

Erasmus University Rotterdam

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**Economics of Sustainability – MSc Economics and
Business**

Master Thesis

**The role of social capital in the
business creation decision**

A study of African and Armenian return migrants

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Abstract

The aim of this study is to investigate the role social capital plays in return migrants' decision to start a new business upon return to the country of origin. Based on 2087 interviews with return migrants in North-Africa and Armenia, I analyse the association between levels of domestic and overseas social capital on one hand and new business creation on the other. Furthermore, I analyse the moderation effect of education level on these associations. My findings reveal no significant associations across the entire sample. However, being highly educated is found to significantly moderate the associations. The findings differ from similar studies conducted in the Asian context, suggesting that the role of social capital in the business creation process depends substantially on the entrepreneurial context. Furthermore, the findings indicate that policy makers should not resort to one-size-fits-all policies for promoting business creation. Instead, more research is needed to understand the specific needs of the various sub-groups of return migrants.

Note: The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam.

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1. Introduction

Over the past decade, companies worldwide have experienced increasing difficulties in attracting and retaining high-skilled workers. In 2022, 75% of companies in OECD countries reported struggling with talent shortages (OECD, 2023), compared to 35% in 2013. The increasing talent shortages are problematic as high-skilled workers play an essential role in today's knowledge economy, propelling the knowledge frontier and spurring economic growth (Kerr, Kerr, Özden & Parsons, 2016). To become and remain productive, companies have been involved in what has become known as 'the war for talent' (Chambers, Foulon, Handfield-Jones, Hankin & Michaels, 1998).

Since the introduction of the 'war for talent'-concept, talent shortages have increased due to a combination of an overall ageing of the workforce (Tung, 2016), a fundamental shift from a product-based to a knowledge-based economy (Beechler & Woodward, 2009) and the resulting shift of economic activity to sectors that are intense in high-skilled labour (Buera, Kaboski & Rogerson, 2022). The war for talent has also become more global as the workforce has become more mobile (Stahl, Miller & Tung, 2002) and immigration boundaries have been reduced (Tung, 2016).

In the midst of the global war for talent, national migration policy has become an important instrument to attract skilled workers from abroad (Chand & Tung, 2019). Although many countries have implemented policies to attract high-skilled workers, data on migration flows suggests stark inequalities between countries in their ability to attract talent. While OECD countries contain around 20% of the world's population, they have attracted almost 70% of high-skilled migrants worldwide (Kerr et al., 2016). Due to factors such as wage differentials and existing diaspora networks (Docquier & Rapoport, 2012), a lack of educational opportunities and labour market challenges (Kerr et al., 2016) many developing countries have experienced a so-called 'brain drain'. While these countries experience increasing levels of outward migration of high-skilled workers to developed countries (Docquier & Rapoport, 2012), they are often unable to attract high-skilled migrants themselves.

The brain drain in developing countries has led many people to worry about the future prospects of developing countries (Stark, 2004). For example, many worry that the outward migration of medical personnel from Africa to more affluent countries, the so-called medical brain drain, will leave African countries with significant shortages in medical personnel (Bundred & Levitt, 2000). This negative view of the brain drain phenomenon is congruent with the initial literature on the topic during the 1970s (Beine, Docquier & Defoort, 2011).

However, more recent research has revealed that a brain drain can also be accompanied by several beneficial effects. Among other things, migration prospects can lead

the sending countries' population to invest more in human capital accumulation due to a perceived increase in return on human capital (Stark & Yong, 2002; Vidal, 1998). Furthermore, valuable connections abroad facilitate technological diffusion (Agrawal, Kapur, McHale & Oettl, 2011; Kerr, 2008), trade (Gould, 1994; Rauch & Trindade, 2002) and FDI (Foley & Kerr, 2013).

In addition, many migrants return to their country of origin.¹ In doing so, return migrants can benefit the development of the country of origin through several channels. Focusing on the economic development of the country of origin, research has linked return migration with the initial development and subsequent growth of new (high-tech) industries (Kenney, Breznitz & Murphree, 2013; Lin, 2010; Saxenian, 2006; Zhou & Hsu, 2011); knowledge spillovers from returnees to local businesses (Filatotchev, Liu, Liu & Wright, 2011; Liu, Liu, Filatotchev, Buck & Wright, 2009) and internationalisation of industries (Bai, Johanson & Martin, 2017; Filatotchev, Liu, Buck & Wright, 2009). These benefits are often achieved through the establishment of new businesses, which provide additional job opportunities to non-migrants (Hausmann & Nedelkoska, 2018).

In light of these insights, policy makers have shifted from casting migrants in a negative light to embracing its diaspora as an asset (Agunias, 2009). Additionally, they have tried to encourage migrants to return. Traditionally, these policies have focused on encouraging the return of diaspora.² More recently, policies have focused on 'circular migration', making the return an explicit part of the migration cycle. Examples of these policies include the Blue Birds Program between the Netherlands and Indonesia (Siegel & Van der Vorst, 2012), the WAFIRA pilot between Spain and Morocco (MPF, 2022) and the Seasonal Worker Program between Australia and Pacific islands (World Bank, 2017).

Although encouraging migrants to return is important, it only constitutes the first step in realising the potential benefits of return migration. To ensure return migration benefits a developing country, policy makers need to create the conditions under which return migrants are most likely to contribute to the country's development. One major channel through which return migrants benefit their country of origin is the establishment of a new business. Through the establishment of a business, return migrants create job opportunities, share knowledge with non-migrants and help to develop industries. Understanding the conditions under which return migrants establish a new business, could help developing countries in benefiting optimally from return migration.

¹ A report from the OECD (2008) finds that, depending on the country, between 20% and 50% of the migrants return to the country of origin within 5 years.

² The Thousand Talent Plan, introduced in China in 2008, is one such example encouraging high-skilled workers living abroad to return to China (Liu & Van Dongen, 2016).

Over the last decades, both researchers and policy makers have started to pay an increasing amount of attention to the topic of returnee entrepreneurship (Gruenhagen, Davidsson & Sawang, 2020).³ Within the broader strain of returnee entrepreneurship (RE) literature, a subset of the research considers the various determinants of new business creation. Initially, the research mainly focused on the role financial capital (i.e. overseas savings) plays in the creation of new businesses (Ilahi, 1999; McCormick & Wahba, 2001; Mesnard, 2004; Mesnard & Ravallion, 2006). In general, financial capital is found to be critical in overcoming initial capital and liquidity constraints and is, therefore, considered to be an important determinant of new business creation.

More recently, research has shifted towards the importance of human capital and social ties. With regards to human capital, measures such as education (Martina & Radu, 2012), overseas experience (Wahba & Zenou, 2012) and prior business experience (Krasniqi & Williams, 2018) have been found to be positively associated with new business creation among return migrants. Studies looking at multiple measures of human capital at once have generally confirmed these positive associations (Bao, Qi, Liu & Garst, 2016; Batarjal, 2007; Hagan & Wassink, 2016; Zhou, Farquharson & Man, 2016). Concerning the role of social capital, the extant literature has found that social capital can positively influence new business creation through the transmission of an entrepreneurial attitude, novel knowledge relevant for the local market context and the provision of resources (Farquharson & Pruthi, 2015; Ma, Zhu, Ye & Teng, 2019; Pruthi, 2014; Qin & Estrin, 2015; Wang, 2020).

Although the existing body of RE literature is limited, the associations between individual determinants (e.g. human and social capital) and new business creation have been relatively well-established. In contrast, very little is known about the heterogeneity of these associations. The lack of papers considering the heterogeneity may be a result of the narrow focus of most RE research. Many papers in the RE literature focus specifically on high-skilled return migrants that start businesses in the Zhongguancun Science Park (Gruenhagen et al., 2020). With most return migrants having very similar characteristics (e.g. education level) and a similar context (i.e. the Zhongguancun Science Park), researchers may be less interested in or unable to explore heterogenous effects within the sample.

Batarjal (2007) and Wang (2020) constitute the exceptions in the RE literature. Batarjal (2007) explores the interaction effects between having structural holes in one's network (a form of social capital) and several measures of human capital. Wang (2020) considers the interaction between overseas social ties and institutional distance between the host country and the country of origin. The results from both papers indicate that the determinants of new

³ Returnee entrepreneurs are individuals who return to their home country and establish a new business after having lived abroad for at least a year (cf. Drori, Honig & Wright, 2009)

business creation are not the same for all return migrants. However, given that only two papers explore the topic, a lot is still unknown about the heterogeneity of the associations between determinants and new business creation.

Understanding the heterogeneity is an important part of creating effective policies that encourage business creation among return migrants. Instead of relying on one-size-fits-all policies, understanding the heterogeneity allows policy makers to tailor support to sub-groups of return migrants. As noted by organisations such as International Labour Organization (ILO) and the International Organization for Migration (IOM), tailoring support to sub-groups of return migrants is essential in achieving effective reintegration (e.g. IOM, n.d.; Wickramasekara, 2019). With my thesis, I aim to increase our understanding of the topic by answering the following question:

‘What is the effect of having a high level of overseas and domestic social capital on the probability of establishing a new business upon return to the country of origin for return migrants and how is this effect moderated by the return migrants’ education level?’

In answering the research question, I add to the existing literature in two distinct ways. First, I expand the limited body of literature on the heterogeneity of associations between determinants and new business creation among return migrants, focusing on interaction between social capital and human capital. Using the rich data contained in the DREM database, described below, I am able to find differential association across sub-groups of return migrants. Second, I study the topic of returnee entrepreneurship in an understudied context. In their literature review on the current state of the RE literature, Gruenhagen et al. (2020) combine insights from a total of 74 RE papers. Out of these 74 papers, 45 papers focus on China. Meanwhile, only 12 papers consider the African context and 8 papers focus on Europe.⁴ A similar focus on the Chinese context can be found in the subset of studies focusing on human and/or social capital as determinants of business creation (Bao et al., 2016; Farquharson & Pruthi, 2015; Zhou et al., 2016). As noted by Zahra, Wright and Abdelgawad (2014), the RE literature would benefit from more geographically diverse studies in order to establish the generalities and differences of findings across contexts. Within the subset of RE papers focusing on human and/or social capital as determinants of business creation, only Wahba and Zenou (2012) have focused extensively on the African context. Hence, my thesis

⁴ The overrepresentation of the Chinese context may be a result of the funding required to conduct RE studies. Generally, RE studies rely on interviews specifically conducted for the study at hand, rather than relying on existing databases. Conducting one’s study in the Chinese context, which is highly relevant for RE research due to the high global mobility of Chinese citizens and policies aimed at attracting return migrants (Gruenhagen et al., 2020), may enable researchers to more easily require the necessary funds.

helps to increase the geographical diversity of the RE literature by using data on North-African and Armenian return migrants.⁵

I am able to study this context by relying on the DREM database.⁶ The DREM database is a comprehensive, open-access collection of interviews with 2087 return migrants in Algeria, Armenia, Mali, Morocco and Tunisia. During the interviews, return migrants were inquired about their experiences and characteristics pre-migration, while staying abroad and post-migration. Because of the extensive amount of data available, made possible through funding by the European Union and the Swiss Agency for Development and Cooperation, I am able to paint a detailed picture of the return migrants' migration experience and outcomes.

