generate benchmark weight is a mean-variance optimization with sample estimates of the mean and covariance matrix of asset returns as inputs. Because a mean-variance approach relies solely on return data, the weights are extremely sensitive to the input data, which are also difficult to estimate (see Merton 1980). In many cases, this approach yields an extreme investment allocation. Therefore, in this paper, we estimate the benchmark weight from I-CAPM in which investors are assumed to have a dogmatic belief in the model.

³ For example, see French and Poterba (1991) and Li, Sarka and Wang (2003).

⁴ Our analysis focuses on home-bias in outward portfolio investment in equity, bond and outward direct investment. For the sake of comparison across home-bias in our asset classes and for simplicity, we use GDP as a proxy for the world market capitalization. We did compute the world's stock and bond market capitalization using the data from the World Bank and Bank for International Settlements (BIS). The results in terms of home-bias are the same. These information are available upon request.

Monetary Fund and CEIC database. Nominal gross domestic product (GDP) data are from International Monetary Fund.

In computing home-bias, let w_i^* be the share of the rest of the world's nominal GDP to world's GDP (in our sample of 30 countries) seen from the viewpoint of a given country i , so w_i^* represents the benchmark proportion of foreign investment perceived by investor i and therefore w_i^* is different for each country. Let w_i be the share of foreign assets holdings in the country's portfolio. The home-bias is computed by the percent difference between these two weights.

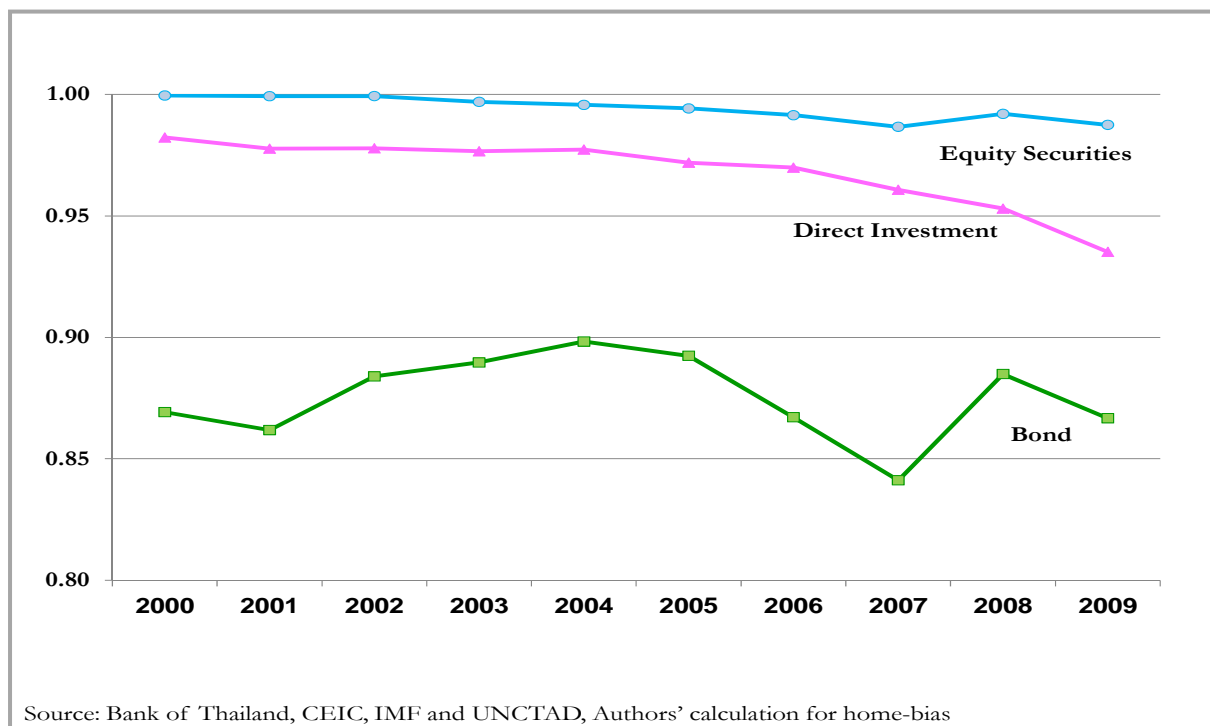
$$HB_i = \frac{w_i^* - w_i}{w_i^*} = 1 - \frac{w_i}{w_i^*}$$

For instance, for country i , domestic investors allocate 20 percent of their portfolio abroad (w_i), whereas w_i^* equals 80 percent, which is the share of the rest of the world's nominal GDP to world's GDP. This implies that domestic investors diversify internationally only 25 percent, thus a country has a home-bias of 75 percent or 0.75. Home-bias degree is high if it is close to one.

2.2 Development of Thailand's home-bias in investments

Over the decades, home-bias in Thailand's investments, including direct and portfolio investments, both in equity and bond, has been evidently existed. Thailand's home-biases are very high in all investment classes. Home-bias in equity has almost equaled one over the sample period as shown in figure 2.1.

Figure 2.1: Thailand's home-bias development



Nevertheless, Thailand's home-bias has a tendency to decline, albeit at a slow pace, over 1970-2009. Home-bias in bond has dropped significantly compared to other types of investments. Hence, home-bias in bond has the lowest degree over the period. Investment preference of bond over equity may imply that Thai investors are risk-averse and prone to invest in less risky foreign

assets. Importantly, the domestic bond market performance has been comparatively modest compared to other Asian markets. Even though, Thai bond market has been rapidly developed, market size and liquidity in the secondary market still lag behind those in several regional countries, such as Korea (Figures 2.2 and 2.3). This leads to a continuous increase in bond investment abroad⁵.

Figure 2.2: Size of local currency bond market in USD

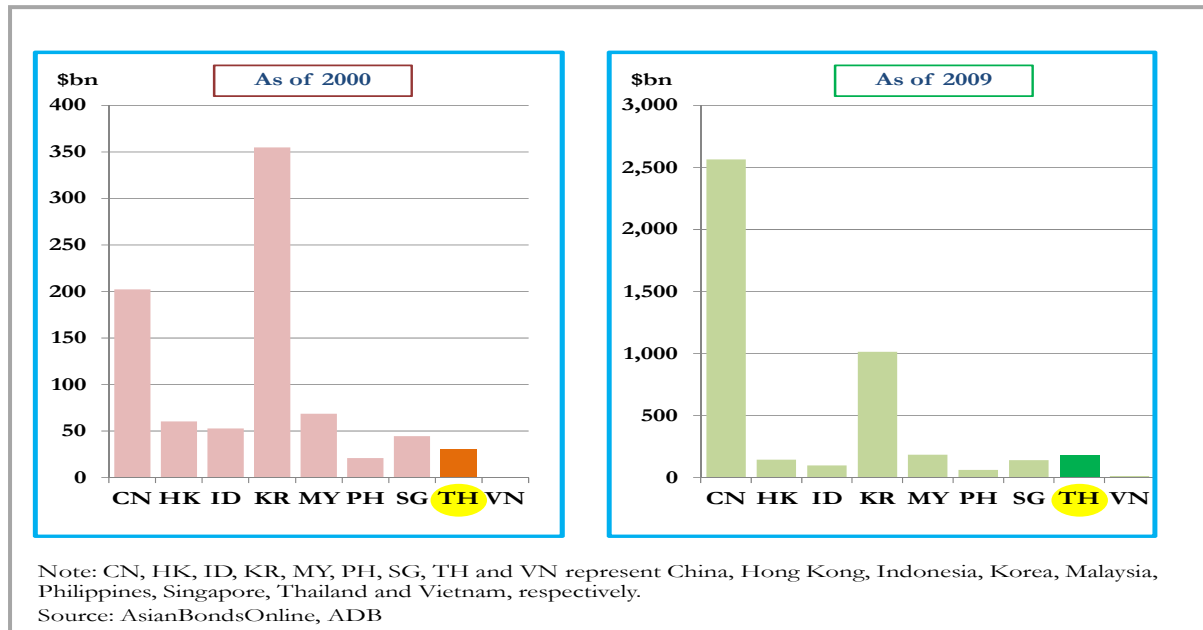
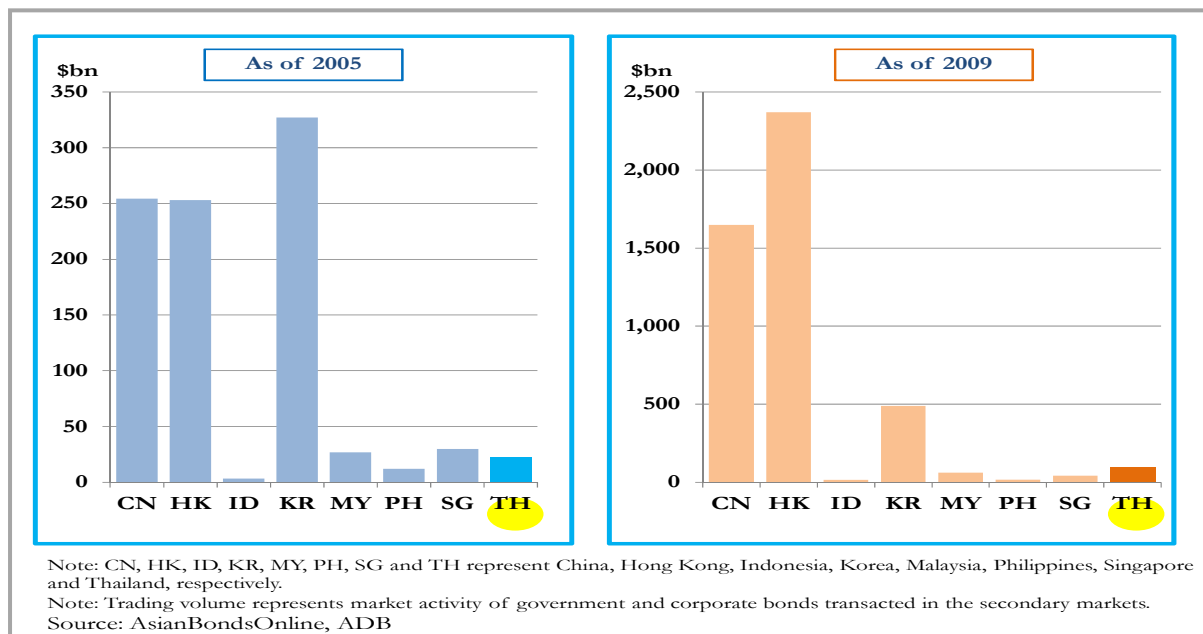


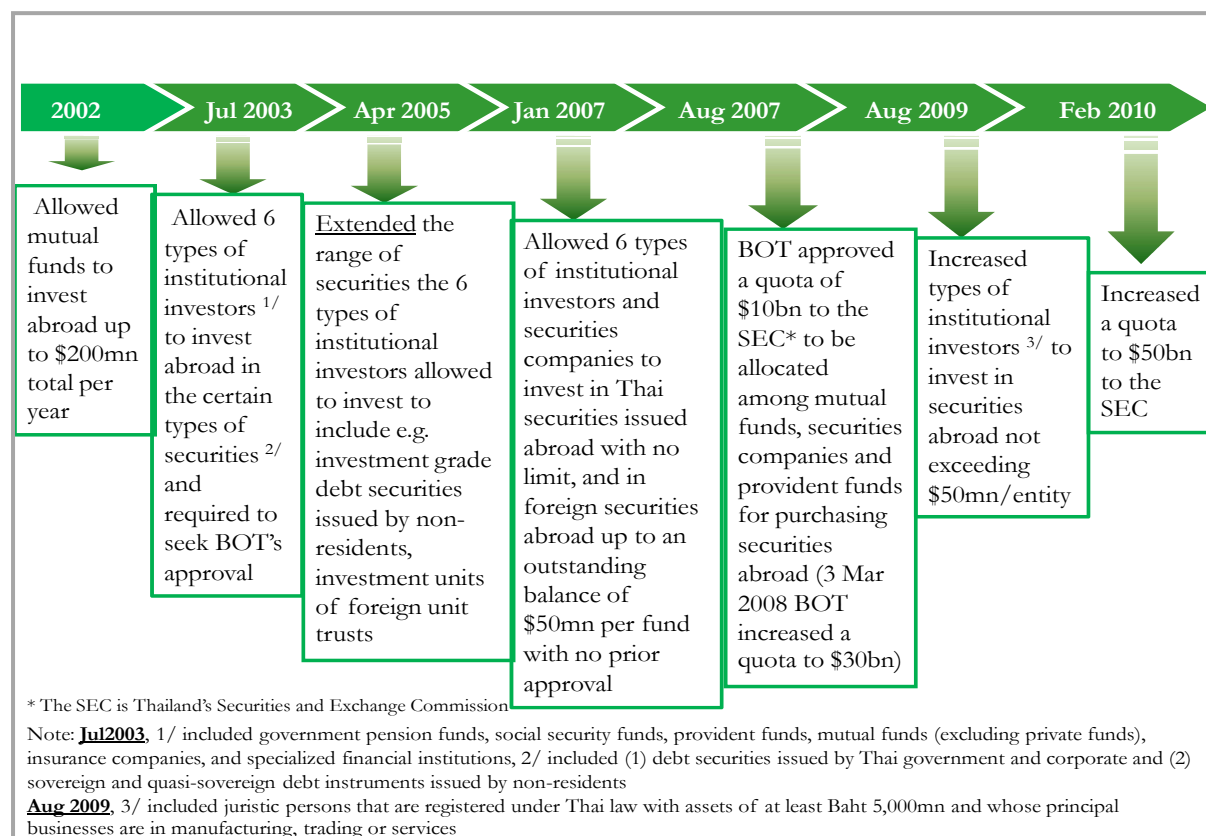
Figure 2.3: Trading volume of local currency bond market in USD



⁵ The main country in which Thai investors have invested their bond portfolios is Korea. Apart from attractive Korea's market size and liquidity, Thai investors can gain an extra return in terms of Thai Baht from strongly declining cross-currency swap (Korean Won/US dollars), especially during late 2008 to 2009, as a result of a slowdown in Korea's economy and a shortage in US dollars in Korean market.

Apart from the limitation of local market size, the relaxation of capital outflow measures for portfolio investment abroad is also supportive to a decrease in home-bias in bond. For instance, in 2005, the range of securities the six types⁶ of institutional investors are allowed to invest in is extended to include: (1) investment grade debt securities issued by non-residents and (2) investment units of foreign unit trusts. Figure 2.4 traces the development of relaxation of Thailand's portfolio investment abroad measures.

Figure 2.4: Relaxation of controls on Thailand's capital outflows: portfolio investment abroad



Source: Bank of Thailand

Even though, the capital outflow measures for portfolio investment abroad have been gradually relaxed since 2002, the results indicate that home-bias in portfolio investment decreased at a slower pace, especially home-bias in equity securities. This might be partly due to lacks of investors' skills, especially insufficient financial literacy, and heightened risk-aversion following the sub-prime crisis.