I find that neither overseas nor domestic social capital is significantly associated with new business creation across the entire sample. However, I find that being highly educated positively moderates the association between domestic social capital and new business creation while negatively moderating the association between overseas social capital and business creation. Combined, the results indicate that significant association between social capital and business creation exist for sub-groups of the return migrant population. My findings are robust to changes in the operationalization of business creation and financial capital, while being sensitive to changes in the definition of being highly educated. The results seemingly contradict the existing RE literature. First, the existing literature has generally found significant associations between social capital and business creation. Second, the literature on the interaction effect between social and human capital predicts moderation effects of being highly educated that have opposite signs. I theorise that the seemingly contradictory results are the result of differences in the operationalization of social capital and the research setting. Unfortunately, due to data restrictions, I am unable to test these theories in detail.

The remainder of the paper is structured into six chapters. Chapter 2 presents the theoretical framework of the paper and contains the formulation of the four main hypotheses. Following the formulation of the hypotheses, Chapter 3 focuses on the data used to test them and includes the operationalisation of key variables. Chapter 4 discusses the methodology of the paper. In particular, this section focuses on the formulation of the main logistic regression models and estimation of marginal effects. In Chapter 5, we find the results from the main logistic regression models and how these findings relate back to the existing literature. I test the *sensitivity* of these results with several robustness checks in Chapter 6. Finally, Chapter 7 contains a conclusion and discussion of the results presented in the previous two sections. Here, I also discuss limitations and directions for further research.

⁵ Mayer, Harima and Freiling (2015) research the role of social capital in the business creation process among return entrepreneurs in Ghana. I have excluded their work from this discussion as the paper is based on just two case studies.

⁶ DREM stands for Database on Return Migrants

2. Theoretical Framework

2.1. Social capital

2.1.1 Conceptualization

The notion that a return migrant's social capital influences their ability to start a new business is rooted in social capital theory. Social capital theory contends that an individual can extract benefits from their social structures, networks and memberships (Bourdieu, 1983; Coleman, 1988, 1990; Loury, 1987; Portes, 1998). In the context of RE, these benefits can be directed towards the establishment of a new business.

To establish a link between social capital and new business creation, one must first conceptualize social capital. In my thesis, I draw upon the work by Adler and Kwon (2002), who define social capital as goodwill available to individuals or groups that is derived from the structure and content of an actor's social relations. In contrast to market relations and hierarchical relations, social relations allow for the diffusion of gifts and favours with the implicit understanding that favours will be returned. Generally speaking, social capital can provide benefits in the form of superior access to information, power and solidarity. The conceptualization of social capital as a diffusion of favours across a network has been widely adopted by the managerial and entrepreneurship literature since the formulation by Adler and Kwon (Payne, Moore, Griffis & Autry, 2010). In turn, this has allowed for more dialogue within the existing literature on the topic of social capital.

Within the broader concept of social capital, the existing literature has made a further distinction between bonding social capital and bridging social capital (Adler & Kwon, 2002; Gittel & Videll, 1998; Putnam, 2000).⁷ Bonding social capital refers to strong bonds of connectedness with homogenous groups that are good for getting by (Putnam, 2000). In contrast, bridging social capital refers to weak ties with heterogeneous groups that are well-suited for getting ahead. I apply this distinction to the context of returnee entrepreneurship by distinguishing between domestic social capital (i.e. social ties in the country of origin) and overseas social capital (i.e. social ties in the main host country), which is in line with the existing RE research (Farquharson & Pruthi, 2015; Ma et al., 2019; Pruthi, 2014; Wang, 2020).

2.1.2 The role of social capital in new business creation

Over the past decades, the entrepreneurial literature has established social capital as an important driver of entrepreneurial activity through several channels. Higher levels of social

⁷ The papers discuss a similar distinction between types of social capital, while applying different labels.

capital have been found to support the creation of a new business by providing access to the necessary knowledge and (financial) resources (Anderson, Jack & Dodd, 2005; Elfring & Hulsink, 2003; Kim & Aldrich, 2005); increasing the individual's ability to recognize opportunities in the local market (Anderson, Park & Jack, 2007; Arenius & De Clerq, 2005; Ozgen & Baron, 2007) and by providing emotional support for entrepreneurial risk taking (Brüderl & Preisendörfer, 1998; Gimeno, Folta, Cooper & Woo, 1997). Additionally, the presence of entrepreneurs in one's network can increase new business creation, as these entrepreneurs act as role models and change the social perception of entrepreneurship (Davidsson & Honig, 2003; Hoang & Gimeno, 2010; Klyver, Hindle & Meyer, 2007; Nicolaou & Birley, 2003).

Although the identified channels have been a useful starting point for the RE literature, specific findings from the entrepreneurial literature have limited value for the RE context. First, the entrepreneurial literature has generally focused on social ties that are geographically and temporally confined (Qin & Estrin, 2015). In contrast, return migrants move across several countries establishing geographically distant social ties, which evolve over time as return migrants move between the country of origin and host country. Second, return migrants often return to an emerging market context where markets and institutions are underdeveloped (Batjargal et al., 2013; Li, Yan, Liu, Zhou & Zhang, 2012; Pruthi, 2014). As a result, the importance of different types of social capital may be different compared to the findings in the entrepreneurial literature focusing on developed countries.

Pruthi (2014) constitutes an important starting point in understanding the role of different types of social ties in the return migrants' business creation process. Based on 20 in-depth interviews with high-skilled entrepreneurs in India, Pruthi finds that both overseas social ties (i.e. industry ties abroad) and domestic social capital (i.e. industry and family ties at home) can positively contribute to the creation of a new business via the validation of business ideas and the provision of resources. Whereas family ties play an important role for all return entrepreneurs, overseas social capital is found to be particularly important for those who already planned to start a business before returning home. The return entrepreneurs, who decided to start a business after their return, often substitute overseas social capital with the support of family ties. Farquharson and Pruthi (2015) similarly conducted 10 in-depth interviews with Chinese return entrepreneurs in the high-tech sector. Compared to Pruthi (2014), overseas social capital (i.e. educational and industry ties) tends to play a more important role in validating the technology and the business idea for the start-up more generally. At the same time, family ties are found to play an additional role in the start-up process by creating indirect weak ties with the Chinese government.

In addition to these qualitative RE studies, the role of social capital has also been studied quantitatively. Wang (2020) uses data on skilled return migrants, all of whom had

worked in the United States, across 98 different countries of origin to analyse the importance of overseas social ties (i.e. frequency of contact with overseas colleagues) for entrepreneurial entry. He finds that stronger overseas ties lead returnees to be more likely to establish a business. Additionally, the study finds that the association between social capital and business creation is negatively moderated by the institutional distance between the host country (i.e. United States) and the country of origin. Qin and Estrin (2015) confirm that overseas social ties can positively impact new business. The researchers use data on over 3,000 overseas alumni of a leading Indian Institute for Technology and find that the share of former dorm mates, that have become an entrepreneur by the time of the study, positively influences an individual's likelihood of entrepreneurial entry.

Unfortunately, the existing RE literature contains no empirical studies focusing on the role of domestic social capital on business creation specifically. Nonetheless, Ma et al. (2019) study the role of overseas social and human capital as well as domestic social and human capital on firm performance of returnee entrepreneurs using survey data on 500 RE start-ups in China. The researchers find that both the domestic and overseas social capital, as well as the overseas human capital is positively associated with business performance. Furthermore, the researchers find that both domestic social and human capital positively interact with being in an entrepreneurial environment. Although these findings do not directly relate to the determinants of business creation, they underline the importance of (domestic) social capital in RE businesses.⁸

2.1.3 Hypotheses H1 and H2

The findings in the entrepreneurial literature, as well as the RE literature, support the notion that both domestic and social capital are important determinants of RE business creation. This leads me to formulate the following hypotheses:

H1: Overseas social capital will be positively associated with business creation

H2: Domestic social capital will be positively associated with business creation

Although the RE literature consistently finds that overseas and social capital are important determinants of business creation, these findings are mostly limited to the Indian and Chinese context focusing on high-skilled migrants. As a result, it is unclear how the relative importance of domestic and social capital will translate to the North-African context I focus on, where

⁸ Batarjal (2007) also studies the role of domestic social capital on RE firm performance. However, the conceptualization of social capital (i.e. structural holes in one's network), which is based on the idea that individuals broker connections between unconnected networks, has a different theoretical foundation from the conceptualization of social capital used in my thesis. As a result, the relevance of these findings for my thesis is limited.

institutional context is different and return migrants are distributed more evenly across the skill spectrum. Section 5 will discuss the differences between the Asian and African contexts in more detail, exploring potential reasons for the differences in findings between my thesis and the existing RE literature.