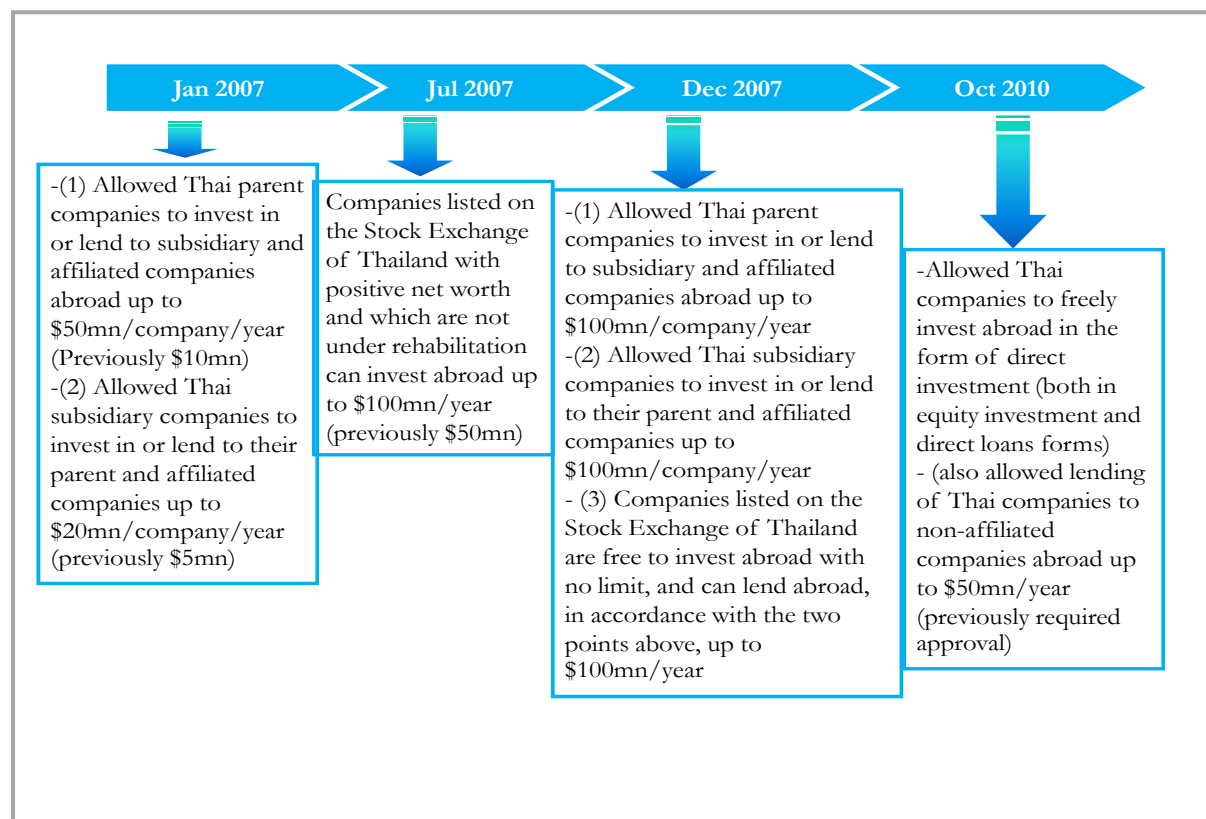
Regarding 2008-2009 global financial crisis, Thai investors decreased foreign portfolio holdings, both in equity securities and bond, resulting in a slight increase in home-bias. This can be explained as Thai investors were concerned about the depressed financial global crisis. The sub-prime crisis caused the capital flights, which inserted downturn pressure on the world equity and bond prices as well as triggering more financial markets volatility, accordingly.

⁶ They include Government pension funds, social security funds, provident funds, mutual funds (excluding private funds), insurance companies and specialized financial institutions.

On outward direct investment front, a lack of understanding in conducting international business and a restrictive outward direct investment regulatory framework accounted for the low level of overseas investment in the early period. Outward direct investment from Thailand became more prominent only after the late 1980s.

The prospect for Thailand's outward direct investment is encouraging given the number of recent policy announcements to support outward direct investment (Figure 2.5). In 2007, the Bank of Thailand has more relaxed controls on Thailand's direct investment abroad. Thai parent companies are allowed to invest in or lend to their subsidiaries and affiliated companies abroad up to 100 million US dollars per company per year, which was previously 10 million US dollars. Meanwhile, Thai subsidiaries are allowed to invest in or lend to their parent and affiliated companies up to 100 million US dollars per company per year, which was previously 5 million US dollars. Also, companies listed on the Stock Exchange of Thailand are allowed to invest abroad with no limit, and can lend abroad to their subsidiaries, parent and affiliated companies up to 100 million US dollars per year. Hence, the home-bias for Thailand's direct investment has started to decrease markedly since 2007.

Figure 2.5: Relaxation of controls on Thailand's capital outflows: direct investment abroad



Source: Bank of Thailand

Even though Thailand is not yet a significant outward investor compared with economies such as Hong Kong, Malaysia and Singapore, Thailand's outward direct investment is growing and it is certainly an economy with a significant outward direct investment potential. Most Thailand's direct investment abroad has been undertaken by large enterprises or holding companies, often publicly listed companies. Trade and electrical machinery and appliances companies are the most outward investors (Figure 2.6). Recently, Thailand has vastly invested in emerging and developing countries such as Myanmar and China (Figure 2.7).

Recently, other Asian countries, particularly ASEAN countries, have emerged as significant destinations for Thailand's direct investment abroad. Geographical proximity and cultural similarities, along with regional integration such as ASEAN Free Trade Area (AFTA) and the aspiration of Thai companies to be more regionally present, have played a vital role in influencing the geographical concentration of Thailand's outward direct investment. In addition, the cost advantage and large market size in China and other ASEAN countries have contributed to the growing interest of Thai enterprises to venture abroad in these host countries (Wee, 2007).

Figure 2.6: Outstanding of Thailand's outward direct investment classified by business

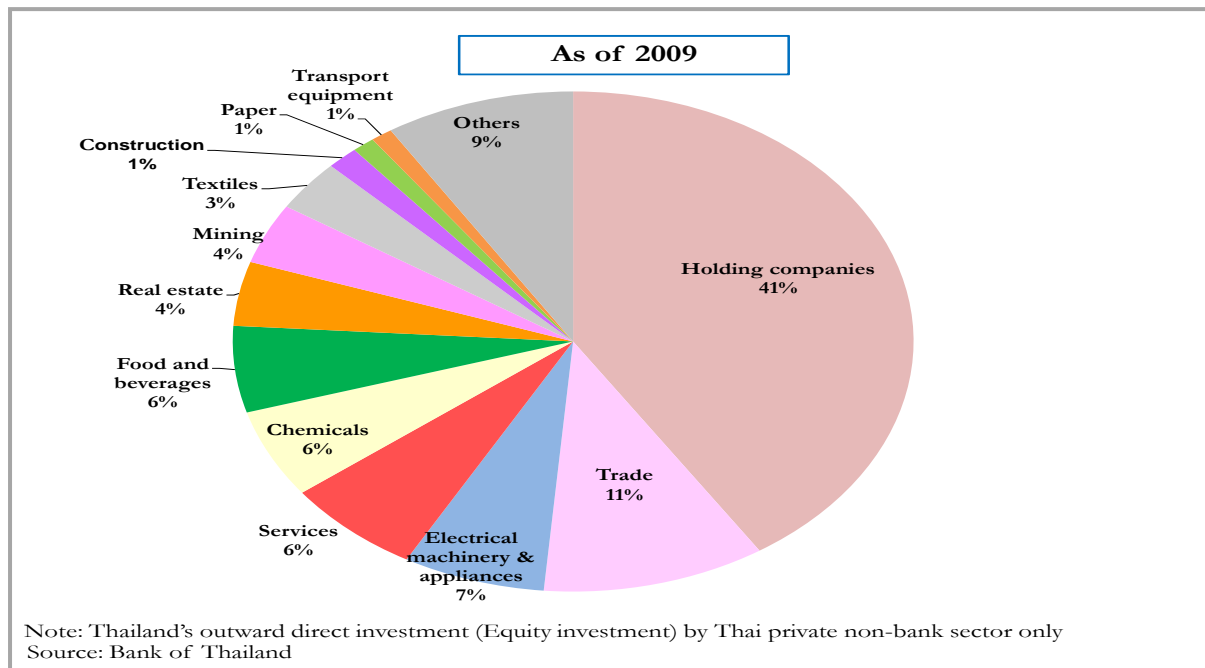
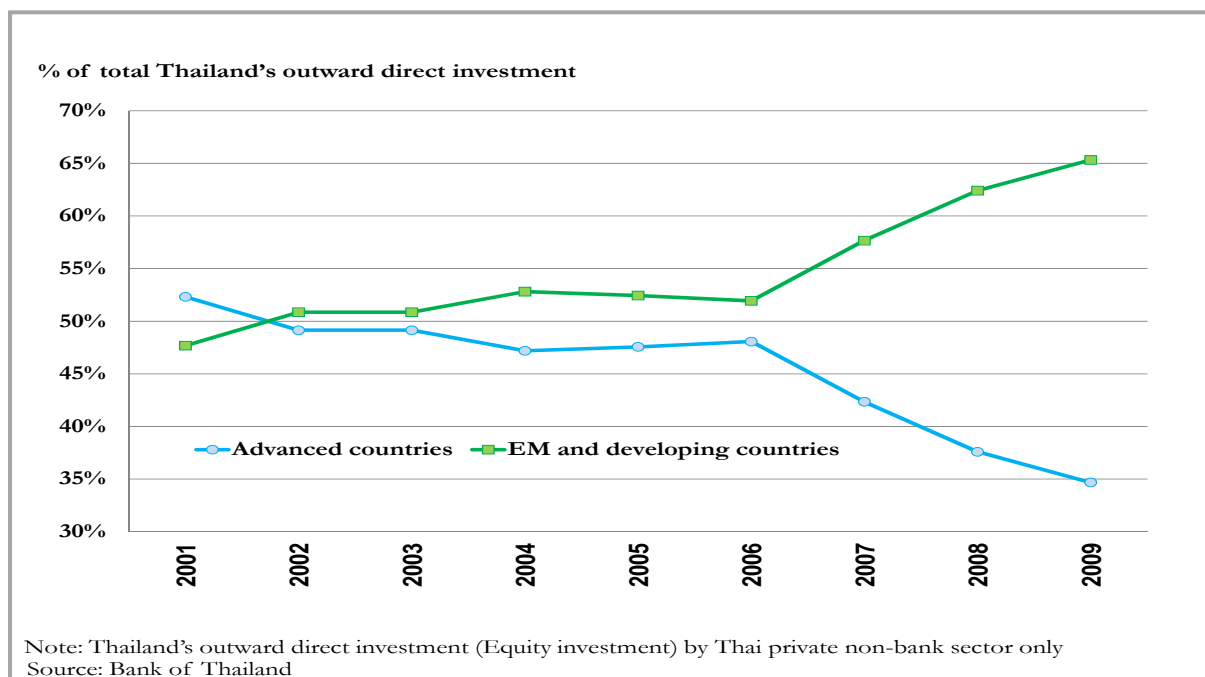


Figure 2.7: Outstanding of Thailand's outward direct investment classified by country groups



2.3 Cross-country comparison of home-bias measures

The home-bias phenomenon does not only persist, but is also ubiquitous across developed and developing economies. However, the home-bias varies substantially across the countries. In the analysis, we employ our sample of 30 countries across the world, both developed and developing countries, during 1970 and 2009. Overall, the results indicate that home-bias in direct and equity investment is higher than that in bond⁷. Most of 30 countries' home-biases in direct investment and equity securities cluster around one, representing near perfect home biases (Figure 2.8-2.10). However, the home-bias in all types of investments tends to decrease for almost all countries over the period. This can be partly due to more relaxation of capital outflow measures, improved investors' capacity to venture abroad and more trade openness from the conclusion of regional and bilateral free trade agreements.

In the analysis of 30 countries, Thailand's home-biases are relatively high compared to other countries for all types of investments. Also, Thailand's home-biases decrease at a slower pace than those of other countries over the period. Compared to ASEAN4, namely Indonesia, Malaysia, Philippines and Singapore, Thailand's home biases are higher than those for Malaysia and Singapore. Malaysia's supportive policies and Singapore's financial liberalization are the main explanations.

Turning to developed economies, especially financial services centers such as Hong Kong and Singapore, their home-biases are relatively low compared to other countries due primarily to their financial liberalization. Meanwhile, home-biases for developing countries vary based on their degrees of capital account openness, institutional support facilities and investors' capabilities to internationalize.

In addition, as discussed above, many countries, including Thailand, decreased foreign portfolio holdings in equity securities and bond during 2008 and 2009, resulting from the heightened risk aversion during the global financial turmoil.

Home-bias's comparison between Thailand and Malaysia, as a representative country that Thailand deems to catch up with, is discussed in Box I.

⁷ The results are the same using the market capitalization in computing benchmark w_i^* .