2.2 The interaction between social capital and human capital

2.2.1 The RE literature

The existing RE literature exploring the heterogeneous effect of social capital on business creation is limited. Still two papers have been written on the topic. Wang (2020) finds that, while overseas social ties have an overall positive effect on business creation, the effect is negatively moderated by the institutional distance between the host country (i.e. the United States) and the country of origin. Batjargal (2007) uses data from 94 Internet start-ups in Beijing to study the effect of social capital (i.e. structural holes) and human capital (i.e. western experience, start-up experience and internet industry experience) on business performance. When interacting the measure of social capital with the human capital measures, the author finds mixed results. While the association between social capital and business performance is positively moderated by having western experience, it is negatively moderated by having start-up experience. Furthermore, the results show no significant interaction effect between social capital and internet industry experience. Although these findings do not relate directly to the context of my thesis, they illustrate that the impact of social capital is conditional on the return migrant's characteristics and migration cycle.⁹

2.2.2 The entrepreneurial literature

Scholars addressing the interplay between human and social capital within the broader entrepreneurial literature have traditionally formulated two conflicting hypotheses: the complementary view and the compensatory view (Semrau & Hopp, 2016). The complementary view is based on the idea that superior human capital endowments lead to a more effective use of social capital. Additionally, superior social capital is argued to allow an individual to make better use of his or her human capital (Florin, Lubatkin & Schulze, 2003). The compensatory view was introduced by Brüderl and Preisendörfer (1998), who referred to it as the 'network compensation hypothesis'. The hypothesis suggests that social capital can be used to compensate for shortfalls in one's human capital. When one's level of human capital is high, social capital is expected to add significantly less value creating a negative interaction effect. Because of the mixed results in the existing literature, both views can be (partially)

⁹ As for the relevance of Batarjal (2007), see the previous footnote.

supported with empirical evidence (Florin, 2003; Carrión, Izquierdo & Cillán, 2016; Klyver & Schenkel, 2013; Santarelli & Tran, 2013).

Semrau and Hopp (2016) propose that both the compensatory and complementary views are correct, depending on the type of social and human capital that is being considered. In their study, the authors focus on two types of social capital: informational social capital and financial social capital. Human capital is measured as education, industry experience and founding experience. The authors argue that the informational social capital will produce a negative interaction effect with human capital as an individual with a high level of human capital possesses a lot of information himself. As a result, information from his or her social network is more likely to be redundant. Conversely, a high level of human capital will increase the individual's ability to make effective use of the financial assets within the social network. The hypotheses are generally confirmed by the authors' findings. Yavuz (2021) follows up on the research conducted by Semrau and Hopp (2016) by considering a different distinction in social capital, informal social capital and formal social capital. Human capital is measured by one's education level. The author finds that education amplifies the effect of formal social capital, but diminishes the value of informal social capital. In the case of formal social capital, the author argues that more education allows the individual to assess the value of unfamiliar information. In the case of informal social capital, education makes the information more redundant.

2.2.3 Hypotheses H3 and H4

Combined, Semrau and Hopp (2016) and Yavuz (2021) argue that the hypothesised interaction effect between social capital and human capital depends on the specific type of human and/or social capital that is being considered. Generally, the papers find that individuals with higher levels of human capital benefit more from formal and financial social ties, leading to a positive interaction effect. The authors explain this finding by noting that individuals with high levels of human capital are better able to identify and realise the value of the information and resources embedded in formal and financial social ties. In contrast, individuals with higher levels of human capital are found to benefit less from informal and informational social ties, leading to a negative interaction effect. The authors argue that the information and resources provided by these social ties are more redundant for individuals with high levels of human capital (e.g. highly educated individuals), who already possess the basic resources themselves.

As noted by Wang (2020), overseas social capital is regarded as a source of complex and novel information that is applicable to the local market context to a differing degree, depending on the host country, country of origin and the industry. This perspective of overseas social capital is in line with the formal and financial social capital identified by Semrau and

Hopp (2016) and Yavuz (2021). Meanwhile, domestic social capital is made up in large part by family ties and ties with close friends (Farquharson & Pruthi, 2015; Pruthi, 2014). As a result, these relations are likely to overlap more in nature with the informal and informational social ties identified by the authors. Translating the findings of the broader entrepreneurial literature to the RE context of my thesis, I formulate the following hypotheses:

H3: Being highly educated positively moderates the association between overseas social capital and business creation.

H4: Being highly educated negatively moderates the association between domestic social capital and business creation.

3. Data

3.1 The DReM

To test my hypotheses, I draw on cross-sectional data from the Database on Return Migrants (DReM). The DReM dataset consists of two large scale field surveys: 1) the MIREM project and 2) the CRIS project. The MIREM project was funded by the European Union and took place between 2005 and 2008. In total, the project resulted in 992 interviews with return migrants in Algeria, Morocco and Tunisia, which took place in 2006. The CRIS project was funded by the Swiss Agency for Development and Cooperation and took place between 2011 and 2014. In 2012, the researchers interviewed 1095 return migrants across Armenia, Mali and Tunisia. Both projects were supervised by Jean-Pierre Cassarino during his time at the European University Institute.

All individuals included in the final sample of the MIREM and CRIS project aligned with the following definition: *'Any person returning to his/her country of origin, in the course of the last ten years, after having been an international migrant (whether short-term or long-term) in another country, for more than one year. At time of survey, respondents returned to their countries of origin for more than three months. Return may be permanent or temporary.'* To interview respondents meeting this definition, the researchers worked with local partner institutions. These organisations used their knowledge of the field as well as contacts with migration-aid organisations aiming to interview a sample of return migrants that is consistent with the sex and geographical distribution of the return country. Interviews were conducted both in private and in public. Although the replication of the geographical distribution seems to have been successful, over 76% of the interviews were conducted with men.

The questionnaire used in the MIREM project formed the basis for all interviews with the respondents in the CRIS project receiving some additional questions. The questionnaire is split into three stages. The first stage inquires about the demographic characteristics. Furthermore, the questions in stage 1 focus on the reason for emigrating abroad and the individual's level of social, human and financial capital before doing so. The second stage shifts attention to the period during which the individual was abroad, asking similar questions about one's social, human and financial capital. Finally, the third stage inquires about these aspects at the moment of the interview.¹⁰

¹⁰ For more details on the methodology and to download the DReM database and questionnaire, visit <https://www.jeanpierrecassarino.com/datasets/dataset-on-return-migrants/>

3.2 Operationalisation of variables

3.2.1 Business Creation

The DReM questionnaire does not contain a direct measure of new business creation upon return to the country of origin. Therefore, I have created a proxy using a combination of questions. For my proxy of business creation to take value 1, the respondent needs to answer 'Yes' to the following question: 'Upon return, did you undertake any investment in your country of origin?'.¹¹

To filter out investments that are unlikely to have led to a new business, I restrict the definition of business creation to investments over €500. Furthermore, an individual needs to identify as a manager or entrepreneur upon return. The latter restriction increases the likelihood that the respondent is the person in charge of the newly created business and is thus able to create the economic benefits to the local community discussed in Section 1. After applying the restrictions, two concerns remain. First, the investments in business projects meeting the minimum threshold could be used to grow the respondent's existing business instead of creating a new venture. Second, the employment status 'manager/entrepreneur' is reported as a single category, while I am solely interested in respondents identifying as an entrepreneur.

To address the first concern, business creation does not take value 1 when respondents report identifying as 'manager/entrepreneur' before migrating abroad. By only focusing on new managers and entrepreneurs, I enhance the chance that the proxy variable represents investments in newly established businesses. I further restrict my definition of business creation to business projects with fewer than 50 employees at the time of the interview. I expect business projects with fewer than 50 employees to be relatively young (and potentially growing). It is therefore more likely that the respondent identifying as 'manager/entrepreneur' is in fact an entrepreneur that recently established a new company and not a manager of an pre-existing, mature business.

When an observation meets the four requirements outlined above, the proxy variable 'business creation' takes on value 1 and 0 otherwise. Section 6 includes robustness checks to test the sensitivity of the main results to these requirements.

¹¹ An interview with Jean-Pierre Cassarino revealed that the respondents were informed that this question solely regarded direct investments in business projects.

3.2.2 Social Capital

Social capital is assessed using two existing questions from the questionnaire. Each question is recoded into a binary variable taking on value 1 if the respondents' social capital belongs to the top 50% of the sample.¹²

To measure overseas social capital, I rely on question I2: 'In general how would you describe your relationship with the host society?'. Individuals gave one of five possible answers: 1) Very Good, 2) Good, 3) I had some problems, 4) I had many problems, 5) No opinion. After recoding the response 'No opinion' as missing, I created the binary variable 'relationship host', which takes on value 1 if the respondent reports having a very good relationship with the host country and 0 otherwise.

To measure domestic social capital, I rely on question M6: 'During the last year of your stay in the main country of immigration, how often did you visit your country of origin?'. Individuals gave one of four possible answers: 1) Twice or more per year, 2) Once a year, 3) Less than once a year, 4) Never. The corresponding binary variable 'visit home' takes on value 1 if the respondent answered 'Twice or more per year' or 'Once a year' and 0 otherwise.

3.2.3 Highly Educated

To interact the respondent's social capital with their level of education, I create a binary variable measuring whether the respondent is highly educated upon return to the country of origin. To create this measure, I start off with the respondents highest level of education before migrating above (Question B1). The questionnaire specifies 7 levels of education: 1) No education, 2) Primary School, 3) Incomplete Secondary School, 4) Completed Secondary School, 5) Bachelor/Master, 6) Doctoral Degree and 7) Other.

I then change the respondent's level of education to that of the education enjoyed abroad (Question K3) if two conditions are met. First, the level of education enjoyed abroad must be higher than the highest level of education before moving abroad. Here, I consider the category 'Other' to be the lowest level of education. Second, the diploma achieved with the education enjoyed abroad must be recognized in the country of origin. By following these steps, I create a variable measuring the respondents' level of education upon return.

To be considered highly educated in the main model, the respondent must have completed secondary schooling upon return to the country of origin. Using this cut-off point splits the sample as evenly as possible between being and not being highly educated. In Section 6, I include two robustness checks exploring the sensitivity of the main model's results to the cut-off point of being considered highly educated.

¹² As the questions include a limited number of answers, a cut-off is chosen that splits the sample as evenly as possible.

3.2.4 Control Variables

Financial Capital

The existing RE literature has found that financial capital is an important determinant of business creation, especially in overcoming financial constraints when external financial assets are hard to mobilise (Ilahi, 1999; McCormick & Wahba, 2001; Mesnard, 2004; Mesnard & Ravallion, 2006). Therefore, financial capital constitutes an important control variable. Question L12.1 (How much money did you have on an average per month at your own disposal (state currency used)?) seems to be a reliable measure of the return migrant's financial capital, being close to the moment of return. Unfortunately, question L12.1 was only included in the questionnaire of the CRIS project. Hence, only half of the respondents in the consolidated database answered the question.