Figure 2.8: Home-bias in direct investment

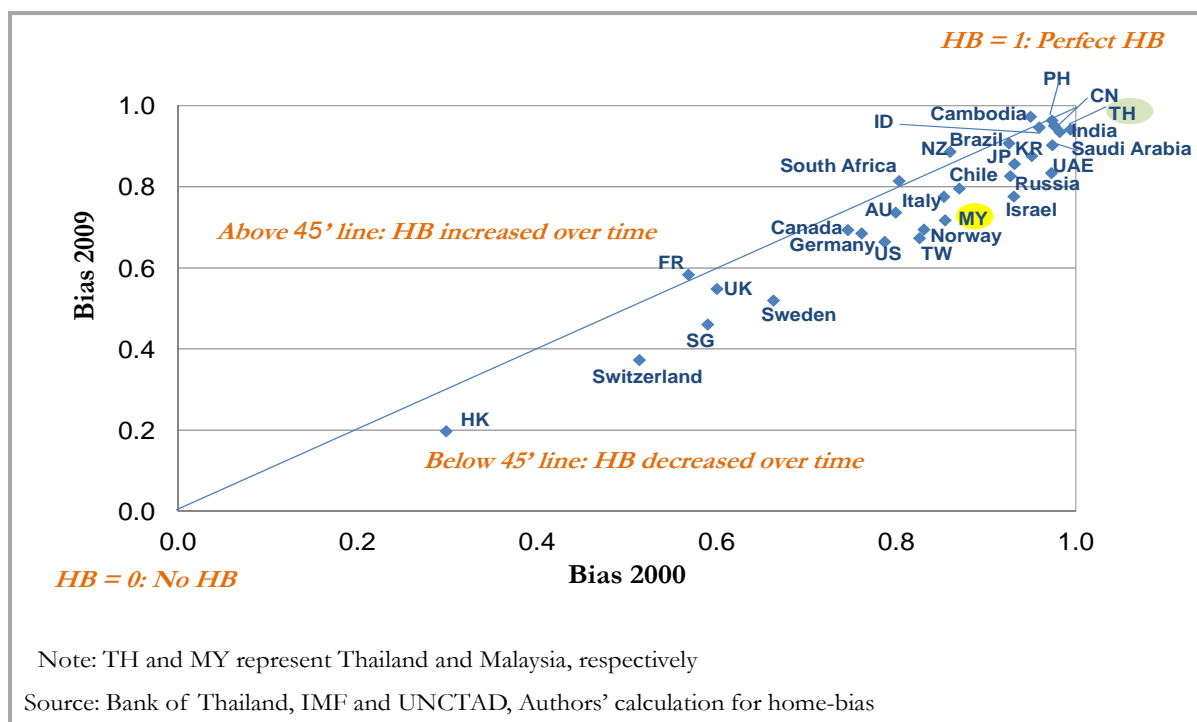


Figure 2.9: Home-bias in portfolio investment: equity securities

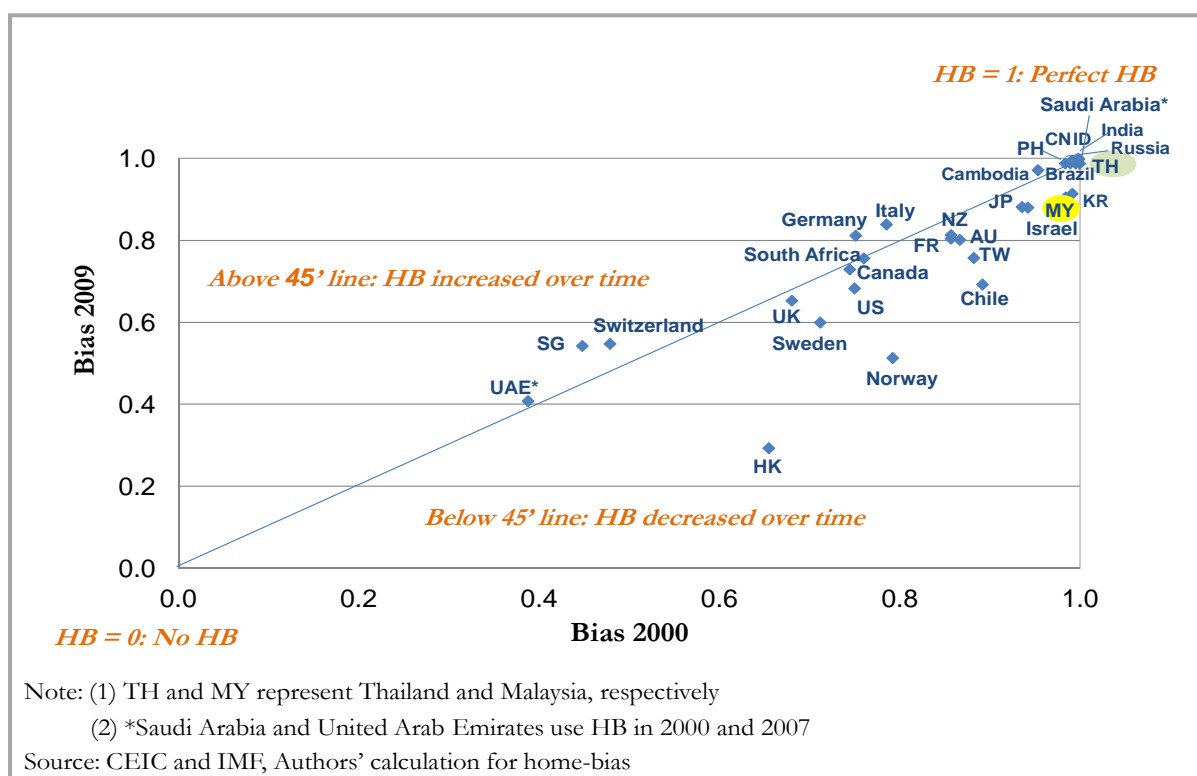
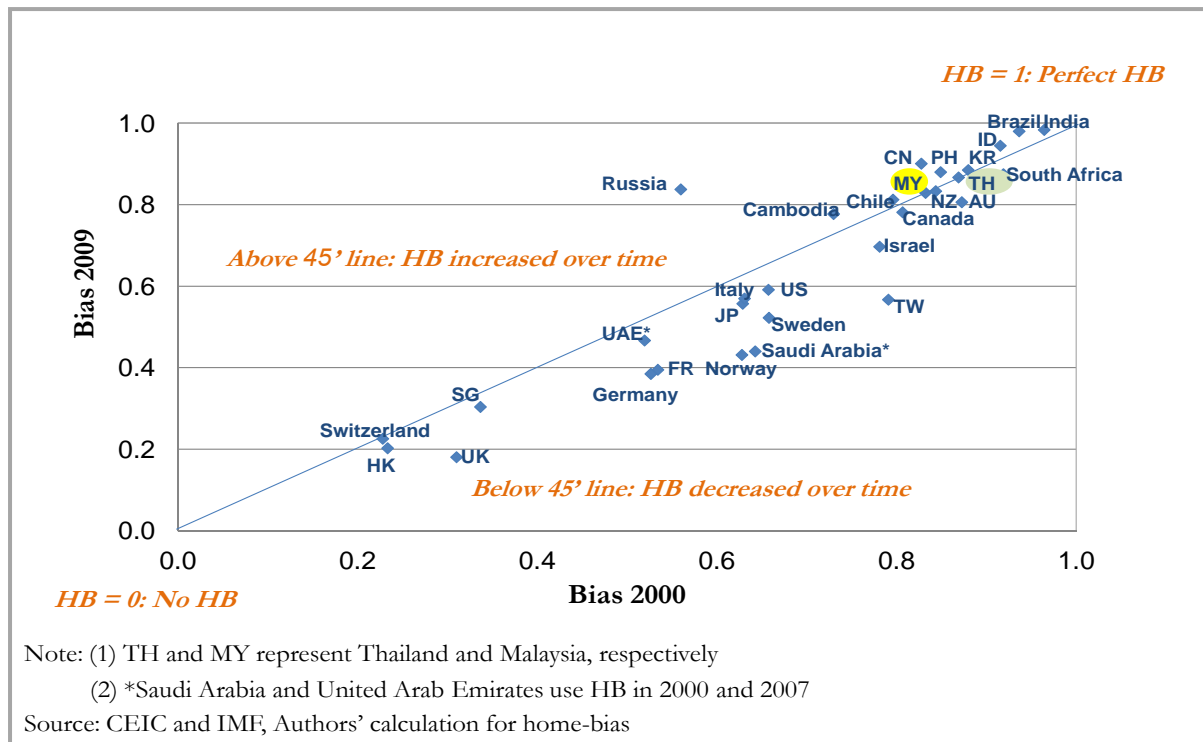


Figure 2.10: Home-bias in portfolio investment: bond



Box I: Thailand and Malaysia's home-bias

Thailand and Malaysia are regarded as developing countries with similar economic and social developments and fundamentals. In terms of outward investments, Malaysia has more outward investments than Thailand, especially for outward direct investment as shown in Figure B1.1 and B1.2.

Figure B1.1: Thailand's international investment position (IIP)

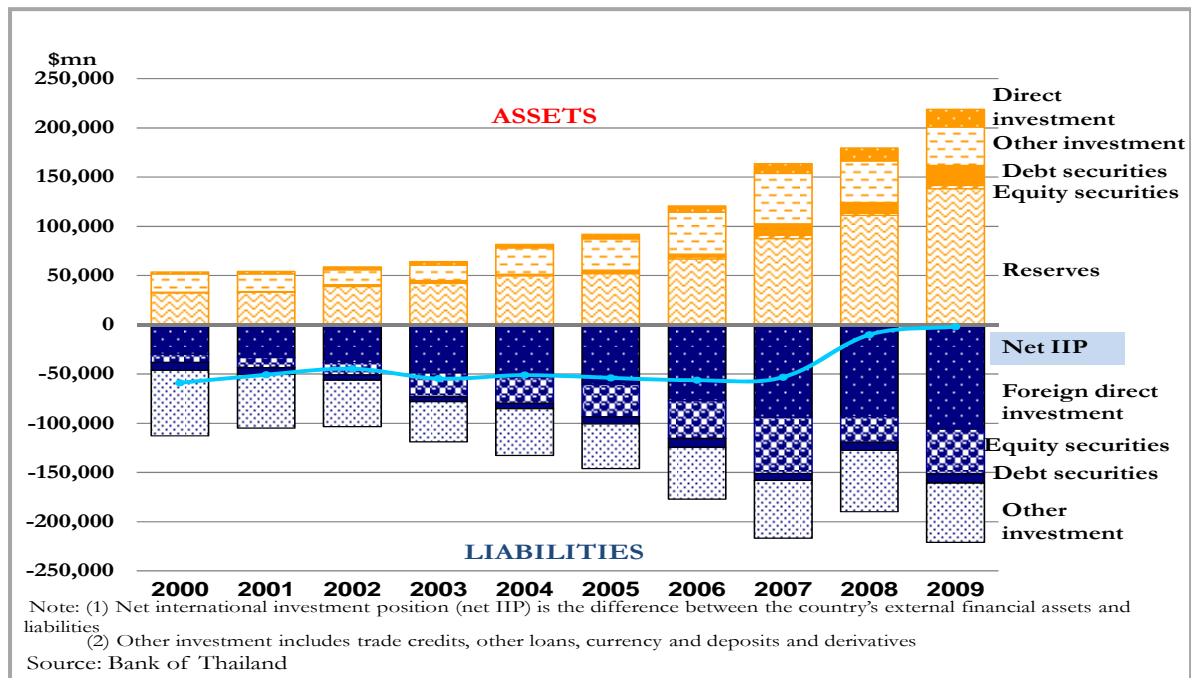
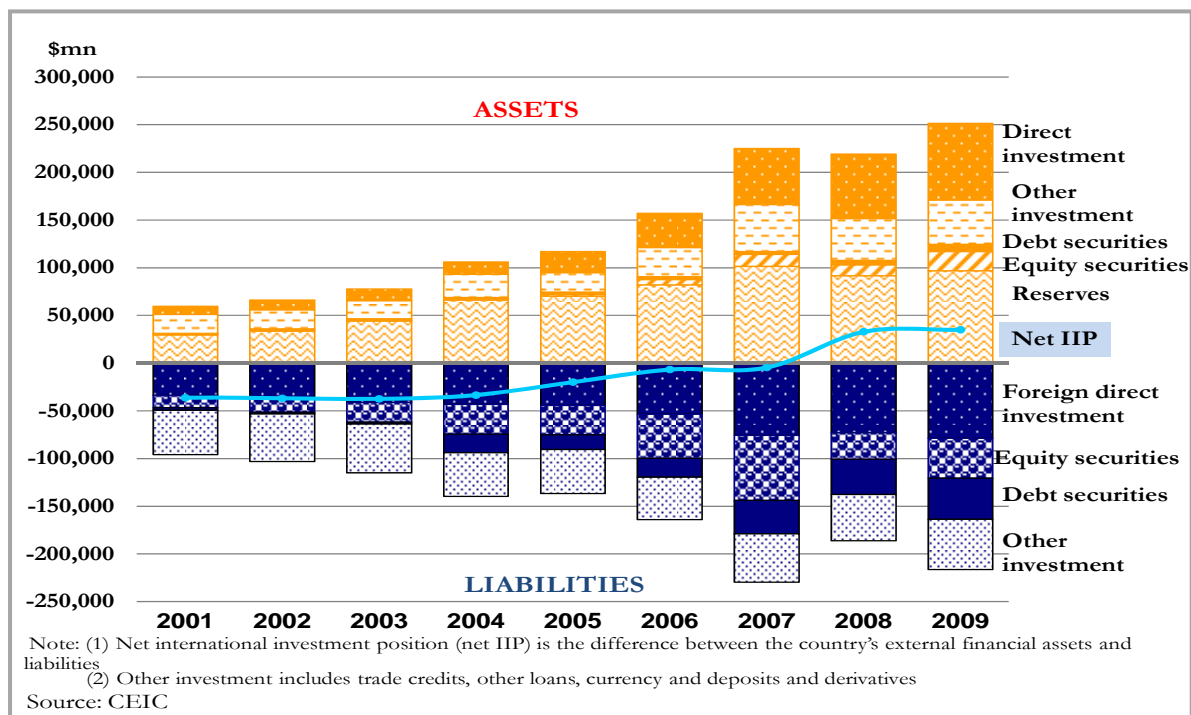


Figure B1.2: Malaysia's international investment position (IIP)

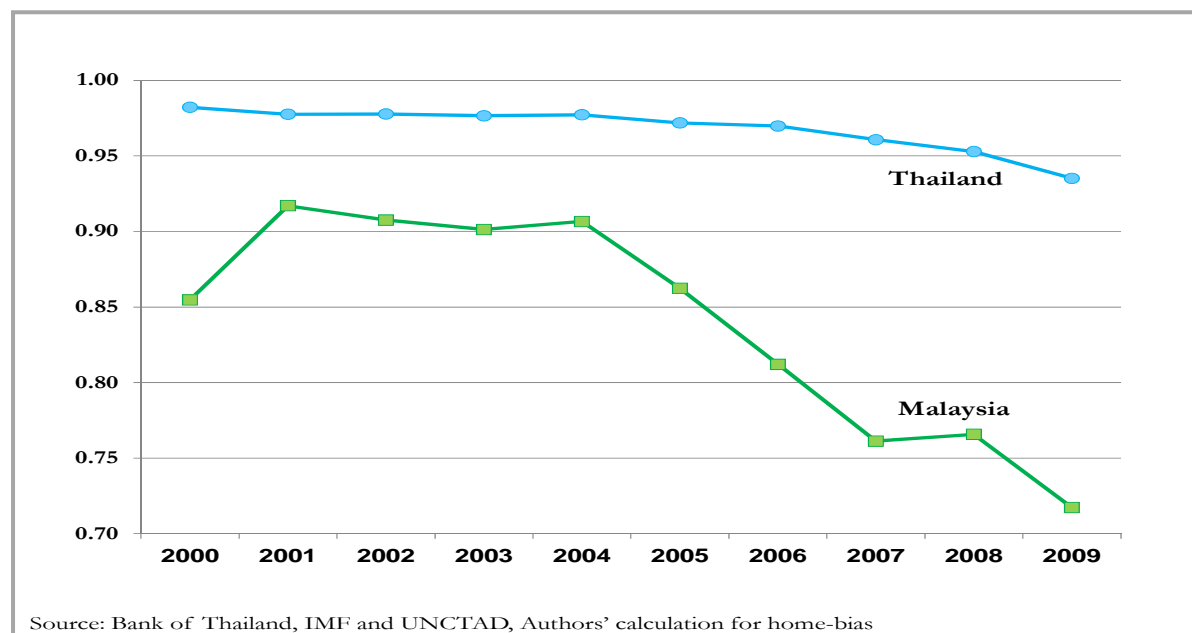


In the past 5 years, Malaysia experienced a continuous growth in outward direct investment. In 2009, outstanding of outward direct investment by Malaysia registered at 80.5 billion US dollars or 41.7% of Malaysia's GDP (32.0% of Malaysia's total foreign assets). Malaysia's financial service industry such as banking sectors, and mining industry have invested abroad the most. Meanwhile, Thailand's outstanding of outward direct investment in 2009 recorded at 18.2 billion US dollars or 6.9% of Thailand's GDP (8.3% of Thailand's total foreign assets).

Key supportive backdrops for Malaysia's outward direct investment are market-seeking, appreciating Malaysian ringgit, relaxation of capital outflow measures, coherent institutional supports such as tax policy and higher investors' internationalized skills.