Throughout my thesis, I use two approaches to circumvent the data limitation. The main operationalisation of financial capital constitutes a subjective financial capital score between 1 and 17. The score is based on questions C5 and L8, which are included in both versions of the questionnaire. Question C5 reads as follows: 'At the time of emigration, how was your financial situation?'. Respondents gave one of five answers: 1) Very Good, 2) Good, 3) Average, 4) Not Good, 5) Very Bad. Question L8 asks respondents the following: 'In your opinion, has your financial situation in the main country of immigration...?'. In response, the respondents replied with one of five answers: 1) Improved Considerably, 2) Slightly Improved, 3) Remained Unchanged, 4) Worsened, 5) Worsened Considerably. To combine the two questions into a single financial capital, I start by assigning a score of 1 to 5 based on question C5. Here, 'Very Good' is converted into a score of 5 while 'Very Bad' gives a score of 1. Then, I adjust the base score with the answers to question L8. An additional score of 12 is added when an individual answers 'Improved Considerably'. Conversely, the score remains the same when an individual answers 'Worsened Considerably'. Points are added in steps of three for all answers in between. In the end, this leaves us with a subjective financial score between 1 and 17. A score of 1 means that an individual indicated to have a very bad financial situation before emigration and that the financial situation worsened considerably during their stay abroad. A score of 17 implies that the individual's 'Very Good' initial financial situation improved considerably during their stay abroad. I determined the relative weights of question C5 and L8 by a series of tests, eventually ending up with a score distribution that matched the non-missing data from question Q12.1 relatively well. As the final score has 17 ordinal values, it is treated as continuous variables throughout the main model specifications.

In addition to the main operationalisation, Section 6 contains a robustness test for the financial capital operationalization. For this robustness check, I apply multiple imputation to predict the missing values of Q12.1 based on the return migrant's other characteristics. More

details on the intuition, justification and of multiple imputation to measure financial capital can be found in Section 6 and Appendix A.

Other Control Variables

Within the existing RE literature, there is little consensus on the appropriate control variables to be used when researching returnee entrepreneurship. Hence, my main empirical approach will include different sets of control variables commonly found in the literature.

Besides financial capital, there are two control variables that are present across the entire body of RE and entrepreneurial literature: age and gender. In some papers, age and gender even act as the sole controls (Davidsson & Honig, 2003; Ma et al., 2019). Age is generally found to be negatively associated with the probability to start a new business. Conversely, identifying as male is found to be positively associated with business creation. Throughout the rest of the thesis, the control variables age, gender and financial capital will be referred to as 'core control variables'.

Building on these core control variables, I consider the year of an individual's return in line with Klyver and Schenkel (2013) to control for any structural effects that could have affected the creation of businesses, such as general economic conditions. To limit the number of control variables, I create dummy variables for the periods 1996-2000, 2001-2005 and 2006-2011. I also control for the individual's home country as well as the main country of immigration, to account for potential differences in business creation opportunities and selection effects. As there are only five different countries of origin in the sample, I control for each individually. In contrast, the dataset contains 69 different countries of immigration, with most of the countries having less than 10 observations. Therefore, I control for the country's GDP per head instead. The GDP per head is measured by averaging the GDP per head in 2002 and 2011, reported in US Dollars by the World Bank (n.d.).¹³ Lastly, I control for the natural logarithm of the number of years abroad. The combination of the core control variables as well as those described above will from now on be referred to as the 'extended set of control variables'.

In addition to the extended set of control variables, I add to the existing literature by controlling for the main reason for migrating abroad and the migrant's type of return. Together with the time abroad, these controls provide a detailed insight into the respondents' migration cycle. The main reason for migrating abroad is measured using question E1: 'What were your three main reasons for leaving your country of origin? (Order according to your priority)'. I clustered the 17 potential answers into five categories: 1) Job-related, 2) Family-related, 3)

¹³ Alternatively, I could have added continent fixed effects. However, due to the uneven proportions of observations across the continents (see Appendix B-1), I decided to control for the country of immigration using GDP per head.

Studies, 4) Forced and 5) Other. Appendix B-2 includes a detailed overview of the categorization. The type of return can be split up into 'voluntary', 'involuntary' and 'forced'. In line with the work by Cassarino (2014), voluntary return entails that the respondent achieved their migration goals before deciding to return to the country of origin. An involuntary return is characterised by a negative event or set of events after which the respondent decides that returning to the country of origin is better (read: less bad) than staying abroad. A forced return is a return that was not decided upon by the respondent. The type of return is determined by looking at the question O.1 and O1.1. Question O.1 inquires whether the individuals' return was forced. Those whose return was not forced also answered question O1.1: 'What were your three main reasons for returning to your country of origin? (Order according to your priority)'. Appendix B-3 provides an overview of how the answers to question O.1.1 are categorised into the individual's type of return. The reason for migrating abroad and the type of return combine with the extended set of controls to form the 'full set of controls'.

3.3 Summary Statistics

Table 3.1 provides summary statistics of the main variables included in the empirical models in Section 5. The statistics include the mean, summary statistics as well as the pair-wise Pearson correlation of the variables. The table shows that around 7% out of the final sample of 1773 individuals is considered to have started a new business upon return, which is within the wide range of estimates found in the RE and entrepreneurship literature.¹⁴

Furthermore, having a very good relationship with the host society ($r = 0.11$, $p < .01$) and visiting the home country at least once per year ($r = 0.15$, $p < .01$) is positively and highly significantly associated with business creation upon return. In contrast, being highly educated is only positively associated at a 10% significance level.

Table 3.2 shows that the mean age across the final sample was 38 years and that the return migrants spent, on average, 11 years and 4 months abroad. As can be observed by the minimum value, the final sample was restricted to only include individuals that have stayed abroad for at least a year and were aged between 18 and 70 years at the moment of return. More details on the final sample selection can be found in Section 4.2. The average subjective financial score of the final sample is 11.97, including individuals across the entire financial spectrum. The GDP per head of the main host country of the return migrants averages out to 23335.40 US Dollars. Large differences exist between individuals with the highest and lowest GDP per head being 66467.75 and 272.66 respectively.

¹⁴ For instance, Wang (2020) finds that 14.5% of the returnees have started a new venture. At the same time, Klyver and Schenkel (2013) find that only 4.6% of the population across 10 different countries has started a new business.

Table 3.3 shows the distribution of observations between the categorical control variables. Looking at the number of observations per home country, we observe that more than a third of respondents reside in Tunisia. The relatively large share results from the fact that both the CRIS and MIREM project conducted interviews in Tunisia.

Table 3.1

Descriptive Statistics and Pair-Wise Correlations of Main Variables

| | Mean | SD | 1 | 2 | 3 | 4 |
|----------------------|------|------|---------|---------|---------|---|
| 1. Business Creation | 0.07 | 0.25 | - | | | |
| 2. Highly Educated | 0.57 | 0.50 | 0.04* | - | | |
| 3. Relation Host | 0.33 | 0.47 | 0.11*** | 0.13*** | - | |
| 4. Visit Home | 0.46 | 0.50 | 0.15*** | 0.03 | 0.17*** | - |

Note: The number of observations for all variables is 1773

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 3.2

Descriptive Statistics Numeric Control Variables

| Variable | Obs | Mean | SD | Min | Max |
|------------------------|------|----------|----------|--------|----------|
| Age at Return | 1773 | 38.00 | 12.46 | 18.00 | 70.00 |
| Time Abroad (in years) | 1773 | 11.33 | 11.28 | 1.00 | 51.00 |
| Financial Score | 1689 | 11.97 | 2.83 | 1.00 | 17.00 |
| GDP per Head (USD) | 1773 | 23335.40 | 15035.31 | 272.66 | 66467.75 |

Table 3.3
Descriptive Statistics Categorical Control Variables

| | Obs | % |
|-----------------------------|------|------|
| Male | | |
| Yes | 1362 | 76.8 |
| No | 411 | 23.2 |
| Year of Return | | |
| 1996-2000 | 277 | 15.6 |
| 2001-2005 | 800 | 45.1 |
| 2006-2011 | 696 | 39.3 |
| Home Country | | |
| Algeria | 289 | 16.3 |
| Armenia | 312 | 17.6 |
| Mali | 320 | 18.0 |
| Morocco | 201 | 11.3 |
| Tunisia | 651 | 36.7 |
| Reason for Migrating | | |
| Job | 842 | 47.5 |
| Family/Friend | 278 | 15.7 |
| Studies | 251 | 14.2 |
| Forced | 50 | 2.8 |
| Other | 651 | 19.9 |
| Type of Return | | |
| Interrupted | 529 | 29.8 |
| Complete | 611 | 34.5 |
| Incomplete | 633 | 35.7 |

4. Methodology

4.1 Main empirical approach

4.1.1 The logistic model

To test the role of social capital and its interaction effect with education level on the probability that a respondent establishes a new business upon return, I estimate the following logistic regression:

$$\ln\left(\frac{BC_i}{1-BC_i}\right) = \beta_0 + \beta_1 OSC_i + \beta_2 DSC_i + \beta_3 EduH_i + \beta_4 (OSC_i \times EduH_i) + \beta_5 (DSC_i \times EduH_i) + \sum_j \beta_j X_{i,j} + \varepsilon_i$$

Equation 4.1: Main Logistic Model Specification

Where OSC_i and DSC_i represent the binary variables for overseas social capital and domestic social capital respectively. $EduH_i$ is a measure that takes value 1 if the respondent is highly educated. To measure the mediating effect of education on the association between both overseas and domestic social capital and business creation, the main specification includes two interaction effects, $(OSC_i \times EduH_i)$ and $(DSC_i \times EduH_i)$. $X_{i,j}$ is the j^{th} control characteristic of individual i and ε_i is the error term.

In addition to the robustness checks described in Section 6, I generate four specifications of every model described throughout the thesis. The first specification includes only financial capital, age and gender as control variables (i.e. the core controls). The second specification controls for the extended set of controls described in Section 3.2.4. Third, I estimate a specification including the full set of control variables. These specifications do not yet include the interaction effect between social capital and being highly educated. Therefore, I estimate a fourth specification including the full set of controls as well as the interaction terms. This last specification is outlined in equation 4.1.

4.1.2 Average marginal Effects

In order to interpret the effect sizes of the coefficients generated using the logistic model specifications, I calculate the models' average marginal effects. To accomplish this, I first calculate the marginal effect of variable x_i on the probability of establishing a business upon return given the individual i 's other characteristics for every individual in the final sample. Then, I determine the average marginal effect by calculating the mean of all individual marginal effects. Equation 4.2 contains the marginal effect of variable j for individual i for continuous

variables. Meanwhile, Equation 4.3 contains the marginal effect of variable j for individual i for discrete variables.

$$ME_{i,j} = \frac{\partial PR(BC_i=1)}{\partial x_{i,j}}$$

Equation 4.2: Marginal effects for continuous variables

$$ME_{i,j} = PR(BC_i = 1|x_{i,j} = 1) - PR(BC_i = 1|x_{i,j} = 0)$$

Equation 4.3: Marginal effects for discrete variables

4.2 Final sample selection

The final sample used for the main logistic model specifications consists of 1689 individuals. This represents a reduction of 398 observations compared to the 2087 observations found in the DReM dataset. The smaller size of the final sample can be explained by two factors.

First, I dropped observations based on three separate conditions. To be part of the final sample, I required respondents to: 1) be between the age of 18 and 70 upon return, 2) have lived abroad for at least a year consecutively before returning to the country of origin and 3) have returned to the country of origin at least one year prior to the interview. Combined, these conditions ensure that respondents have had sufficient opportunity to build social capital overseas and establish a business upon return to the country of origin.

Second, I rely on complete case analysis for the main logistic model specifications. This means that only those individuals with non-missing values for all variables included in the logistic regression specification are considered. The observations with partially missing values are not used in the analysis and thus dropped from the sample.

It is important to note that the sample size of the descriptive statistics in Section 3 is slightly bigger, totalling 1773 individuals. Similar to the final sample of 1689, the sample in Section 3 includes only individuals with non-missing values for the variables included in the main logistic regression specifications. However, an exception is made for individuals with a missing value for the 'financial score' variable. This exception is made as the robustness check for financial capital, which applies complete case analysis after imputing missing data from Question L12.1, does not use the subjective financial score measure. As a result, it includes all 1773 observations in the analysis (See Appendix A). With two separate sample sizes used throughout the thesis, I have decided to generate the descriptive statistics using the sample of 1773 observations.

5. Results

5.1 Introduction

Throughout Section 5, the results from the main model specifications will be discussed. I use the raw logistic regression output to test the hypotheses formulated in Section 2.¹⁵ Estimating the average marginal effects aids in interpreting the effect sizes of the logistic regression output.¹⁶ Following Section 5, Section 6 will explore the sensitivity of the findings to the specific operationalization of key variables. Furthermore, Section 6 explores several potential explanations for the differences between my findings and those of the existing RE literature.

5.2 Main model results

5.2.1 Testing H1 and H2

Table 5.1 presents the results from the main model specifications. The main model specifications are all based on the main operationalisation of key variables described in Section 3.2. Each column contains a different set of control variables, testing the sensitivity of the results.

Let us begin by testing H1 and H2. As discussed, Hypothesis 1 states that overseas social capital will be positively associated with business creation upon return. Similarly, Hypothesis 2 states that domestic social capital will be positively associated with business creation upon return. To test H1 and H2, we first shift our attention to column 'Full'. This column contains the full sets of control variables without interaction terms. The lack of interaction terms means that the model captures the associations over the entire sample.

The results in column 'Full' indicate that having a very good relationship with the host society is not significantly associated with new business creation. As a result, I reject H1. The results in column 'Full' also indicate that visiting the country of origin while living abroad at least once a year is positively associated at a 10% level. Although results in the columns 'Core' and 'Extended' present positive associations between visiting the country of origin and business creation at a 1% level, the findings in column 'Full', lead me to reject H2 as well. The rejection of H1 and H2 means that the logistic regression results suggest no significant association between social capital and new business creation over the entire sample.

¹⁵ I do not reject a hypothesis when the relevant coefficients are significantly different from 0 at a 5% significance level

¹⁶ As the average marginal effects are a combined measure of individual marginal effects, the average marginal effect estimates cannot provide us information on the effect sizes of interaction terms.

It is important to note that the results in Table 5.2, which presents the average marginal effects of the main model specifications, suggest that the association between domestic social capital and business creation is positive and significant at a 5% level.¹⁷ Although the signs and significance levels of the average marginal effects and logistic regression coefficients generally overlap, the focus on probability and log-odds respectively can lead to different conclusions. As I focus on the logistic regression coefficients across all hypotheses, I still reject H2.

Table 5.1
Main Model Specifications

| | Core | Extended | Full | Interactions |
|---------------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Core Model Results | | | | |
| Highly Educated | 0.359 (0.231) | 0.523 * (0.282) | 0.557 * (0.314) | 0.134 (0.497) |
| Relationship Host | 0.545 *** (0.203) | 0.364 (0.226) | 0.339 (0.230) | 0.993 *** (0.362) |
| Visit Home | 1.091 *** (0.230) | 0.713 *** (0.256) | 0.519 * (0.269) | -0.294 (0.387) |
| HE # Relationship Host | | | | -1.005 ** (0.449) |
| HE # Visit Home | | | | 1.403 *** (0.502) |
| Financial Score | 0.113 ** (0.044) | 0.110 ** (0.048) | 0.105 ** (0.051) | 0.099 * (0.051) |
| Age at Return | -0.004 (0.008) | -0.077 *** (0.015) | -0.084 *** (0.015) | -0.082 *** (0.015) |
| Male | 2.409 *** (0.590) | 2.290 *** (0.597) | 2.284 *** (0.565) | 2.329 *** (0.575) |
| Number of observations | 1689 | 1689 | 1689 | 1689 |
| Control Variables | | | | |
| Year of Return | NO | YES | YES | YES |
| Home Country FE | NO | YES | YES | YES |
| Host Country GDP | NO | YES | YES | YES |
| Time Abroad | NO | YES | YES | YES |
| Reason Emigration | NO | NO | YES | YES |
| Type of Return | NO | NO | YES | YES |

Note. The table includes the results of logistic regressions using the main operationalization of key measures described in Section 3.2. HE stands for 'Highly Educated'.

Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1

¹⁷ The results suggest that, on average, visiting the home country at least once a year increases the probability of starting a new business by 2.7 percentage points ceteris paribus.

Table 5.2
Marginal Effects of Main Model Specifications

| | Core | Extended | Full | Interactions |
|------------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Highly Educated | 0.022 (0.014) | 0.028 * (0.015) | 0.029 * (0.017) | 0.033 ** (0.017) |
| Relationship Host | 0.035 *** (0.013) | 0.020 (0.013) | 0.018 (0.013) | 0.021 (0.013) |
| Visit Home | 0.063 *** (0.013) | 0.037 *** (0.013) | 0.027 ** (0.013) | 0.028 ** (0.013) |
| Financial Score | 0.007 ** (0.003) | 0.006 ** (0.003) | 0.006 ** (0.003) | 0.005 * (0.003) |
| Age at Return | -0.000 (0.000) | -0.004 *** (0.001) | -0.004 *** (0.001) | -0.004 *** (0.001) |
| Male | 0.148 *** (0.038) | 0.124 *** (0.033) | 0.121 *** (0.032) | 0.122 *** (0.032) |
| Number of observations | 1689 | 1689 | 1689 | 1689 |

Note. The table includes the average marginal effects of the core model variables in Table 5.1.

Standard errors are in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .1$

5.2.2 Testing H3 and H4

Hypothesis 3 and 4 focus on the interaction terms between social and human capital. Hypothesis 3 states that being highly educated positively moderates the association between overseas social capital and business creation. Hypothesis 4 states that being highly educated negatively moderates the association between domestic social capital and business creation.

Column 'Interactions' contains the results that are relevant for testing H3 and H4. Because of the inclusion of the interaction effects, the coefficients of the variables 'Relationship Host' and 'Visit Home' represent the association between having a high level of social capital and business creation upon return for the individuals that are considered to have a low level of education. The coefficients of the interaction terms represent the moderation of this association for highly educated individuals.

The results suggest that having a very good relationship with the host society is positively associated with business creation for individuals with low levels of education ($\beta=0.993$) at a 1% level. In contrast to H3, the interaction term indicates that being highly educated negatively moderates this association ($\beta=-1.005$). As a result, the association between overseas social capital and business creation is around 0 for highly educated individuals ($0.993 - 1.005$).

Furthermore, the results show that visiting the home country at least once a year while being abroad is not significantly associated with business creation for individuals with low levels of education. Being highly educated positively moderates this association ($\beta=1.403$) at a 1% level. As a result, the association between visiting the home country and business

creation seems to be positive (-0.294 + 1.403). As the signs of the interaction effects I find are the opposite of those proposed in H3 and H4, I reject both.

5.3 Potential explanations

All in all, the findings in Table 5.1 lead me to reject all four hypotheses formulated in Section 2. As these hypotheses are based on the existing RE and entrepreneurial literature, my findings seem to contradict the existing literature. To develop a better understanding of my findings and how they relate to the existing literature, I will start by discussing several reasons which could explain the seemingly contradictory results. Then, throughout Section 6, I will create alternative model specifications to test these explanations empirically.

Focusing first on H1, I find that overseas social capital is not significantly associated with new business creation. A possible explanation for rejecting H1 is the fact that the variable 'Relationship Host' does not measure the relevant types of overseas social capital. Whereas my operationalization focuses on the broader sense of good network relationships, the existing literature focuses on business contacts in particular (Farquharson and Pruthi, 2015; Pruthi, 2014; Qin & Estrin, 2015; Wang, 2020). For instance, Wang (2020) defines overseas social capital as maintaining frequent contact with overseas colleagues after returning to the country of origin. To test the importance of focusing on business relations specifically, Section 6 includes an alternative specification of the main model with an operationalization of overseas capital that better captures one's business-related relations.

Alternatively, the differences between my findings and those in the existing literature could be due to differences between the African and Asian entrepreneurial context. Wang (2020) finds that the positive association between overseas social capital and business creation is negatively moderated by institutional distance between the host country and the country of origin. The author explains his findings by noting that resources embedded in overseas social capital become less relevant as the institutional distance between countries increases. Big institutional differences between European countries, which represent 69.1% of the return migrants' host country in my sample (See Appendix B-1), and North-African countries could thus explain the lack of a positive association between overseas social capital and new business creation in Table 5.1. Unfortunately, due to a lack of open-source data on institutional distance between the countries in my sample, I am unable to test the extent to which this theory explains the rejection of H1.