Apart from encouraging government's policies, Malaysia provides financial support facilities and stipulates outward investments policy as national agenda to escape from middle income trap in the country and elevate to a developed country by 2020 (Vision 2020). Accordingly, Thailand's home-biases are higher than those for Malaysia, especially home-bias in direct investment (Figure B1.3). Details for comparison of supportive policies for outward investments between Thailand and Malaysia are discussed in section 4.

Figure B1.3: Thailand and Malaysia's home-bias in direct investment



3. Impacts of home-bias

The previous section has shown the empirical finding that investors have a clear preference for domestic assets and therefore forego diversification benefits offered by an international well-spread portfolio. Countries with lower home-bias are expected to take more advantage of the potential for international diversification. The key question here is the impact of home-bias in terms of international risk sharing. We provide both theoretical framework and cross-countries empirical evidence to show that the more home-bias is associated with less international risk sharing.

3.1 International risk sharing: consumption risk sharing

The optimal investment implies that the investment should be well diversified internationally. In practice, investors have a clear preference for domestic assets. In this section, we investigate the cost of under-diversification from the home-bias. The main idea is that the more home bias, the less efficient international risk sharing. From a macroeconomic perspective a natural way to assess the welfare implication of better international diversification is to look at consumption-based measure of risk sharing. If agents are able to diversify their investment internationally, they will likely to have smoother income or consumption streams or high risk sharing. This is because the domestic shocks will be partially offset by the income streams from foreign investment. Therefore, high risk sharing implies smoother income and consumption patterns. Using an inter-temporal consumption-based approach, we are able to estimate the cost of international under-diversification due to country's home-bias.⁸

In complete market and time-separable utility function, economic agent of country k maximizes the following objective function:

$$\sum_{t=1}^{\infty} p^t u(C_t^k),$$

where u is the utility function, C_t^k measures the consumption level in country k at time t and p^t represents the intertemporal discount factor. The first order condition of above equation implies that marginal utility growth in country k equals the growth in shadow price of consumption or Lagrange multiplier, λ :

$$\frac{u'_k(C_{t+1}^k)}{u'_k(C_t^k)} = \frac{\lambda_{t+1}}{\lambda_t}$$

If we assume that agents have identical constant relative risk aversion utility function, this equation is equalized across countries, i.e., marginal utility growth should be perfectly correlated across countries or the consumption growth rates in all countries are the same:

$$\frac{u'_k(C_{t+1}^k)}{u'_k(C_t^k)} = \frac{\lambda_{t+1}}{\lambda_t}, \text{ for } k = 1, \dots, K = \frac{u'_*(C_{t+1}^*)}{u'_*(C_t^*)}$$

⁸ Cost of underdiversification can be studied using various approaches such as the estimated costs resulting from a mean-variance portfolio approach, gains from diversification calculated with a consumption-based approach and costs of undersification calculated by Goetzmann and Kumar (2004) using individual portfolio holdngs data. Sercu and Vanpée (2007) provide a good overview of related literature.

Since growth in shadow price is common to all countries, the difference between marginal utility growth in two countries should be independent of the country-specific risk variables. The situation where consumption growth rates in all countries are the same regardless to idiosyncratic shocks is referred to “perfect consumption risk sharing”. In addition, marginal utility growth in country k should equal to that of country average which is denoted by asterisked variable.

To empirically test the perfect consumption risk sharing hypothesis, we need to assume some form of utility function. In log-utility function, the optimality condition can be written as:

$$E(\Delta c_t^k - \Delta c_t^* | \mathbf{X}_t^k) = 0,$$

where c_t^k is the logarithm of consumption (C_t^k) for country k at time t and \mathbf{X}_t^k is a vector of idiosyncratic risk factors such as relative output growth. Thus under full risk sharing, the regression $\Delta c_t^k - \Delta c_t^* = \mathbf{b}'\mathbf{X}_t^k + \varepsilon_t$ should give a coefficient of zero. Many papers regress consumption growth on income growth. Mace (1991) suggests testing for perfect risk sharing, using individual-level data, by regressing consumption growth on income growth. At the country level, Obstfeld (1994) regresses country-level consumption growth on world consumption growth and own-country income growth. Others include Hess and Shin (1998), Crucini (1999) and Sørensen, Wu, Yosha and Zhu (2007). Therefore our basic consumption risk sharing equation is as follows:

$$\Delta c_t^k - \Delta c_t^* = \alpha + \beta(\Delta y_t^k - \Delta y_t^*) + \varepsilon_t,$$

where α is the intercept. y_t^k is the logarithm of income ($\log GDP_t^k$) for country k at time t . The coefficient β measures the co-movement of idiosyncratic consumption growth (or deviation from the aggregate consumption growth) with idiosyncratic income growth. In this equation, subtracting from each variable the aggregate value is crucial because aggregate fluctuation is assumed to be uninsurable or systematic and thus cannot be eliminated by any means of risk sharing, which is why the aggregate component is deducted from the growth rate. Therefore, the explanatory variable $\Delta y_t^k - \Delta y_t^*$ represents the idiosyncratic shock to country k output relative to the world average. Because this risk factor is idiosyncratic, it can be insured or diversified away. The similar specification is suggested by Asdrubali, Sørensen, Yosha (1996) where $1 - \beta$ is a scalar that measures the average amount of consumption risk sharing during the sample time-period considered and coefficient β measures the average co-movement of the country's idiosyncratic consumption growth with their idiosyncratic income growth.

Our empirical approach is based on panel cross-countries regressions of relative growth of consumption $\Delta c_t^k - \Delta c_t^*$ (country-specific consumption shock relative to the average (world) shock) on relative growth of country-specific output $\Delta y_t^k - \Delta y_t^*$. This approach will be better than the conventional approaches which have either used consumption correlations or regressions of consumption growth on output growth because it will incorporate the effects of financial integration over time.

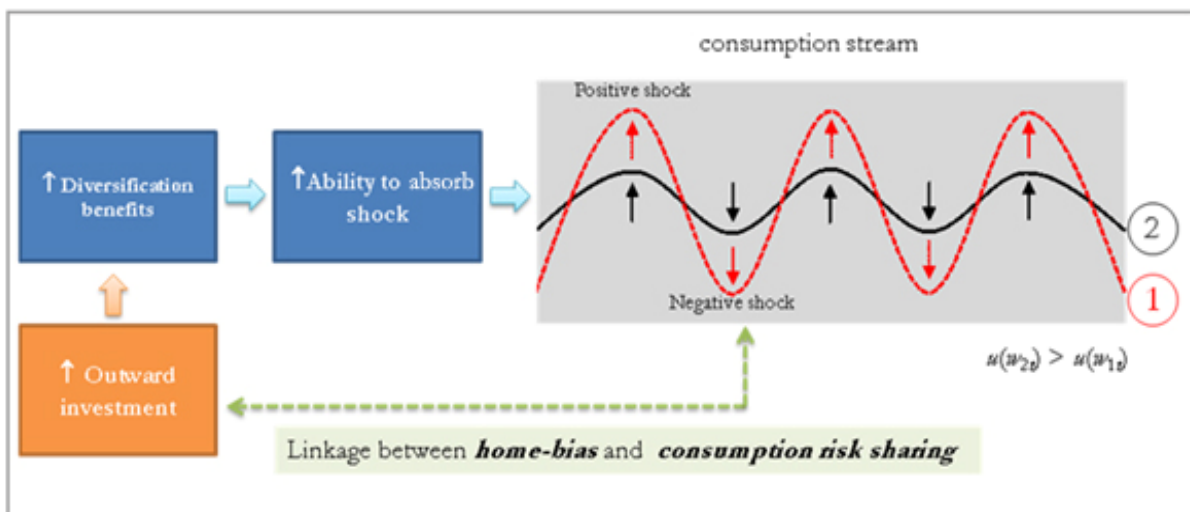
⁹ Because the utility growth should be perfectly correlated across countries, the empirical literature studied consumption correlation and has documented the consumption correlation puzzle (Backus, Kehoe, Kydland (1992)) which describes the stylized fact that international consumption correlations are lower than the corresponding output correlations.

Under perfect risk sharing, we expect coefficient $\beta = 0$ (i.e. $1 - \beta = 1$)¹⁰ or there is no idiosyncratic fluctuation in consumption which implies that country is fully insured from idiosyncratic income shock. The higher the co-movement of idiosyncratic consumption with income, the less consumption is buffered against income fluctuations and the greater the estimated value of coefficient β . Therefore the coefficient β measures the degree of consumption risk sharing. The more deviation of coefficient β from zero, the more deviation from the complete market and full-diversification outcomes¹¹. If coefficient $\beta = 1$, the consumption moves in perfect synchronization with output which implies there is no consumption risk sharing.

3.2 Home-bias and consumption risk sharing

We investigate the effects of decreasing home-bias on the variability of consumption through coefficient β as a measure of consumption smoothing. Figure 3.1 illustrates the linkage between home-bias and the degree of consumption sharing as discussed above, which is the key question in this section. A country with high home-bias may be driven by 1) home country investors finding foreign countries relatively unattractive or 2) they not being able to invest abroad for some reason. Particularly in the latter case, more investment abroad with more balanced investment portfolio should yield more diversification benefits against insurable external and internal country-specific shocks. Ceteris paribus, through higher international risk sharing, a country with less degree of home-bias ($HB_2 < HB_1$) should enjoy higher social welfare ($u(w_{2t}) > u(w_{1t})$) because of smoother consumption stream over time.

Figure 3.1: The linkage between home-bias and the degree of consumption risk sharing



The main interest here is whether the under-investment abroad is relevant to a question of international consumption risk sharing. As in Méltitz and Zumer (1999) and Sørensen, Wu, Yosha and Zhu (2007), we impose the structure on β so that $\beta = \beta_0 + \beta_1 \omega^k$, where ω^k is an interaction term variable that affects the amount of risk sharing of country k . And $1 - \beta_0 - \beta_1 \omega^k$ measures the average amount of consumption risk sharing. In addition, we allow β to

¹⁰ We expect that $0 \leq \beta \leq 1$.

¹¹ Applying this method to US state data, Asdrubali, Sørensen and Yosha (1996) find that roughly a quarter of idiosyncratic output fluctuation remain uninsured.

change over time in order to control trend changes in risk sharing that may be caused by developments in the international markets over time. Therefore we relate the degree of consumption risk sharing or coefficient β from section 3.1 to the home-bias measure in the following form:

$$\beta = \beta_0 + \beta_1(t - t^*) + \beta_2(HB_t^k - HB^*),$$

where HB_t^k is the home-bias for country k at time t . HB^* is equally weighted average¹² of across country of HB_t^k . t^* is the middle year of the sample period. $1 - \beta_0 - \beta_1(t - t^*) - \beta_2(HB_t^k - HB^*)$ represents the amount of consumption risk sharing achieved in time t by country k with home-bias of HB_t^k . $1 - \beta_0$ is the amount of consumption risk sharing within countries in the sample. The coefficient $-\beta_1$ measures the average consumption risk sharing. We expect the coefficient β_2 to be positive which captures the price paid in term of lower consumption risk sharing by countries that suffer from higher home-bias. Therefore $-\beta_2$ is expected to be negative indicating how much higher than average home-bias ($HB_t^k - HB^*$) decreases the amount of consumption risk sharing.

3.3 Data

Our data are from 30 economies covering a comprehensive set of both developed and developing markets over an annual period of 40 years (1970 to 2010). Computed as in section 2, home-bias in equity, bond and direct investments are employed to test the relationship between home-bias and consumption risk sharing by each asset class. We also perform an analogous analysis using equally-weighted aggregate home-bias measures (equity, bond and direct investments abroad).

The data on domestic consumption (final consumption expenditure) and income (GDP and GNI) are from the World Bank. To control for the country's size effect, we express all data in per capita terms. Population data are also from the World Bank. We also adjust all variables to the year 2000 and to US Dollar prices to eliminate the price effect and to convert them to the same unit of measurement for the sake of comparison.

3.4 Empirical results: panel cross-countries analysis

3.4.1 Panel data results

In this section, we test the relationship between consumption risk sharing, and home bias in portfolio and direct investments. We estimate the following equations using two-stage estimation:

$$\Delta c_t^k - \Delta c_t^* = \alpha + \beta(\Delta y_t^k - \Delta y_t^*) + \varepsilon_t,$$

where

$$\beta = \beta_0 + \beta_1(t - t^*) + \beta_2(HB_t^k - HB^*),$$

where, $\Delta c_t^k - \Delta c_t^*$ ($\Delta y_t^k - \Delta y_t^*$) represents the idiosyncratic shock to country k consumption (output) relative to the world average at time t . $t - t^*$ is the difference between time t and the

¹² HB^* calculated using country's income weights gives the similar empirical results.

middle year of the sample period. $HB_t^k - HB^*$ is the difference between the home-bias for country k and the world average home-bias .

First we estimate the model by ordinary least square (OLS) and in the second stage, we weight each country with the inverse of its standard deviation of the residuals. We are particularly interested in the estimated coefficient β_2 because it can also be viewed as an “exchange ratio” that translates fractions of home-bias (in either equity, bond or direct investments) to percentage points of idiosyncratic shock absorbed via consumption sharing.

Table 3.1 reports the panel regression results for consumption risk sharing as a function of home-bias measures for 30 countries in our sample, where standard errors are computed using Newey and West (1987) method. We run five different panel regressions (no home-bias, equity home-bias, bond home-bias, direct investment home-bias and aggregate home-bias).

Table 3.1: Consumption risk sharing and panel regression

The table reports results from the panel regression of consumption risk sharing. Specifications which are considered are alternative cases (i.e. home-bias in equity, bond and direct investments (DI)) of the following equation, $\Delta c_t^k - \Delta c_t^* = \alpha + [\beta_0 + \beta_1(t - t^*) + \beta_2(HB_t^k - HB^*)](\Delta y_t^k - \Delta y_t^*) + \varepsilon_t$. The estimated parameters, α , β_0 , β_1 , β_2 are reported in the table. The t-statistics from Newey and West (1987) heteroskedasticity-consistent standard error and covariance least square regression are in the parentheses. R^2 and adjusted R^2 are reported in the last column. Significance at the 10%, 5% and 1% level is indicated by *, ** and *** respectively.

Consumption risk sharing	Constant (α)	Within group risk sharing (β_0)	Interaction terms with GDP			R^2 (adjusted R^2)
			Time trend (β_1)	Equity home-bias (β_2)	Bond home-bias (β_2)	
1. No home-bias	0.0037 (1.369)	0.3575*** (2.585)				0.2471 (0.246)
2. Equity home-bias	0.0014 (0.628)	0.469*** (10.102)	0.0205*** (3.948)	1.0625** (2.544)		0.3997 (0.398)
3. Bond home-bias	0.0004 (0.246)	0.5035*** (11.862)	0.0247*** (5.530)		0.2369* (1.809)	0.4183 (0.416)
4. DI home-bias	0.0013 (0.433)	0.5708*** (9.412)	0.0113*** (3.382)		0.7211* (1.954)	0.4618 (0.459)
5. Aggregate home-bias	-0.0001 (-0.027)	0.5561*** (9.623)	0.0115*** (2.779)		0.6241*** (2.573)	0.4861 (0.484)

In the first specification where no home-bias is considered, the consumption and income fluctuations are positively linked. About the 35 percents of idiosyncratic fluctuation in income remain uninsured and are transmitted to that in consumption. All other specifications include the interaction variable between GDP idiosyncratic shock and 1) time-trend and 2) home-bias. In the specification 2 when equity home-bias is introduced, we find a significant coefficient to equity home bias. The point estimate is also significant in economic terms: coefficient is 1.06 which implies that a country lowering equity home-bias by 20% will increase consumption risk sharing by 21%. In specifications 3 and 4, both bond and direct investment home-biases are positive (as expected) and significant, but their economic impact on consumption risk sharing impacts are smaller than equity investment. In every specification, the coefficient of time trend, $t - t^*$, is positive and significant, but its economic impact is relatively limited. The regression of aggregate (equity+bond+DI) home-bias (specification 5) also gives the similar results both in term of

coefficient size and sign¹³. Including time-fixed and country-fixed effects do not change the main results¹⁴. This is because the average values of the variables have been subtracted leaving little variation to be captured by time dummies.