Following a similar line of reasoning to the idea of institutional distance, return migrants could also be unable to translate overseas social capital into new businesses due to large technological gaps between the host country and the country of origin. In 1966, Nelson and Phelps developed the idea of technological catch-up across countries. It entails that countries

lagging behind the technological frontier can develop faster than more advanced countries by imitating and integrating technologies discovered in the more advanced countries. However, later work has found that the process of technological catch-up is not automatic (Verspagen, 1991). In order to imitate and integrate knowledge from above, a country must be able to apply the knowledge in its own economy which requires the necessary learning capability (educated labour force, quality of infrastructure et cetera). When large technology gaps exist between the lagging countries and countries at the technology frontier, the lagging country can actually fall farther behind. In the RE context, the inability of African countries to adopt new technologies may hinder their ability to exploit overseas social capital to start a new business. To explore the relevance of technology gaps, Section 6 includes an alternative model specification, which controls for the technology gap between the host country and country of origin by measuring the difference in GDP per head between both countries.

In contrast to H1, I do not find it necessary to explore explanations for the rejection of H2. As both the model specifications controlling for the core and extended sets of controls found positive associations at a 1% significance level, the findings in Table 5.1 provide considerable support for the hypothesis. Additionally, Table 5.2 shows that the average marginal effect of domestic social capital is positive at a 5% level when controlling for the full set of controls. Given these findings, it is plausible that rejecting H2 is the result of a limited sample size and an indirect measurement of domestic social capital.

Shifting our attention to H3, I find that being highly educated negatively moderates the association between overseas social capital and business creation. In developing H3, I hypothesised overseas social capital to be a source of novel and complex information. My focus on the broader sense of good network relationships with the host countries may have insufficiently measured sources of novel and complex resources that overseas business relations can provide. As a result, this could explain the rejection of H3. In Section 6, I elaborate on this idea, relying once more on the alternative model specification which focuses on business-related relations in particular.

Finally, my findings reject H4 as I find that being highly educated positively moderates the association between domestic capital and business creation. In formulating H4, I contrasted domestic social capital with overseas social capital by assuming that domestic social capital provides return migrants with informational and informal resources. However, the existing literature that family ties and close friends can also be a source of more complex resources in the absence of sufficient overseas social capital (Farquharson & Pruthi, 2015; Pruthi, 2014). Additionally, Pruthi (2014) argues that migrants returning to countries with relatively low levels of institutional infrastructure for business creation may be especially inclined to rely on family ties for complex resources. Combined, the papers indicate that domestic social capital in the North-African context can be a source of complex resources.

This would explain the positive moderation effect of being highly educated. Unfortunately, due to a lack of data on the resources embedded in the domestic social ties, I am unable to test this explanation empirically.

Alternatively, the types of visits made to the country of origin could explain the positive moderation effect of being highly educated. If highly educated migrants visit for different reasons than their low-educated counterparts, the moderation effect may be the result of these differences instead of the level of human capital itself. Table C-1 contains an overview of reasons for visiting the country of origin reported by return migrants as a response to question M6.1 ('Reasons for visiting your country of origin?'). As the percentages across the categories are comparable for both groups of return migrants, structural differences in reasons for visiting the country of origin are unlikely to be a driving factor for the positive moderation of being highly educated.

6. Robustness Checks

6.1 Introduction

To develop a better understanding of the main findings, Section 6 includes a wide range of alternative model specifications. The first set of model specifications, included in Section 6.2, aims to test the explanations outlined in Section 5.3 empirically. The second set of model specifications (see Section 6.3) tests the sensitivity of the main results to changes in the operationalization of key variables. Given the number of alternative models and the focus on the logistic regression output to draw conclusions, the alternative model specifications are not accompanied by the average marginal effects estimates.

6.2 Proposed explanations

6.2.1 Focus on business-related overseas social capital

As discussed, the existing literature has focused on business networks when operationalising (overseas) social capital. In contrast, I have measured overseas social capital by considering the individual's general relationship with the host society. This could explain the contradictory finding with regards to hypothesis H1 and H3.

To test this, I estimate an alternative logistic model using question I4bis: 'Were you a member of ... ? (Multiple answers possible)'. The question inquires the respondent about their membership in any organisation in the host country during their stay abroad. The organisations included are as follows: 1) Trade Union, 2) Political Party, 3) Leisure Club, 4) Religious Association, 5) Hometown Organization, 6) Student/Youth Organization, 7) Political Movement (no party), 8) Local/National NGO, 9) International NGO, 10) Governmental Organization, 11) Charity, 12) Cooperative. For my alternative operationalization of overseas social capital, an individual is considered to have a high level of overseas social capital when he/she was a member of at least one business-related organisation in the host country during the stay abroad. I consider trade unions, NGO's, governments, charities and corporations to be business-related organisations.

I decided against using this alternative operationalisation of overseas capital in the main model specifications as question I4bis was only included in the CRIS questionnaire. The resulting reduction in sample size greatly reduces the chance of finding significant results. Table D-1 (Appendix D) presents the results of the robustness check. For these specifications, in which the sample was severely reduced, being female perfectly predicts failure to start a business. This leads the statistics software to omit the variable 'male'. The reduced power of

the model, in combination with the omission of a key control variable, prevents us from validating the idea that the lack of focus on business-related overseas social capital is responsible for the rejection of H1 and H3.

6.2.2 Technology gaps between the host country and the country of origin

Alternatively, I proposed the existence of large technology gaps as a reason for rejecting H1. To test this theory, I operationalised technology gaps as the difference between the natural logarithm of the average GDP per head in 2002 and 2011 and the same measure for the country of origin. In doing so, I follow the early economic literature on technology gaps (Cornwall, 1976, 1977; Lindbeck, 1983; Marris, 1982; Parvin, 1975).¹⁸ Instead of adding technology gaps to the model as a continuous variable, I create three groups (small, medium and large) that contain approximately 33% of the final sample each. In doing so, I am better able to observe potential non-linear relations between technology gaps and the value of overseas social capital. Furthermore, the division into three groups allows me to add interaction effects to the model specification which are relatively simple to interpret.

Table D-2 contains the results of the alternative model specification described above. Focusing our attention once more on column 'Full', the results show negative interaction effects between the existence of a medium or large technology gap and having a high level of overseas social capital ($\beta=-0.958$ and $\beta=-1.455$ respectively). However, neither coefficient is significantly different from zero. Hence, I am unable to reject the null hypothesis that the coefficients are equal to zero. In turn, the results do not support the theory that H1 is rejected due to the relatively large technology gaps experienced by return migrants in the North-African context.

6.3 Sensitivity of key variables

6.3.1 Alternative definitions of business creation

The robustness checks presented in Table D-3 and D-4 use alternative definitions of business creation. As discussed, the main definition of business creation requires an individual to have invested at least 500 euros in a business project upon return to the country of origin. This makes sure that only investments, that are relatively more likely to lead to new business creation, are considered. However, the cut-off of 500 euros was chosen rather arbitrarily. Hence, Table D-3 and D-4 use a cut-off of 100 euros and 1000 euros respectively to test the

¹⁸ More recent studies have generally used data on patent applications or R&D expenditure (as a percentage of GDP) to measure technology gaps. However, as differences in GDP capture the technology gap to a large extent (Fagerberg, 1987), I find it sufficient to use this more simple approach as a robustness check.

importance of the arbitrary cut-off. Table D-3 and D-4 show very similar results to the main model specification in Table 5.1. Still, the small differences between the main model and the alternative model specification using a cut-off point of 100 euros for investments upon return results in finding a significant association between domestic social capital and new business creation across the entire sample. This finding further supports the notion that the rejection of H2 is a result of the sample size and indirect measurements used.

6.3.2 Alternative definitions of being highly educated

Table D-5 and D-6 contain results from model specifications using different definitions of being highly educated. As is the case with the 500 euros cut-off for business creation, the cut-off for being considered is chosen somewhat arbitrarily as well. The robustness checks presented in Table D-5 and D-6 shift the cut-off point from 'Secondary Completed' to 'Bachelor/Master' and 'Some Secondary' respectively.

The alternative cut-off points for being highly educated have very clear consequences for the findings of these alternative model specifications. In contrast to the main model, the results in Table D-5 and D-6 present no significant interaction effects between overseas social capital and being highly educated. Furthermore, the model presented in Table D-5 fails to find a significant interaction effect between domestic social capital and being highly educated as well. Combined, the robustness checks show that the findings from the main model specifications are sensitive to the definition of being highly educated.

6.3.3 Alternative definition of financial capital

The sensitivity of the main model results to the definition of financial capital is especially interesting as the main model relies on a subjective measure of financial capital. As discussed, the robustness check presented in Table D-7 operationalizes financial capital by imputing missing data for question L12.1 (How much money did you have on an average per month at your own disposal (state currency used)?). Appendix A includes an extensive description of the multiple imputation methodology and its application in the context of my thesis.

Although the financial capital measure is operationalized in a vastly different manner, the results in Table D-7 are comparable to those of the main model specifications. While the coefficient of the financial capital measure is no longer significant, the sign and significance level of the key coefficients used for testing the hypotheses remain the same.

7. Conclusion

Throughout my thesis, I have explored the determinants behind new business creation among return migrants, focusing on the importance of overseas and domestic social capital. To investigate this topic, I used data on 2087 interviews with return migrants compiled in the Database on Return Migrants.

By estimating several logistic models, I was able to explore the association between business creation and domestic and overseas social capital. Furthermore, by adding interaction effects between being human capital and social capital, I was able to explore the moderating effect of being highly educated on these associations. My thesis adds to the existing RE literature by researching returnee entrepreneurship in the understudied North-African context. Furthermore, I add to the limited RE literature that explores the heterogeneity of the association between social capital and business creation.

My main model results lead me to reject the hypothesised positive associations between overseas social capital and domestic social capital on one side and new business creation on the other. Furthermore, I find that being highly educated negatively moderates the association between overseas social capital and new business creation while positively moderating the association between domestic social capital and new business creation. In turn, these findings lead to the rejection of H3 and H4 which hypothesise moderation effects with the opposite signs. The rejection of H2, which hypothesises a positive association between domestic social capital and business creation, is likely the result of sample size restrictions and the indirect measurement of domestic social capital. However, the rejection of the other hypotheses seems to indicate more fundamental differences between my thesis and the existing RE and entrepreneurial literature.

I explore several explanations focusing both on methodological differences (i.e. the operationalization of overseas social capital) and the differences between the African and the Asian entrepreneurial context (i.e. lack of institutional infrastructure, institutional distance and technology gaps). While I am unable to test the first three theories, I create an alternative model specification testing the importance of technology gaps. However, the models show no significant results, which opposes my theory.