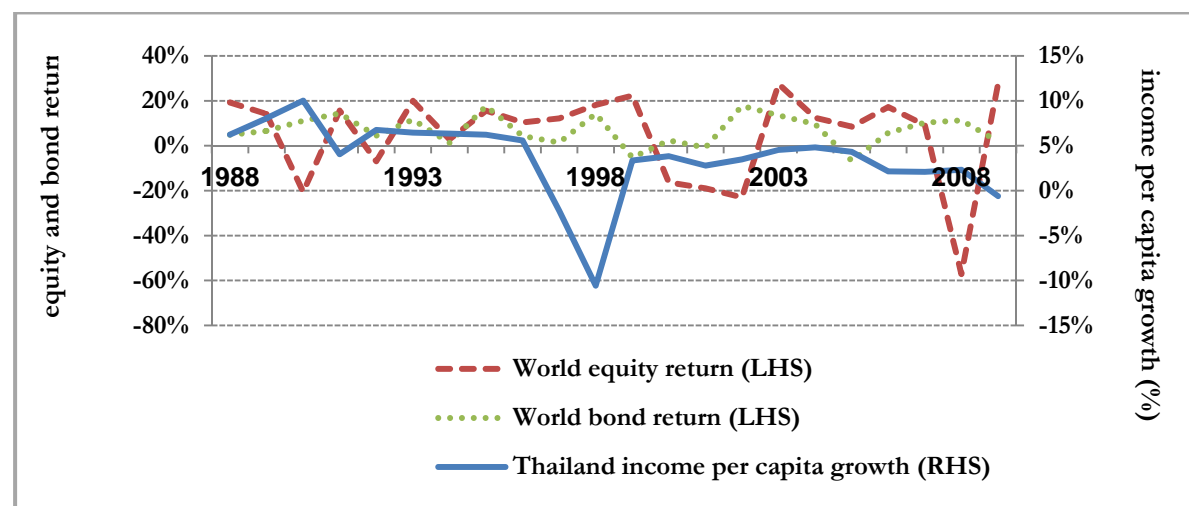
To summarize, the empirical results clearly show that there is association between declining home-bias and consumption risk sharing and the impacts from investing equity abroad in term of smoothing consumption is greater than that from direct investment and bond outward investment respectively.

Box II below discusses the possible reasons why equity has higher diversification benefits than bond and direct investments in terms of consumption risk sharing.

Box II: Diversification benefits

Consumption risk sharing from home-bias is significant in all specifications, but in different degrees. It appears that equity and direct investment assets are more important than debt, although we cannot clearly separate out the effect of each group of asset because of its multicollinearity problem. Asset class that has the high consumption risk sharing is one that performs well during the time of difficulties (when there is a negative shock to disposable income or marginal utility of consumption is high). Therefore we examine the co-movement of world asset return (equity versus bond) and domestic income per capita growth in the case of Thailand. All variables are measure in US dollar. We do not have outward direct investment return data, but they should move more closely with equity returns than bond returns. Figures B2.1 plots the world equity and bond returns movement against Thailand's GDP growth from 1988 to 2009.

Figure B2.1: The world equity and bond return and Thailand's GDP per capita growth measured in US dollar



Source: MSCI, JP Morgan and World Bank

¹³ The evidence of home bias impact on consumption risks sharing is weaker when we include all equity, bond and DI home-bias measures in the specification (not shown here). Only coefficient to equity home-bias is positive and significant, other home-bias coefficients are not very significant because of multicollinearity problem. The simple aggregation as in specification 5 helps to alleviate this problem.

¹⁴ Regressions by sub-period windows of 5-year and 10-year also give the similar results.

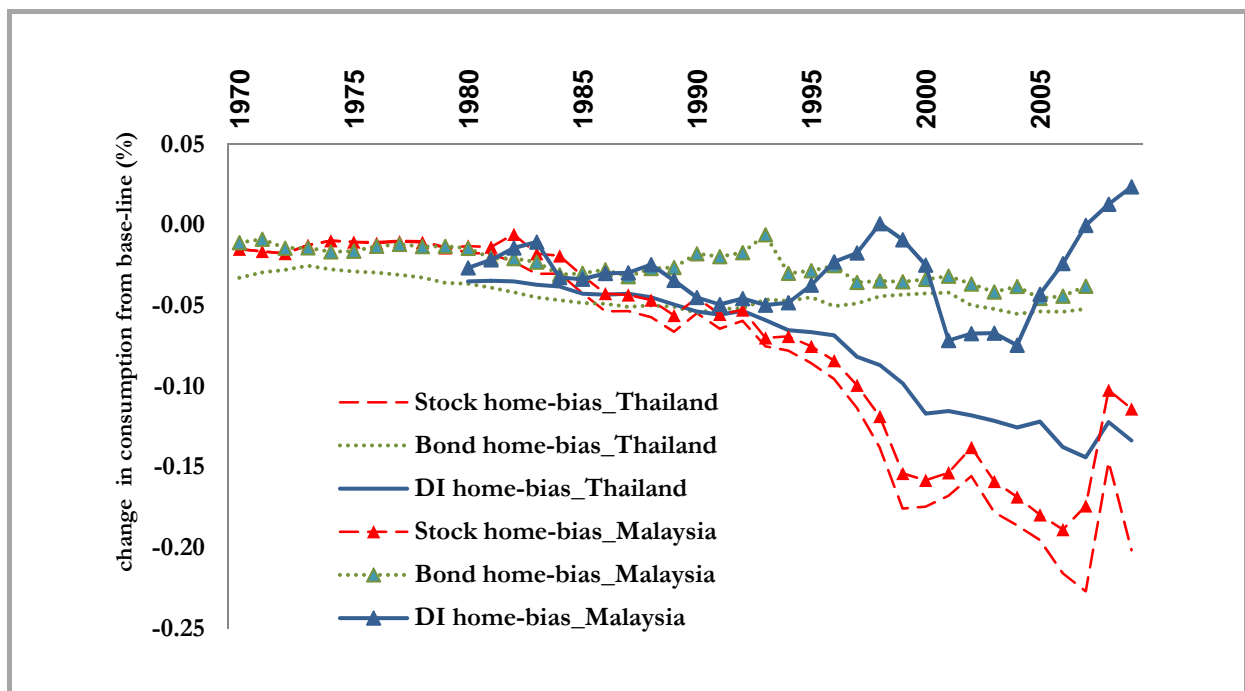
The world equity returns are more negatively correlated with Thailand's income growth than world bond returns (correlation degree of -0.14 versus -0.05). Therefore, the equity assets have higher hedging value to Thai people in terms of consumption risk sharing.

Even though, equity and direct investment returns usually move in the same direction, equity assets usually have secondary market (exchange or OTC markets) and are much more liquid. Therefore, investors can liquidate portfolio of equity with significantly less transaction costs and in a more timely manner than portfolio of direct investment. This might explain why equities yield more consumption risk sharing than direct investments.

3.4.2 Economic significance

Using the empirical results from specifications 2, 3 and 4 in Table 3.1, the economic impact of home-bias in different asset classes on consumption risk sharing can be estimated. Again we take Thailand and Malaysia as an illustrative example. Figure 3.2 shows the sensitivity of consumption to negative income change due to underinvestment abroad or home-bias. The line with and without triangle represents Malaysia and Thailand respectively.

Figure 3.2: The sensitivity of consumption to income change explained by home-bias in different asset classes in Thailand and Malaysia



From Figure 3.2, Thailand's sensitivity of consumption to income shock that results from the difference in home-bias in two countries has been consistently more negative than Malaysia over the sample period (1970-2009). Higher home-bias causes Thailand to suffer more negative consumption shock than Malaysia given the same level of shock in income in two countries. The shock-resiliency gap between the two has also been widened after 1990s. For example, using the 2009 data, due to difference in home-bias, a negative GDP shock of 1% in Thailand and Malaysia bought in a negative consumption shock of 0.20% and 0.11% in Thailand and Malaysia in respective order. Currently, Malaysia's ability to maintain the level of domestic consumption when the economy is adversely affected by internal and external income shocks is almost twice

as much as Thailand. Hence, Thailand needs to improve its home-bias if it wants to enhance the country's consumption risk sharing.

3.4.3 Income Risk Sharing and home-bias

In the same way as we test the consumption risk sharing, we now study the deviations from perfect income risk sharing resulting from country's home-bias. Since GNI equals GDP plus net factor income from abroad. The following equation measure the amount of income risk sharing provided by net factor income flow.

$$\Delta \log GNI_t^k - \Delta \log GNI_t^* = \alpha + \beta(\Delta y_t^k - \Delta y_t^*) + \varepsilon_t,$$

where

$$\beta = \beta_0 + \beta_1(t - t^*) + \beta_2(HB_t^k - HB^*),$$

and $\log GNI_t^k$ is the logarithm of gross national income (gross domestic product) of country k at time t . y_t^k is the logarithm of gross domestic income ($\log GDP_t^k$). The positive coefficient β_2 show how much higher than average home-bias decreases the amount of income risk sharing, i.e., the more positive β_2 , the less GNI is buffered against GDP shocks. Table 3.2 reports the panel cross-countries regression results.

Table 3.2: Income risk sharing and panel regression

The table reports results from the panel regression of income risk sharing. Specifications which are considered are alternative cases (i.e. home-bias in equity, bond and direct investments (DI)) of the following equation, $\Delta \log GNI_t^k - \Delta GNI_t^* = \alpha + [\beta_0 + \beta_1(t - t^*) + \beta_2(HB_t^k - HB^*)](\Delta y_t^k - \Delta y_t^*) + \varepsilon_t$. The estimated parameters, α , β_0 , β_1 , β_2 are reported in the table. The t-statistics from Newey and West (1987) heteroskedasticity-consistent standard error and covariance least square regression are in the parentheses. R² and adjusted R² are reported in the last column. Significance at the 10%, 5% and 1% level is indicated by *, ** and *** respectively.

GNI risk sharing	Constant (α)	Within group risk sharing (β_0)	Interaction terms with GDP			R ² (adjusted R ²)
			Time trend (β_1)	Equity home-bias (β_2)	Bond home-bias (β_2)	
1. No home-bias	0.0014 (0.345)	0.5958*** (3.211)				0.4171 (0.416)
2. Equity home-bias	-0.0002 (-0.067)	0.6896*** (8.193)	0.0237** (2.948)	0.3532** (2.689)		0.5679 (0.567)
3. Bond home-bias	-0.0003 (-0.104)	0.7101*** (8.937)	0.0269*** (3.886)		0.2583* (1.729)	0.6051 (0.604)
4. DI home-bias	-0.0002 (-0.075)	0.7245*** (8.783)	0.0110** (2.398)		0.8894 (1.550)	0.6518 (0.650)
5. Aggregate home-bias	-0.0001 (-0.030)	0.7225*** (8.642)	0.0159*** (3.596)	←	0.5945* (1.714)	→ 0.6744 (0.673)

Results are very similar to the consumption risk sharing. Impacts of home-bias on income risk sharing are all positive and significant (except for DI home-bias). Interestingly, the magnitude of coefficients β_0 which reflects the degree of income risk sharing within sample countries is higher than those in the consumption risk sharing model. It implies that the effect of the consumption risk sharing is more than that of the income risk sharing. Consumption fluctuations are expected to be more correlated across countries than output fluctuation because of two reasons. First, capital is expected to chase higher returns and abandon countries with low prospects (thereby

fostering a negative output correlation) and second, agents should be able to synchronize their consumption plans through diversification and try to maintain their consumption level. Imbs (2006) finds that international financial linkage not only increases consumption correlation, but also (even more so) output correlations. The author suggests that apart from a (weaker) direct and positive impact of international finance on consumption correlations (consistent with the hypothesis of risk sharing), a stronger and opposite effect of finance on output correlations drives the low risk sharing.

As for another test of robustness, Box III below shows the empirical results of consumption risk with idiosyncratic income shock modeling in order to better capture dynamics of income shock over the sample.

Box III: Consumption risk sharing with idiosyncratic income shock modeling

As a test of robustness, we model the idiosyncratic income shock explicitly rather than assuming the given function form of $\Delta y_t^k - \Delta y_t^*$. We compute the idiosyncratic income shock for country k at time t by taking the residual terms n_t^k from the following regression:

$$\Delta y_t^k = \gamma_0 + \gamma_1 \Delta y_t^* + \gamma_2 \Delta y_{t-1}^k + n_t^k$$

These residual or innovation terms should better capture the dynamics and business cycles of idiosyncratic shock specific to country k ¹⁵. In our standard consumption risk sharing equation, we replace $(\Delta y_t^k - \Delta y_t^*)$ or country k idiosyncratic output growth relative to the average by the residual terms of the above regression n_t^k :¹⁶

$$\Delta c_t^k - \Delta c_t^* = \alpha + [\beta_0 + \beta_1(t - t^*) + \beta_2(HB_t^k - HB^*)]n_t^k + \varepsilon_t$$

Table 3.3 shows that home-bias in equity and bond is positive and significant (whereas that in DI is marginally insignificant). The regression results with income shock modeling are highly compatible to those without the shock in section 3.4.1, but the time trend variable now becomes insignificant in most specifications because it mostly captured in the income shock model above.

Table B3.1: Consumption risk sharing and panel regression with idiosyncratic income shock modeling

The table reports results from the panel regression of consumption risk sharing. Specifications which are considered are alternative cases (i.e. home-bias in equity, bond and direct investments (DI)) of the following equation, $\Delta c_t^k - \Delta c_t^* = \alpha + [\beta_0 + \beta_1(t - t^*) + \beta_2(HB_t^k - HB^*)]n_t^k + \varepsilon_t$, where n_t^k is the residuals from the following regression, $\Delta y_t^k = \gamma_0 + \gamma_1 \Delta y_t^* + \gamma_2 \Delta y_{t-1}^k + n_t^k$. The estimated parameters, α , β_0 , β_1 , β_2 are reported in the table. The t-statistics from Newey and West (1987) heteroskedasticity-consistent standard error and covariance least square regression are in the parentheses. R² and adjusted R² are reported in the last column. Significance at the 10%, 5% and 1% level is indicated by *, ** and *** respectively.

¹⁵ Including lagged variables as an explanatory variable also helps alleviate the persistence nature of time-series variables.

¹⁶ Some papers including Chordia, Roll and Subrahmanyam (2000) and Karolyi, Lee, Diik (2011) use this similar method (using residuals from one regression as an explanatory variable in another regression) in computing the commonality measure.

Consumption risk sharing	Constant (α)	Within group risk sharing (β_0)	Interaction terms with GDP			R ² (adjusted R ²)	
			Time trend (β_1)	Equity home-bias (β_2)	Bond home-bias (β_2)		DI home-bias (β_2)
1. No home-bias	0.0050** (2.081)	0.4846*** (4.705)				0.1825 (0.182)	
2. Equity home-bias	0.0041* (1.974)	0.4302*** (3.758)	-0.0133 (-0.924)	1.8401* (1.804)		0.1975 (0.195)	
3. Bond home-bias	0.0028* (1.533)	0.5628*** (10.494)	0.0083* (1.717)		0.5292*** (3.727)	0.2823 (0.280)	
4. DI home-bias	0.0053** (2.102)	0.6101*** (6.808)	-0.0230 (-1.198)			1.0242* (1.957)	0.1957 (0.192)
5. Aggregate home-bias	0.0071*** (3.475)	0.9544*** (18.345)	-0.0004 (-0.052)	← 0.4171** (2.321)	→	0.6215 (0.620)	

4. Explanations of home-bias

The empirical results in section 3 confirm that a high level of foreign portfolio assets is positively and robustly related to consumption and income risk sharing. A country with lower levels of home-bias achieves higher international risk sharing and has less volatile consumption patterns over time. Results also suggest that equity and DI are more important than debt in terms of diversification benefits. Enhancing international asset diversification or lower home-bias will lead to increased consumption risk sharing. Therefore, this section investigates the determinants of home-bias in different asset classes both in cross-countries analysis and in the specific case of Thailand.

4.1 Home-bias literature

It is widely recognized that increased access to international markets has provided expanding opportunities for investors to diversify their investments across the world. However, substantial research has shown that investors do not often take the full advantage of international diversification. Chan, Covrig and Ng (2005) and Ahearne, Grier, Warnock (2004), for example, state that the home-bias arises from various barriers to cross border investments. They highlight some numerous factors that are associated with the explanations of the home-bias: (1) economic and financial market development; (2) capital control - domestic investors find it more difficult to invest overseas as it requires government approval; and (3) familiarity and information asymmetry - one explanation for the home-bias is that investors are less familiar with foreign markets due to the lack of common language and closer proximity.

As documented in Sercu and Vanpée (2007), Sørensen, Wu, Yosha, Zhu (2007) and Karlsson and Nordén (2007), institutional-based and behavioral-based explanations for the home-bias in outward portfolio investment are considered. Institutional-based explanations include: (1) hedging possibilities against country-specific or institutional risks since domestic assets serve as a better hedge for home-country specific risks such as inflation risk, since investment in domestic assets are likely to follow the performance of the domestic market; (2) costs and barriers for outward investments such as taxes, direct controls on capital flow; (3) country-level and firm governance. A behavioral-based explanation focuses on investor-specific characteristics such as level of investor sophistication. Risk-averse investors prefer the markets on which they easily have access to better information. The proximity of the foreign market is a dominant factor to capture the effects of information asymmetries. Cultural difference such as speaking a different language can affect international portfolio choices. Lütie and Menkhoff (2004) also examine the home-bias puzzle using the questionnaire survey study accounting for the responses of 234 fund managers in Germany. They find that proximity, perceived informational advantage and higher expected returns are factors for home-bias explanation.

Regarding the direct investment home-bias, as documented in Muradoglu and Vasileva (2008), the most common reason is the lack of information since investors find it more difficult to gather information on more distant investment possibilities. Due to factors such as distance, language and political or cultural barriers, investors tend to disregard distant investments. Other possible explanations are: (1) transaction costs in cross-border investments; (2) sophistication and difference in taxation; (3) exchange rate and capital market regulations and other restrictions; and (4) barriers due to investors' attitudes. For example, investors prefer to invest in countries that they have familiarity in terms of social, political, economical and cultural attributes. Because the driving factors behind direct investment are quite different from portfolio investment, Box IV below discusses the motives for outward direct investment and the benefits from upgrading from local companies to multinational enterprises (MNEs).

Box IV: Motives for outward direct investment

The literature on direct investment (DI) identifies three types of outward investment motivations: (1) resource and asset seeking, (2) market seeking, and (3) efficiency seeking. It is well-documented in Campos and Kinoshita (2003) and Masron and Shahbudin (2009) about these three types of outward DI. Details are shown as follows.

(1) Market-seeking DI. It is also called horizontal DI, as it involved replication of production facilities in the host country. Since the reason for horizontal DI is to better serve a domestic market by local production, market size and market growth of the host economy are the main drivers. This market penetration aiming or tariff-jumping direct investment spreads similar production activities across the world in order to gain better access to markets. According to Kim and Rhe's study (2009), firms have greater tendency to undertake DI in markets whose size is large enough to compensate for the cost of investments in those markets. Dunning (1998) offers the following comments on market-seeking motives. First, market-seeking motive provides complementary assets such as technology, management, and organizational competence. Second, it fosters backward supply linkages and clusters of specialized labor markets. Third, it raises standards of product quality. Fourth, it stimulates local entrepreneurship and domestic rivalry.

(2) Resource- or asset-seeking DI. Firms invest abroad to acquire resources not available in the home country, such as natural resources, and raw materials. In contrast to horizontal DI, vertical or export-oriented DI involves relocating parts of the production chain to the host country. The main motivation is to achieve production efficiency by producing in a country that could offer resources at the cheapest rates. According to Dunning (1998), the major asset-seeking is to acquire resources and capabilities, so an investing firm will sustain or advance its core competence in global markets.

(3) Efficiency-seeking DI. This motive occurs when the firm can gain from the common governance of geographically dispersed activities in the presence of economies of scale and scope. Hiratsuka (2006) also mentions that the dominant driving force is to take advantage of low wage rates or factor prices in the host countries. Dunning (1998) cites that several features of efficiency-seeking DI overlap with the features of market-seeking DI in terms of fostering backward supply linkages and raising standards of product quality. In addition, efficiency-seeking DI improves the international division of labor and cross-border networking and provides access to foreign markets and/or sources of supply.

Recent contributions to economic theory explaining the outward direct investment position of countries suggest that the mix of ownership (O), location (L), and internalization (I) advantages of a country's firms differentiates along the country's course of economic development (Kyrkilis and Pantelidis 2003). Dunning (1977, 1981) states that firms decide to invest abroad if (1) they have market power given by the ownership of products or production processes (O); (2) they have a location advantage in locating their plants in a foreign country rather than at home (L); and (3) they have an advantage from internalizing their foreign activities in fully owned subsidiaries (I), rather than carrying them out through arm's length agreements in the market. This is to avoid problems of contractual incompleteness in dealing with outside agents. Multinationals may find it difficult to protect their firm-specific assets, and difficult or expensive to motivate independent local firms to act in the best interests of the multinational (Navaretti and Venables 2004).

In this paper, we explore some common determinants of home-bias in outward investments for both direct and portfolio investments. As discussed, the literature on home-bias offers many explanations. To avoid the multicollinearity problem, we categorize them into the following groups, (1) policy on financial openness from the home country which represents the level of barrier for outward investments; (2) expertise and capabilities of investors which indicates the level of investor sophistication, i.e., more sophisticated investors tend to have less home-bias; and (3) economic and financial environment. We focus on these three groups of explanatory variables as they are the major home-country factors so that we are able to draw some policy implications related to our findings.

4.2 Model specification and data

As mentioned in the previous sub-section, there are many factors that have contributed towards home-bias in outward investments. In this sub-section we explore some key determinants of home-bias by OLS regression using data in the specific case of Thailand¹⁷. We regress HB , the degree of local investors' home-bias, on a vector of explanatory variables which are grouped as mentioned above.

The basic specifications of the determinants are:

$$\begin{aligned}\Delta HBD_t^k &= \beta_0 + \beta_1 \Delta Policy_{t-1}^k + \beta_2 \Delta Investor_{t-1}^k + \beta_3 \Delta Economic_{t-1}^k + \varepsilon_t \\ \Delta HBB_t^k &= \alpha_0 + \alpha_1 \Delta Policy_{t-1}^k + \alpha_2 \Delta Investor_{t-1}^k + \alpha_3 \Delta Economic_{t-1}^k + \mu_t \\ \Delta HBE_t^k &= \gamma_0 + \gamma_1 \Delta Policy_{t-1}^k + \gamma_2 \Delta Investor_{t-1}^k + \gamma_3 \Delta Economic_{t-1}^k + n_t,\end{aligned}$$

where HBD_t^k , HBB_t^k and HBE_t^k are the measures of home-bias in direct investment, bond and equity, respectively for country k , denoting Thailand here, at time t as computed in section 2. $Policy$, $Investor$ and $Economic$ are vectors of explanatory variables. We use data over a yearly period of 30 years (1980-2009). The sample period is different from that in section 3 due to availability of some explanatory-variable data. The descriptions of control variables and data sources are shown in Table 4.1.

We examine whether interaction between financial openness policy and investors' skill on outward investments give extra benefits in reducing the home-bias. This is done by including an interaction variable ($Policy * Investor$) in the equation. This is due to our hypothesis that the home-bias might not depend only on either the capital flow policy or investors' capabilities but also the mutual-effect from both of them on home-bias in direct and portfolio investments¹⁸.

Our model specification with the interaction term between $Policy$ and $Investor$ variables is as follows:

$$\begin{aligned}\Delta HBD_t^k &= \beta_0 + \beta_1 \Delta Policy_{t-1}^k + \beta_2 \Delta Investor_{t-1}^k + \beta_3 \Delta Economic_{t-1}^k + \beta_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + \varepsilon_t \\ \Delta HBB_t^k &= \alpha_0 + \alpha_1 \Delta Policy_{t-1}^k + \alpha_2 \Delta Investor_{t-1}^k + \alpha_3 \Delta Economic_{t-1}^k + \alpha_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + \mu_t \\ \Delta HBE_t^k &= \gamma_0 + \gamma_1 \Delta Policy_{t-1}^k + \gamma_2 \Delta Investor_{t-1}^k + \gamma_3 \Delta Economic_{t-1}^k + \gamma_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + n_t,\end{aligned}$$

¹⁷ This is because we focus on the policy implication for the case of Thailand in this paper. For the sake of completeness, the cross-country panel regressions of the similar specification are presented in Box VI.

¹⁸ We also experimented other interaction terms such as $Policy * Economic$ variable for the specific case of Thailand's outward direct investment shown in Box V.

Table 4.1: Variables description and data sources

Factors	Variables	Description	Data sources	Expected sign with home-bias
1.Policy variable	KOPEN	A measure of financial openness (an increasing figure means more capital flow openness)	Chinn and Ito (2009)	negative
2.Investors' capabilities	PCA_SKILL	We construct an index of investors' capabilities using the principal component method, including data set of the World Bank's World Development Indicators on research and development (R&D), patent, and internet access. (an increasing figure means higher investors' skills)	Authors' estimates	negative
3.Economic and financial variables				
3.1 Exchange rate	REER_TH	Real effective exchange rate of Thai Baht (an increasing figure means local currency appreciation)	Bank of Thailand	negative
3.2 Relative return	EQUITYRET	The differences between domestic and global MSCI returns (relative returns)	MSCI	positive
3.3 International trade	TRADE	A measure of trade openness	CEIC, World Development Indicators of World Bank	negative
3.4 Efficiency-seeking motive	WAGE_WH	Ratio of the host country's labor cost to the home country's labor cost which represents the cost advantage	International Labour Organization, National Statistic Bureau	negative
3.5 Marketing-seeking motive	YCWH_TH	Ratio of the whole 30 countries' income per capita in US dollars to Thai's income per capita in US dollars which represents the (relative) market size	International Monetary Fund	negative
	YCDED_TH	Ratio of the developed countries' income per capita to Thai's income per capita		negative
	YCDING_TH	Ratio of the developing countries' income per capita to Thai's income per capita		negative
3.6 Asset- or resource-seeking motive	AGRWH_TH	Relative ratio of agriculture export to total export between the whole 30 countries and Thailand which represents the relative abundance of resources	World Development Indicators of World Bank	negative
	AGRDED_TH	Relative ratio of resources between the developed countries and Thailand		negative
	AGRDING_TH	Relative ratio of resources between the developing countries and Thailand		negative

4.3 Results of Thailand-data regressions

Table 4.2 exhibits results for the determinants of the home-bias in the specific case of Thailand. We focus on the effects of capital flow openness and investors' capabilities on decreasing the home-bias on all types of investments¹⁹. We find that either capital flow policy or investor' expertise alone is not sufficient to reduce the home-bias in direct investment. Both variables as shown in the interaction term, however, mutually reinforce to alleviate the direct investment home-bias. In the case of portfolio investment (both equity and bond), the degree of financial openness alone has a significant impact on the home-bias.

Table 4.2: Thailand-data regression results of home-bias determinants

The table reports results from the Thailand-data regression of home-bias determinants. Specifications²⁰ which are considered are as follows:

$$\begin{aligned} \Delta HBD_t^k &= \beta_0 + \beta_1 \Delta Policy_{t-1}^k + \beta_2 \Delta Investor_{t-1}^k + \beta_3 \Delta Economic_{t-1}^k + \beta_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + \varepsilon_t \\ \Delta HBB_t^k &= \alpha_0 + \alpha_1 \Delta Policy_{t-1}^k + \alpha_2 \Delta Investor_{t-1}^k + \alpha_3 \Delta Economic_{t-1}^k + \alpha_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + \mu_t \\ \Delta HBE_t^k &= \gamma_0 + \gamma_1 \Delta Policy_{t-1}^k + \gamma_2 \Delta Investor_{t-1}^k + \gamma_3 \Delta Economic_{t-1}^k + \gamma_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + n_t, \end{aligned}$$

k denotes Thailand. The estimated parameters are reported in the table. The t-statistics from Newey and West (1987) heteroskedasticity-consistent standard error and covariance least square regression are in the parentheses. Significance at the 10%, 5% and 1% level is indicated by *, ** and *** respectively.

Factor	Thailand-data regression: yearly data 1980-2009	Dependent variable: DI home-bias (ΔHBD)	Dependent variable: Bond home-bias (ΔHBB)	Dependent variable: Equity home-bias (ΔHBE)
Explanatory variables				
	constant	-0.002** (-2.595)	-0.004 (-1.010)	-0.0002 (-0.788)
<i>Policy</i>	$\Delta KOPEN(-1)$	-0.0001 (-0.041)	-0.035** (-2.749)	-0.004** (-4.999)
<i>Investor</i>	$\Delta PCA_SKILL(-1)$	0.018 (1.296)	-0.050 (-0.758)	-0.012** (-2.650)
Interaction term of <i>Policy</i> and <i>Investor</i>	$\Delta KOPEN(-1) * \Delta PCA_SKILL(-1)$	-0.137*** (-4.693)	0.217 (1.614)	0.013 (1.417)

¹⁹ We cannot find any significant determinants of home-bias using variables in Table 4.1 except ones report here and in Box V below.