Taken together, the main results reject the notion that social capital is beneficial across the entire population while many alternative model specifications find domestic social capital to be a significant determinant of business creation. Furthermore, the results show significant heterogeneity of the effect of social capital for individuals with high and low levels of education. The results are generally robust to alternative definitions of business creation and financial

capital. However, the results differ significantly in alternative model specifications which apply a different cut-off for being considered highly educated.

For policy makers looking to increase return entrepreneurship, my results suggest that social capital support should not take the form of a one-size-fits-all approach. Instead, the significant interaction terms indicate that different sub-groups benefit differently from domestic or social capital. While my thesis finds this to be true for individuals with either high or low levels of education, the existing literature has found this to be the case across other divides of human capital (Batjargal, 2007; Klyver & Schenkel, 2013). Furthermore, the differences between my findings and those of the existing RE literature suggest that findings in one context (e.g. China or India) cannot be translated directly to another context (e.g. Africa). Unfortunately, a lack of data prevents me from translating these observations into the appropriate way to fit social capital support to specific sub-groups of return migrants.

The inability to identify policy recommendations is a common limitation of the existing RE literature, decreasing the real-world relevance of the findings. Future RE research could increase the real-world relevance of the strain of literature by paying special attention to the way in which specific types of social capital affect sub-groups of return migrants. This could be achieved by conducting quantitative studies using detailed interviews tailored to the specific study at hand or by conducting qualitative studies which zoom in on the differential benefits obtained by social capital by sub-groups of return migrants. Alternatively, researchers could test different policy options to increase social capital, measuring its effect on business creation.

The main limitations to my research stem from the data used for the analysis. First, the questionnaire was not specifically designed to study the association between social capital and business creation. This forced me to rely on indirect measures of key variables which preferably would have been obtained through a direct question. Secondly, the answers given by respondents were collected upon return to the home country. Meanwhile, questions covered the entirety of the return migrant's migration cycle which, in some cases, span several decades. Lastly, several questions were only included in half of the questionnaires, severely limiting the variables I could use in my analysis and robustness checks. This limitation was especially noticeable in creating the alternative model specification focusing on business-related overseas social capital. Whereas the first two limitations of the data decrease the reliability of the results, the last limitation prevents me from exploring explanations for my findings in detail.

Appendix A: Multiple Imputation of Financial Capital

The intuition of multiple imputation

The alternative measure of financial capital, used for the robustness check of financial capital, is measured using question L12.1: 'How much money did you have on an average per month at your own disposal (state currency used)?'. Unfortunately, the question was not included during the MIREM project. Hence, indications of financial capital are only available for approximately half of the final sample. Executing a complete case analysis using the available data for question L12.1, and thus dropping half of the observations from the final sample, would greatly reduce the power of the model.

Multiple imputation provides an alternative to complete case analysis. In essence, multiple imputation replaces missing values with predicted scores from a regression equation. In doing so, a residual is added that is drawn from a normal distribution with a mean of zero and variance that is equal to the residual variance of the regression model. By performing this procedure m times, m complete case datasets are created. The variation between these datasets reflect the uncertainty around the true values of the missing data (White, Royston & Wood, 2010). After creating a total of m datasets, these datasets can be used separately to estimate the regression of interest. Finally, the separate parameter estimates are combined into one estimate that is suitable for inference.

Appropriateness of multiple imputation

Multiple imputation fills in missing values based on the non-missing data in a given sample. Hence, it is important that missing values do not structurally differ from non-missing values in ways that create biased predictions. The literature on multiple imputation distinguishes between three types of missingness: 1) Missing Completely At Random (MCAR), 2) Missing at Random (MAR) and 3) Missing not at Random (MNAR) (Schafer & Graham, 2002). A variable is considered to be MCAR when neither variables in the dataset nor the unobserved value of the missing variable predicts whether the value will be missing. When a variable is MAR, other variables in the dataset can predict whether the variable in question is missing. However, the unobserved value of the variable is uncorrelated with missingness. Finally, MNAR entails that a variable's missingness is correlated with the unobserved value of the variable. When a variable's missingness can be predicted by the underlying value, multiple imputation leads to biased predictions of the missing data.

I assume the financial capital data in question L12.1 to be missing at random. Most of the missingness of the financial capital variable can be explained by the different questionnaires used for the MIREM and CRIS project. Table A-1 confirms that all the

observations on financial capital from respondents participating in the MIREM project are missing. In contrast, only 5% of the observations from respondents participating in the CRIS project are missing. Hence, the missingness can be almost perfectly predicted by whether an individual is part of the MIREM or CRIS project. It is important to note that the latter 5% could still be correlated with the unobserved financial capital of respondents. However, I find the downside of the potential bias rather small compared to the upside of the increased sample size.

Table A-1
Missing Values of Financial Capital Measure

| Fin. Capital missing | Interview | | |
|----------------------|-----------|------|-------|
| | 2006 | 2012 | Total |
| 0 | 0 | 949 | 949 |
| 1 | 772 | 52 | 824 |
| Total | 772 | 1001 | 1773 |

Note. Interviews conducted in 2006 were part of the MIREM project. Interviews conducted in 2012 were part of the CRIS project.

Implementation of multiple imputation

To create the imputation model, I rely on guidelines provided by the existing literature. First, the existing literature recommends that the imputation is consistent with the main analytic model (Von Hippel, 2009, 2012; White et al., 2010). This also includes the interaction effects between being highly educated and the social capital variables. Second, the existing literature recommends including auxiliary variables. Although these are not included in the analytical model, they can help increase the reliability of imputed data (Enders, 2010; Young & Johnson, 2010). Generally, the literature recommends including variables that have a correlation of at least 0.4 with the missingness of the variable that is being imputed. With regards to the imputation of financial capital, only the variable ‘year interview’ qualifies as a relevant auxiliary variable.

An additional consideration in creating the imputation model is the distribution under which the variables are imputed. Most frequently, researchers use a Markov Chain Monte Carlo (MCMC) procedure, which assumes a multivariate normal distribution of the data. For my imputation model, I will do so as well. Although the assumption may not hold for my data, simulation studies show that multiple imputation remains highly reliable when the assumption of the multivariate normal distribution is violated (Demirtas, Freels & Yucel, 2008). Based on the above mentioned considerations, I estimate the following imputation model:

$$FC_i = \beta_0 + \beta_1 YI_i + \sum_j \gamma_j M_{i,j} + \omega_i + \varepsilon_i$$

Equation A-1: Imputation regression equation

where FC_i represents the financial capital values that are imputed, YI_i represents the year in which individual i is interviewed and $M_{i,j}$ is the j^{th} characteristic of individual i that is part of equation 4.1. Here, business creation upon return is also included as a variable. ω_i represents the residual added to represent the uncertainty about the true value of FC_i and ε_i is the error term. In total, I impute the data 10 times using the random seed (54321) to ensure replicability of the results.

The final step of the implementation entails estimating the logistic model specifications using each of the 10 complete case datasets separately to generate parameter estimates. Then, I pool the 10 parameter estimates into a single set of parameters that can be used for inference.

In contrast to the existing literature, I only impute financial capital data. Generally, researchers generate imputed data for all variables with missing values in ascending order of percentage of missing values. I have decided to only impute financial capital data as I have a clear understanding of the reason behind the missingness of these values. Furthermore, across the other variables included in the logistic model specifications, only a maximum of 2% of the sample is missing. Running complete case analysis on these variables without multiple imputation would likely lead to very similar results.

Appendix B: Variable distributions and definitions

Table B-1

Distribution of the sample by continent

| Continent | Obs | % |
|---------------|------|------|
| Europe | 1225 | 69.1 |
| Asia | 116 | 6.6 |
| Africa | 376 | 21.2 |
| North-America | 56 | 3.2 |
| South-America | 0 | 0.0 |

Table B-2

Categorisation of Reasons to Migrate Abroad

| Category | Answers included |
|---------------|--|
| Job | <ul style="list-style-type: none"> Job offer Abroad Looking for employment Looking for better employment Looking for better work conditions Better salary Support family in home country |
| Family/Friend | <ul style="list-style-type: none"> Join Family Join Partner Join Friends Family Pressure |
| Studies | <ul style="list-style-type: none"> Studies |
| Forced | <ul style="list-style-type: none"> Conflict/War Absence of perspective Political reasons |
| Other | <ul style="list-style-type: none"> Better living conditions Health/Social support No specific reason Life-style related Other |

Table B-3

Categorisation of Type of Return

| Category | Answers included |
|--------------------|--|
| Voluntary return | To benefit from return grant Retirement Run my business Project creation End of work contract End of studies To complete studies Situation in home country has evolved To marry Achieved migration goals Other favorable reasons |
| Involuntary return | Job difficulties Family problems home Family problems host Health problems Integration problems Homesick Unfavorable sociocultural environment Discrimination Political reasons To take care of family Did not achieve migration goals Deception Other unfavorable reasons |

Appendix C: Reasons for visiting the country of origin

Table C-1

Reason for visiting the country of origin

| Reason for Visit | Highly Educated | |
|----------------------|-----------------|-------|
| | No | Yes |
| Family | 79.1% | 60.2% |
| Business | 14.8% | 11.1% |
| Special Celebrations | 25.4% | 21.6% |
| Personal Events | 54.2% | 23.5% |
| Holidays | 56.3% | 66.5% |
| Administrative/Legal | 4.4% | 8.0% |

Note: The table displays the various reasons individuals reported for visiting their home country. Multiple answers were possible. The results are displayed separately for those individuals that are highly educated and those that are not following the specification.