²⁰ In addition to *Policy* and *Investor* variables, we also included *Economic* variable as shown in model specification, but only ones shown in Table 4.2 and Table B5.1 are significant.

Box V: Determinants of Thailand's outward direct investment

To analyze whether the policy variable matters and how the openness of capital flow interacts with variables of outward direct investment motives discussed in Box IV and to estimate their mutual effects on the direct investment home-bias in the case of Thailand, we construct the interaction terms between the financial openness policy and motive variables, namely the relative market-size and resource-size variables²¹,

Our model specification with the interaction term between *Policy* and *Economic* variables is as follows:

$$\Delta HBD_t^k = \beta_0 + \beta_1 \Delta Policy_{t-1}^k + \beta_2 \Delta Investor_{t-1}^k + \beta_3 \Delta Economic_{t-1}^k + \beta_4 \Delta Policy_{t-1}^k * \Delta Economic_{t-1}^k + \varepsilon_t$$

where *Economic* variable of the interaction term denotes the relative market- and resource- sizes, as proxies of market- and resource-seeking motives .

The empirical result, as shown in Table B5.1²², confirms that the degree of capital flow openness variable (or its interaction with another variable) remains statistically significant in most of the models. It is interesting to evaluate the incremental predictive power of each group of explanatory variables, for example the relative market size and the relative resource size, when these variables are estimated jointly with the degree of capital flow openness. In terms of the relative market- and resource-size comparing between the host countries and Thailand, we estimate using the host-countries variables of the whole 30 countries, and also separately investigate the estimates from developing and developed countries.

Apparently, we find that market-seeking motive alone, as indicated by the relative market size between other countries and Thailand, does not seem to be a main reason for the reduction of the home-bias in direct investment. Nonetheless, the interaction terms between the capital flow openness and the relative market size are statistically significant in all models. Similarly, only resource-seeking motive does not statistically effect on the home-bias. However, the interaction terms of the capital flow openness and the relative resource size jointly affect on decreasing the home-bias in direct investment. Therefore, this result confirms that the openness of capital flow is necessary condition to lower the degree of home-bias, and it reinforces with other factors to stimulate outward investments.

Furthermore, the evidence shows that the relative return variable becomes statistically significant. Intuitively, a lower relative return in domestic market compared to others can lead to lessen the home-bias. Surprisingly, the real effective exchange rate does not play a significant factor to explain the home-bias in investments in the case of Thailand.

²¹ Unfortunately, we have no enough labour cost data to do the estimation of the impact of efficiency-seeking motive on the direct investment home-bias in the case of Thailand. However, we have enough panel-data so we estimate its effect using data set of 30 countries. The result is statistically significant and the sign of coefficient is as expected. That is, results confirm that the efficient-seeking strategy matters for overall outward direct investment.

²² We also included *Investor* variable as shown in model specification, but only ones shown in Table B5.1 are significant.

In summary, in addition to the significant mutual-effect from capital flow policy and investors' capabilities on the reduction of the direct investment home-bias as shown in sub-section 4.3, other key determinants are the mutual-effect from capital flow policy and investors' motives, for example market-seeking. This result confirms that the policy is a necessary factor for the home-bias reduction in the case of Thailand.

Table B5.1: Determinants of the home-bias in Thailand's direct investment

The table reports results from the Thailand-data regression of DI home-bias determinants. Specifications which are considered are as follows:

$$\Delta HBD_t^k = \beta_0 + \beta_1 \Delta Policy_{t-1}^k + \beta_2 \Delta Investor_{t-1}^k + \beta_3 \Delta Economic_{t-1}^k + \beta_4 \Delta Policy_{t-1}^k * \Delta Economic_{t-1}^k + \varepsilon_t$$

k denotes Thailand. The estimated parameters, are reported in the table. The t-statistics from Newey and West (1987) heteroskedasticity-consistent standard error and covariance least square regression are in the parentheses. Significance at the 10%, 5% and 1% level is indicated by *, ** and *** respectively.

Dependent variable: ΔHBD (yearly data 1980-2009): Thailand's direct investment home-bias				
Factor	Explanatory variables	1	2	3
	constant	-0.002** (-2.336)	-0.002** (-2.212)	-0.002** (-2.666)
<i>Policy</i>	$\Delta KOPEN(-1)$	-0.026*** (-4.951)	-0.030*** (-4.891)	-0.020*** (-4.975)
<i>Economic: Relative market size - whole countries</i>	$\Delta YCWH_TH(-1)$	-0.001 (-0.840)		
Interaction term of <i>Policy and Relative market size (with whole countries)</i>	$\Delta KOPEN(-1)*\Delta YCWH_TH(-1)$	-0.070*** (-4.539)		
- Developed countries	$\Delta YCDED_TH(-1)$		-0.0002 (-0.385)	
Interaction term of <i>Policy and Relative market size (with developed countries)</i>	$\Delta KOPEN(-1)*\Delta YCDED_TH(-1)$		-0.051*** (-4.464)	
- Developing countries	$\Delta YCDING_TH(-1)$			-0.002 (-1.558)
Interaction term of <i>Policy and Relative market size (with developing countries)</i>	$\Delta KOPEN(-1)*\Delta YCDING_TH(-1)$			-0.096*** (-4.666)

Dependent variable: Δ HBD (yearly data 1980-2009): Thailand's direct investment home-bias					
Factor	Explanatory variables	4	5	6	7
	constant	-0.003**	-0.001**	-0.001**	-0.001**
		(-2.417)	(-2.150)	(-2.155)	(-2.258)
<i>Policy</i>	Δ KOPEN(-1)		0.001	-0.001	0.015
			(0.424)	(-0.537)	(2.937)**
<i>Exchange Rate</i>	Δ LOG(REER_TH)	0.001			
		(0.019)			
<i>Return</i>	Δ (EQUITYRET/100)	0.007**			
		(2.206)*			
<i>Relative resource size</i> - whole countries	Δ AGRWH_TH		0.002		
			(0.178)		
Interaction term of <i>Policy</i> and <i>Relative resource size</i> (with whole countries)	Δ AGRWH_TH* Δ KOPEN(-1)		-0.189***		
			(-4.423)		
- Developed countries	Δ AGRDED_TH			0.005	
				(0.767)	
Interaction term of <i>Policy</i> and <i>Relative resource size</i> (with developed countries)	Δ AGRDED_TH* Δ KOPEN(-1)			-0.110***	
				(-4.545)	
- Developing countries	Δ AGRDING_TH				-0.006
					(-0.647)
Interaction term of <i>Policy</i> and <i>Relative resource size</i> (with developing countries)	Δ AGRDING_TH* Δ KOPEN(-1)				-0.689***
					(-4.338)

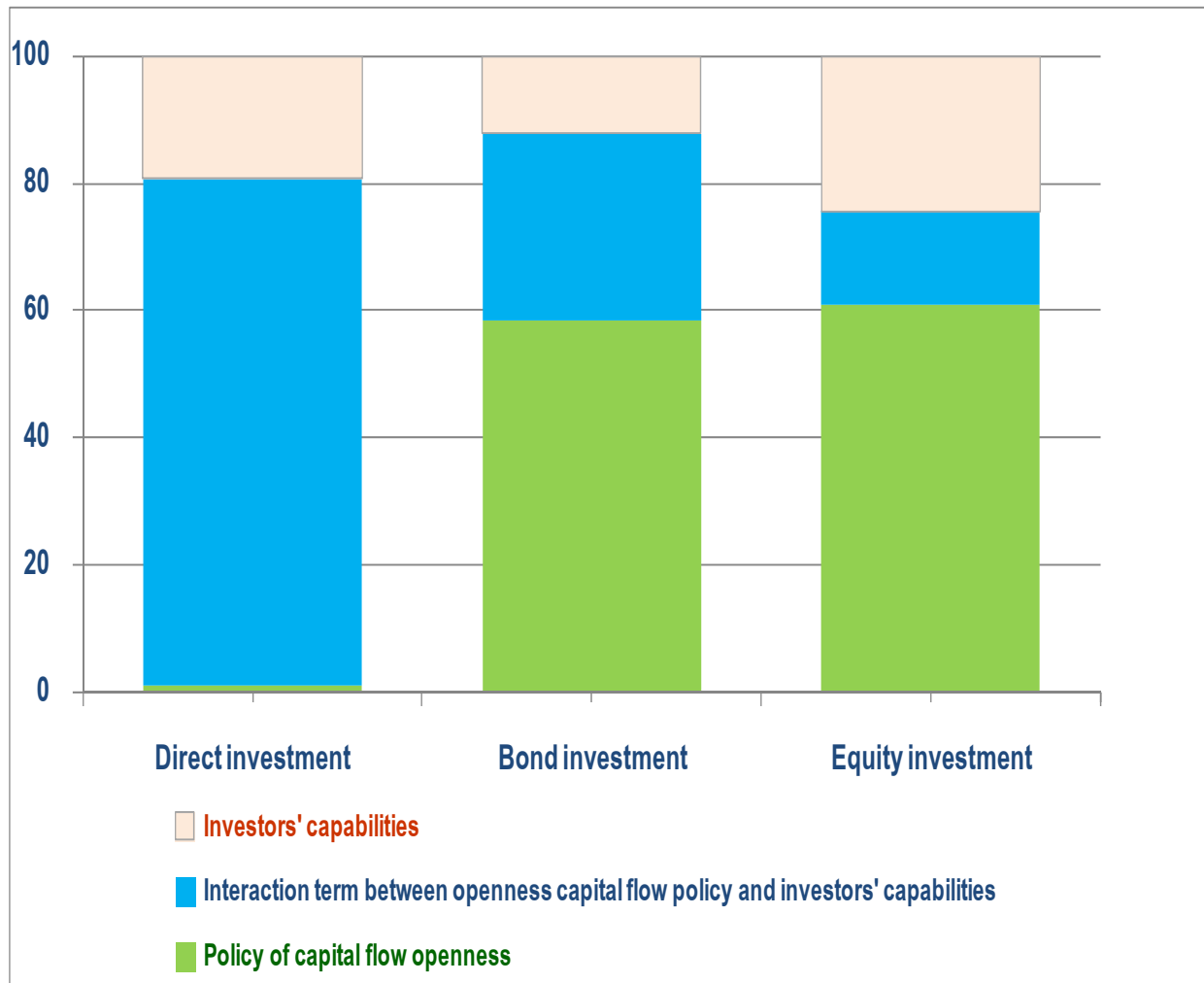
4.4 Economic explanatory power of capital flow openness and other variables

In previous sub-section, we find the capital flow openness is significant in most regression. Figure 4.1 presents how (1) the policy of capital flow openness, (2) the capability of investors, and (3) the interaction term between the policy and the investor factors, play roles on the home-bias in each category of investments in the case of Thailand. The contribution of each factor is computed by an independently increase of one standard deviation in each factor multiplied by its estimated coefficients from Table 4.2. Evidently, the interaction term can explain more than 80% in the case of home-bias in direct investment, while the capital flow openness alone contributes around 60% of the explanation for the home-bias in bond and equity investments.

One of the main implications is that, the policy of capital flow openness is the necessary condition for the reduction of the home-bias in all types of investments, but it is not sufficient factor to decrease the home-bias in direct investment. It is required to pursue both the liberalization of capital flow and the investors' capabilities to successfully stimulate the direct investment abroad. This is a key result and it is crucial for policy makers to draw attention on this implication when designing any relevant policies.

Figure 4.1: Contribution to home-bias explanation

% Contribution



Furthermore, we analyze what motives Thai investor dramatically rely on when making outward direct investment decisions and whether the interaction of market-or resource-seeking motive with the capital flow openness matters. As shown in Figure 4.2, we find that, the mutual-impacts of the capital flow openness and either market-seeking or resource-seeking, as shown by the interaction terms, become the dominant contribution to lessen the home-bias in direct investment. This evidence confirms that the capital flow policy becomes a prominent factor and jointly interacts with the investors' strategies to alleviate the home-bias.

Figure 4.2: Contribution on reduction of home-bias in direct investment



Box VI: Results of cross-country panel-data regressions

Table B6.1 displays results for panel regression using data set of 30 countries. In the cross-countries setting, the increasing capital flow openness, and more international trade openness, exert the influence on the reduction of the home-bias in direct investment.

According to the determinants of the home-bias in portfolio investments, the estimated coefficients are not statistically significant as the empirical result of the direct investment home-bias determinants. This is probably because the outward direct investment requires the common determinants across countries; however, the pattern of portfolio investment is quite country-specific.

Table B6.1: Panel-data regression results of home-bias determinants

The table reports results from the cross-sectional regression of home-bias determinants. Specifications which are considered are as follows:

$$\begin{aligned} \Delta HBD_t^k &= \beta_0 + \beta_1 \Delta Policy_{t-1}^k + \beta_2 \Delta Investor_{t-1}^k + \beta_3 \Delta Economic_{t-1}^k + \beta_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + \varepsilon_t \\ \Delta HBB_t^k &= \alpha_0 + \alpha_1 \Delta Policy_{t-1}^k + \alpha_2 \Delta Investor_{t-1}^k + \alpha_3 \Delta Economic_{t-1}^k + \alpha_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + \mu_t \\ \Delta HBE_t^k &= \gamma_0 + \gamma_1 \Delta Policy_{t-1}^k + \gamma_2 \Delta Investor_{t-1}^k + \gamma_3 \Delta Economic_{t-1}^k + \gamma_4 \Delta Policy_{t-1}^k * \Delta Investor_{t-1}^k + n_t, \end{aligned}$$

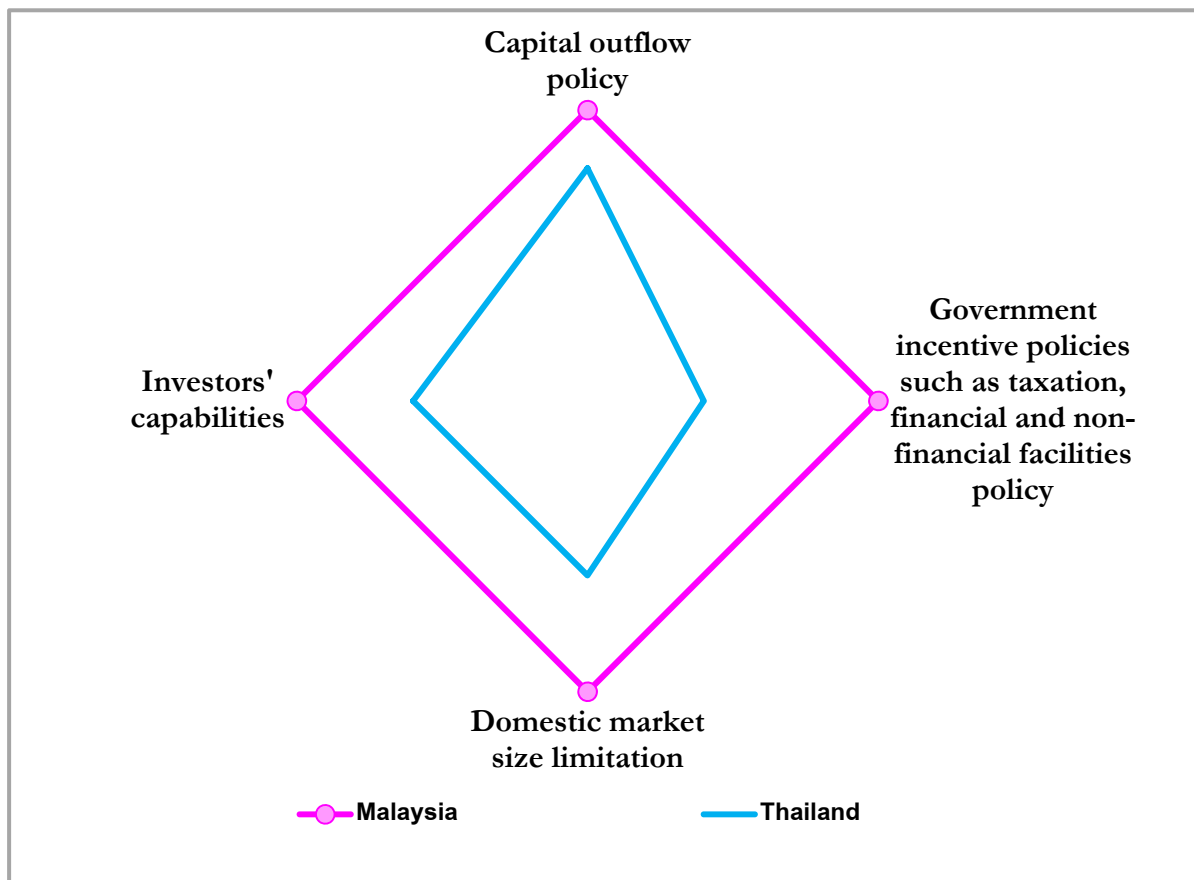
k denotes cross-country. The estimated parameters are reported in the table. The t-statistics from Newey and West (1987) heteroskedasticity-consistent standard error and covariance least square regression are in the parentheses. Significance at the 10%, 5% and 1% level is indicated by *, ** and *** respectively.

Factor	Panel-data regression: yearly data 1980-2009	Dependent variable: DI home-bias (ΔHBD)	Dependent variable: Bond home-bias (ΔHBB)	Dependent variable: Equity home-bias (ΔHBE)
Explanatory variables				
	constant	-0.004*** <i>(-4.224)</i>	-0.005** <i>(-1.906)</i>	-0.002*** <i>(-1.882)</i>
<i>Policy</i>	$\Delta KOPEN(-1)$	-0.002* <i>(-1.664)</i>	-0.0002 <i>(-0.041)</i>	0.00009 <i>(0.0566)</i>
<i>Investor</i>	$\Delta PCA_SKILL(-1)$	-0.001 <i>(-0.705)</i>	-0.003 <i>(-0.846)</i>	0.002 <i>(0.768)</i>
Interaction term of <i>Policy</i> and <i>Investor</i>	$\Delta KOPEN(-1)*\Delta PCA_SKILL(-1)$	0.006* <i>(1.761)</i>	-0.005 <i>(-0.677)</i>	0.003 <i>(0.615)</i>
<i>Trade</i>	$\Delta LOGTRADE(-1)$	-0.009* <i>(-1.787)</i>		

4.5 Cross-country comparison of supportive policies for outward investments

The central explanations for the home-bias in investments are: (1) the supportive policies to stimulate investment abroad, (2) the capabilities of investors, and (3) the economic and market conditions. This section studies these three common factors by comparing the case of Thailand and Malaysia using the radar chart. As depicted in Figure 4.3, when we compare all dominant contributing factors to the home-bias, Thailand has crippled as shown by the lower levels of all categories compared to the case of Malaysia. The maximum gap between Thailand and Malaysia is presented in the area of government incentive policies. Details of comparison of supportive policies for outward investments between Thailand and Malaysia are shown in Box VII.

Figure 4.3: Comparison of supportive policies, investors' capabilities and domestic market constraint in Thailand and Malaysia



Source: Authors' analysis from various sources (IMF, International Institute for Management Development (IMD), Thailand's Ministry of Finance, Managing Risk in Cross Border Transactions by CITI, 2011, p.24, World Development Indicators of World Bank). Investors' capabilities are calculated using the principal component analysis method, including data set of the World Bank's World Development Indicators on research and development (R&D), patent, and internet access. An increasing figure means higher investors' skills.

**Box VII: Comparison of supportive policies for outward investments
between Thailand and Malaysia**

It is well-documented in Yean (2007) about the Malaysian government supports for overseas investments. They include: (1) tax exemption, tax incentives and special funds, (2) investment guarantee agreements; (3) trade and investment missions; and (4) institutional supports.

In the case of tax incentives in Malaysia, tax abatement on income earned overseas and remitted back to Malaysia and tax deduction for pre-operating expenses was first introduced in 1991. Since 1995, all income remitted by Malaysian companies investing overseas are fully exempted from income tax. In 2003, an additional incentive was introduced for acquiring foreign-owned companies abroad for high-technology production within the country or to gain new export markets for domestic products. As for special funds, the Malaysia-Singapore Third Country Business Development Fund was co-founded by the two countries. This fund allows Malaysian and Singaporean enterprises to co-operate and jointly identify investment and business opportunities in third countries' outside of 2 countries. The fund's main objective is to encourage firms to expand their business operation in the global arena. In addition, trade and investment missions are regularly organized. In terms of institutional support, the EXIM Bank supports relocations of Malaysian companies from Malaysia to other cost effective countries, especially in the labor-intensive industries. In 2005, the EXIM Bank was merged with Malaysia Export Credit Insurance. The facilities provided by the bank include credit guarantee together with trade financing and overseas project financing. To facilitate the small and medium enterprises (SMEs) for more financing facilities, the government allocated the budget to set up the SME Bank to provide financial and non-financial services to help SMEs in expanding their business domestically and abroad.

The comparison of supportive policies for outward investments between Thailand and Malaysia is shown in Table B7.1.

Table B7.1: Comparison of supportive policies for outward investments between Thailand and Malaysia

Policy	Thailand	Malaysia
Capital outflow policy	1. Investment abroad freely in the form of direct investment	1. Residents without domestic ringgit borrowing are free to invest in foreign currency assets
	2. A limit for portfolio investment abroad	2. Residents with domestic ringgit borrowing are allowed to invest based on the following limits: up to RM 50 million equivalent in aggregate on a corporate group basis a calendar year and up to RM 1 million in aggregate on resident individual basis.
Tax policy	Corporate income tax on dividends will be exempted if: (1) Thai companies hold at least 25 percent of total shares of foreign companies and more than 6 months and (2) income was already subject to taxes in foreign countries at least 15 percent	1. Income tax on foreign-sourced income remitted into Malaysia will be exempted 2. Allowing some expenses to be tax-deductible i.e. expense for overseas project development
Financial/ non-financial facilities policy	1. Some financial supports from Export-Import Bank of Thailand (EXIM) for outward direct investment	1. Setting up Overseas Investment Fund
	2. Information center for outward direct investment by the Board of Investment of Thailand (BOI)	2. Financial supports from SME Bank and EXIM Bank
National agenda plan	The Eleventh National Economic and Social Development Plan (2012-2016)	1. The Ninth Economic Development Plan (9MP) (2006-2010) 2. The Third Industrial Master Plan (IMP3) (2006-2020) 3. Vision 2020

Source: Authors' analysis from various sources.

5. Policy recommendations and conclusions

In order to strengthen Thailand's resiliency to unexpected economic shocks and maintain country's economic welfare through better consumption smoothing, Thailand must become a more outward-investment-oriented country. When going abroad with cross-border investments, things are always challenging. Therefore, all relevant stakeholders both public and private sectors, must work very closely together to ensure that all infrastructures and policy initiatives are conducive to overseas investments.

As discussed in previous sections, our analyses indicate that the key determinants of cross border investments are restrictive international capital outflow policy and lack of proper investors' internationalized skills. Our study also shows that the liberalized capital outflow measure is a necessary condition for cross-border investment or decreasing home-bias in general. However, to reduce home-bias in direct investment in particular, the relaxation of capital outflow measures and improvement of investors' skills in international business experience are simultaneously required. They must be implemented together.

The section addresses obstacles mainly from home country factors including the relaxation of capital outflow measures and how to improve investors' skills (which may include market-seeking or resource-seeking know-how), as it indicates that both of them are the main possible factors resulting in home-bias²³. The set of policy recommendations is outlined as followed.

5.1 Capital outflow measures

In Thailand, the capital outflow measures on direct investment abroad have already been significantly liberalized. The Bank of Thailand has already allowed Thai enterprises to freely invest abroad, both in the form of equity investment and granting direct loans, since 2010. However, there is still a limitation on Thai individuals, who can invest abroad up to 100 million US dollars per year.

In order to increase outward direct investment, improving investors' international skills and experiences should be considered as an urgent task. Establishing clusters or joint ventures with local partners in host countries can be implemented as a short and medium term plan, capacity building in human resources' competencies, technology upgrading, research development and investors' protection such as patents can help increase the opportunities for outward direct investment in the longer-term perspective. Meanwhile, removing limits on individuals' outward direct investment should be encouraged in addition to Thai enterprises, which the authority has already allowed to invest abroad freely.

By contrast, the capital outflow control measures are still the problem for outward portfolio investment. We suggest that 1) the investment quota can be firstly removed and 2) the authority

²³ Apart from Thailand's capital outflow measures and investors' skills, Thailand still confronts a number of challenges for overseas investments, both from the home and host country factors. Regarding the home country factors, Thailand still lacks coherent institutional supports and governmental agencies' guidance. This discourages Thai investors to venture abroad. In addition, there are few government incentives such as tax incentives, which encourage Thai outward investments. Limited access of funding from Thai financial institutions has also restricted Thai enterprises, especially for small and medium enterprises (Wee, 2007). For the host country factors, these include strict foreign exchange controls, complex policies and regulations, restricted market access and difficulty in finding suitable local joint venture partners (Wee, 2007).

should not restrict types of investors to invest in securities abroad²⁴. In order to increase outward portfolio investment in the short and medium terms, the Bank of Thailand should allow every type of investors to invest in securities abroad. The public sector can also play a more active role by providing advices and knowledge to investors, especially retail investors, to be better equipped with financial literacy.

Again, apart from capital outflow measures, other government policies and other coherent institutional supports should be implemented to supplement more outward investments.

5.2 Government incentives policy

Necessary government incentives, which are supportive to overseas investments, include both financial and non-financial facilities as follows.

5.2.1 Financial facilities policy

The agency which provides financial facilities to cross-border transactions, such as the Export-Import Bank of Thailand (EXIM Bank)²⁵, should play a more active role in enhancing outward investments by providing investors with both financial and non-financial services.

To more facilitate outward investments, the EXIM Bank should finance credits to more overseas projects through arranging more syndicated loans with other financial institutions and trade financing. In order for the EXIM Bank to achieve this purpose, a stronger balance sheet may be favorable. This can be strengthened by, for example, injecting additional capital or merging with other relevant specialized-financial institutions in the long-run.

Moreover, as our analysis shows that improvement in investors' knowledge can exert considerable influence to outward investments, the EXIM Bank can also act as a center in exploring investment opportunity abroad and providing knowledge sharing facilities, especially to small and medium businesses and their clusters. For instance, it can support relocations of Thai companies to (1) other cost effective countries, especially in the labor-intensive industries, or (2) countries with abundant natural resources, or (3) countries where Thai companies can earn benefits from research development or upgrading technology.

²⁴ Currently, the Bank of Thailand (BOT) allows 8 types of institutional investors to invest in securities abroad. These include (1) government pension funds (2) social security funds (3) provident funds (4) mutual funds (5) insurance companies (6) specialized financial institutions (7) securities companies and (8) juristic persons who are registered under Thai laws with assets of at least 5,000 million Baht and whose principal businesses are in manufacturing, trading or services. Individuals can invest in securities abroad through private funds or securities companies.

The BOT grants an investment quota of 50 billion US dollars to the Thailand's Securities and Exchange Commission (SEC) to be allocated to institutional investors under its supervision to invest in securities abroad. An eligible institutional investor who needs to invest in foreign securities with an outstanding balance beyond 50 million US dollars may seek the BOT's approval. Individuals can invest in securities abroad through private funds or securities companies, with a limited quota of 50 million US dollars and 5 million US dollars, respectively.

²⁵ The EXIM Bank is a state-owned financial institution under the Ministry of Finance's supervision. Currently, the EXIM Bank provides a long-term credit to support Thai overseas investment projects and various kinds of overseas contracts such as building renovation and machinery maintenance. The EXIM Bank also provides information on investment abroad prospects, particularly in such neighboring countries as Cambodia, Laos, Myanmar and Vietnam.

Another financial facilities policy could be taxation. A package of financial incentives such as tax abatement on income earned overseas and remitted back to Thailand and tax deduction should be considered. In many cases, foreign-sourced income remitted into Thailand is subject to income tax, implying double tax payments for home and host countries. This reduces the rates of return from overseas investments and deters outward investments to a large extent. To encourage more Thai investment abroad, Ministry of Finance should consider introducing a package of incentives in the form of tax abatement on income earned overseas and remitted back to Thailand and tax deduction for pre-operating expenses. In an ideal case, all income remitted by Thai companies investing overseas should be fully exempted from income tax at least at their early stage of outward investments. The aim is to reduce the start-up cost and increase the competitiveness of Thai companies in the international community.

5.2.2 Non-financial facilities policy

Non-financial facilities policy such as information centers and a one-stop information center to support outward investments is one of the urgent agenda. Even though, the focus of the Thailand's Board of Investment (BOI)²⁶ is on the inward direct investment, we suggest the BOI to facilitate both inward and outward investments, for example, by being a one-stop information center and provide more comprehensive information and advice to Thai firms to venture abroad. We believe that these two-way BOI policies will benefit each other. Apart from the BOI, other governmental agencies can play parts in this by providing local advice, local knowledge and local support, possibly through the Thai embassies in the host country.

5.3 Private sector roles

Based on our empirical results, the public sector's policies alone are not sufficient to decrease home-bias. The private sector must help support outward investments through improvement in internationalized skills and close coordination with relevant stakeholders. One of the most important things to do is the improvement of their internationalized know-how and better understanding of in-depth information on the host country, especially its regulations, cultures and business opportunities. They can establish clusters or finding local partners to facilitate more outward investments. Regarding outward portfolio investment, Thai investors should better understand the types of securities to invest in and be well-equipped with risk management instruments such as forward contracts or other hedging instruments in order that they can insure their returns from investment because when investing abroad, market volatility becomes an increasing concern. Thai investors should understand and well-manage all risks involved.

5.4 Better coordination among public and private sectors

All policy recommendations discussed above should be made as soon as possible since they take time before they become effective and materialized. To make all happen, we strongly recommend the stipulated outward investments promotion as a concrete national agenda. This national roadmap also helps increase investors' confidence in continuation of governmental policies; hence it causes more and better foreign investment decisions going forward. In addition, all stakeholders need to adjust their mindset into more outward investments oriented and so that public and private sector can be better coordinated and support each other more efficiently.

²⁶ The BOI is the principal government agency for encouraging investment. It mainly acts as Thailand's marketing arm and actively promotes the country worldwide as one of the best investment locations in Asia; hence it encourages more foreign direct investment in Thailand than outward direct investment.

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