Appendix D: Robustness Checks

Table D-1

Logistic Regression focusing on business-related overseas social capital

| | Core | Extended | Full | Interactions |
|---------------------------|---------------------|---------------------|--------------------|-------------------|
| Core Model Results | | | | |
| Highly Educated | 0.746 (0.672) | 0.997 (0.805) | 0.941 (0.805) | -0.343 (1.265) |
| Relationship Host | 0.517 (0.682) | 0.138 (0.585) | -0.171 (0.593) | -0.565 (0.894) |
| Visit Home | 1.389 ** (0.575) | 1.379 ** (0.610) | 1.371 * (0.721) | 0.418 (1.136) |
| HE # Relationship Host | | | | 0.771 (1.374) |
| HE # Visit Home | | | | 1.577 (1.395) |
| Financial Score | -0.025 (0.087) | -0.067 (0.084) | -0.050 (0.097) | -0.068 (0.088) |
| Age at Return | 0.036 * (0.019) | -0.022 (0.029) | -0.021 (0.027) | -0.014 (0.025) |
| Number of observations | 635 | 635 | 635 | 635 |
| Control Variables | | | | |
| Year of Return | NO | YES | YES | YES |
| Home Country FE | NO | YES | YES | YES |
| Host Country GDP | NO | YES | YES | YES |
| Time Abroad | NO | YES | YES | YES |
| Reason Emigration | NO | NO | YES | YES |
| Type of Return | NO | NO | YES | YES |

Note. The table includes the results of a robustness check in which overseas capital is operationalized as being a member of a business-related organization while staying in the host country. HE stands for 'Highly Educated'.

Standard errors are in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .1$

Table D-2

Logistic Regression including interaction between technology gap and overseas social capital

| | Core | Extended | Full |
|------------------------------------|----------------------|-----------------------|-----------------------|
| Core Model Results | | | |
| Relationship Host | 1.519 ** (0.764) | 1.435 * (0.842) | 1.530 * (0.851) |
| Technology Gap | | | |
| Medium | 1.882 *** (0.673) | 1.022 (1.112) | 1.084 (1.124) |
| Large | 2.260 *** (0.632) | 1.526 (1.262) | 1.569 (1.282) |
| Relationship Host # Technology Gap | | | |
| Yes # Medium | -0.823 (0.841) | -0.839 (0.906) | -0.958 (0.924) |
| Yes # Large | -1.345 * (0.796) | -1.335 (0.885) | -1.455 (0.889) |
| Visit Home | 0.984 *** (0.233) | 0.699 *** (0.251) | 0.500 * (0.266) |
| Financial Score | 0.120 *** (0.045) | 0.109 ** (0.049) | 0.102 ** (0.052) |
| Age at Return | -0.010 (0.009) | -0.078 *** (0.015) | -0.086 *** (0.015) |
| Male | 2.261 *** (0.593) | 2.286 *** (0.598) | 2.273 *** (0.567) |
| Number of observations | 1689 | 1689 | 1689 |
| Control Variables | | | |
| Year of Return | NO | YES | YES |
| Home Country FE | NO | YES | YES |
| Host Country GDP | NO | YES | YES |
| Time Abroad | NO | YES | YES |
| Reason Emigration | NO | NO | YES |
| Type of Return | NO | NO | YES |

Note. The table includes the results of a robustness check in which I interact the individuals overseas social capital ('Relationship Host') with the size of the technology gap. HE stands for 'Highly Educated'.

Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1

Table D-3

Logistic Regression with a cut-off on investments of 100 euros

| | Core | Extended | Full | Interactions |
|---------------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Core Model Results | | | | |
| Highly Educated | 0.369 (0.230) | 0.559 ** (0.283) | 0.589 * (0.315) | 0.179 (0.499) |
| Relationship Host | 0.566 *** (0.203) | 0.393 * (0.225) | 0.368 (0.229) | 1.021 *** (0.362) |
| Visit Home | 1.106 *** (0.230) | 0.752 *** (0.259) | 0.555 ** (0.269) | -0.254 (0.390) |
| HE # Relationship Host | | | | -0.994 ** (0.447) |
| HE # Visit Home | | | | 1.381 *** (0.502) |
| Financial Score | 0.106 ** (0.043) | 0.101 ** (0.048) | 0.097 * (0.050) | 0.091 * (0.051) |
| Age at Return | -0.004 (0.008) | -0.077 *** (0.015) | -0.085 *** (0.015) | -0.082 *** (0.015) |
| Male | 2.421 *** (0.590) | 2.335 *** (0.597) | 2.306 *** (0.562) | 2.346 *** (0.571) |
| Number of observations | 1689 | 1689 | 1689 | 1689 |
| Control Variables | | | | |
| Year of Return | NO | YES | YES | YES |
| Home Country FE | NO | YES | YES | YES |
| Host Country GDP | NO | YES | YES | YES |
| Time Abroad | NO | YES | YES | YES |
| Reason Emigration | NO | NO | YES | YES |
| Type of Return | NO | NO | YES | YES |

Note. The table includes the results of robustness check using a minimum cut-off point on investments of 100 euros instead of the cut-off of 500 euros used in the main model specifications. HE stands for 'Highly Educated'.

Standard errors are in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .1$

Table D-4

Logistic Regression with a cut-off on investments of 1000 euro

| | Core | Extended | Full | Interactions |
|---------------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Core Model Results | | | | |
| Highly Educated | 0.359 (0.231) | 0.523 * (0.282) | 0.557 * (0.314) | 0.134 (0.497) |
| Relationship Host | 0.545 *** (0.203) | 0.364 (0.226) | 0.339 (0.230) | 0.993 *** (0.362) |
| Visit Home | 1.091 *** (0.230) | 0.713 *** (0.256) | 0.519 * (0.269) | -0.294 (0.387) |
| HE # Relationship Host | | | | -1.005 ** (0.449) |
| HE # Visit Home | | | | 1.403 *** (0.502) |
| Financial Score | 0.113 ** (0.044) | 0.110 ** (0.048) | 0.105 ** (0.051) | 0.099 * (0.051) |
| Age at Return | -0.004 (0.008) | -0.077 *** (0.015) | -0.084 *** (0.015) | -0.082 *** (0.015) |
| Male | 2.409 *** (0.590) | 2.290 *** (0.597) | 2.284 *** (0.565) | 2.329 *** (0.575) |
| Number of observations | 1689 | 1689 | 1689 | 1689 |
| Control Variables | | | | |
| Year of Return | NO | YES | YES | YES |
| Home Country FE | NO | YES | YES | YES |
| Host Country GDP | NO | YES | YES | YES |
| Time Abroad | NO | YES | YES | YES |
| Reason Emigration | NO | NO | YES | YES |
| Type of Return | NO | NO | YES | YES |

Note. The table includes the results of robustness check using a minimum cut-off point on investments of 1000 euros instead of the cut-off of 500 euros used in the main model specifications. HE stands for 'Highly Educated'.

Standard errors are in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .1$

Table D-5

Logistic Regression applying the education cut-off at Bachelor/Master

| | Core | | Extended | | Full | | Interactions |
|---------------------------|-------------------|-----|-------------------|-----|-------------------|-----|-------------------|
| Core Model Results | | | | | | | |
| Highly Educated | 0.020 (0.228) | | 0.314 (0.250) | | 0.276 (0.277) | | 0.570 (0.503) |
| Relationship Host | 0.583 (0.203) | *** | 0.364 (0.226) | | 0.335 (0.230) | | 0.446 (0.278) |
| Visit Home | 1.122 (0.242) | *** | 0.736 (0.260) | *** | 0.543 (0.269) | ** | 0.593 (0.321) |
| HE # Relationship Host | | | | | | | -0.334 (0.462) |
| HE # Visit Home | | | | | | | -0.160 (0.539) |
| Financial Score | 0.119 (0.044) | *** | 0.120 (0.048) | ** | 0.117 (0.051) | ** | 0.117 (0.050) |
| Age at Return | -0.009 (0.007) | | -0.082 (0.014) | *** | -0.089 (0.015) | *** | -0.090 (0.015) |
| Male | 2.376 (0.594) | *** | 2.268 (0.603) | *** | 2.257 (0.571) | *** | 2.267 (0.566) |
| Number of observations | 1689 | | 1689 | | 1689 | | 1689 |
| Control Variables | | | | | | | |
| Year of Return | NO | | YES | | YES | | YES |
| Home Country FE | NO | | YES | | YES | | YES |
| Host Country GDP | NO | | YES | | YES | | YES |
| Time Abroad | NO | | YES | | YES | | YES |
| Reason Emigration | NO | | NO | | YES | | YES |
| Type of Return | NO | | NO | | YES | | YES |

Note. The table includes the results of robustness check in which individuals are considered to be highly educated if they have at least completed a Bachelor or Master program. HE stands for 'Highly Educated'.

Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1

Table D-6

Logistic Regression applying the education cut-off at Some Secondary

| | Core | Extended | Full | Interactions |
|---------------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Core Model Results | | | | |
| Highly Educated | 0.657 ** (0.283) | 0.977 *** (0.317) | 1.076 *** (0.343) | 0.691 (0.561) |
| Relationship Host | 0.525 *** (0.201) | 0.342 (0.224) | 0.323 (0.229) | 1.076 ** (0.438) |
| Visit Home | 1.105 *** (0.231) | 0.687 *** (0.256) | 0.466 * (0.270) | -0.481 (0.465) |
| HE # Relationship Host | | | | -0.958 * (0.499) |
| HE # Visit Home | | | | 1.298 ** (0.539) |
| Financial Score | 0.108 ** (0.044) | 0.109 ** (0.047) | 0.101 ** (0.049) | 0.097 * (0.050) |
| Age at Return | 0.002 (0.008) | -0.068 *** (0.016) | -0.075 *** (0.016) | -0.073 *** (0.016) |
| Male | 2.416 *** (0.590) | 2.300 *** (0.592) | 2.298 *** (0.558) | 2.348 *** (0.567) |
| Number of observations | 1689 | 1689 | 1689 | 1689 |
| Control Variables | | | | |
| Year of Return | NO | YES | YES | YES |
| Home Country FE | NO | YES | YES | YES |
| Host Country GDP | NO | YES | YES | YES |
| Time Abroad | NO | YES | YES | YES |
| Reason Emigration | NO | NO | YES | YES |
| Type of Return | NO | NO | YES | YES |

Note. The table includes the results of robustness check in which individuals are considered to be highly educated if they have at least some secondary schooling. HE stands for 'Highly Educated'. Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1

Table D-7

Logistic Regression with imputed financial capital data

| | Core | Extended | Full | Interactions |
|---------------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Core Model Results | | | | |
| Highly Educated | 0.291 (0.258) | 0.583 ** (0.289) | 0.654 ** (0.313) | 0.129 (0.483) |
| Relationship Host | 0.533 ** (0.210) | 0.428 * (0.223) | 0.398 * (0.227) | 1.027 *** (0.356) |
| Visit Home | 1.044 *** (0.230) | 0.725 *** (0.262) | 0.534 * (0.274) | -0.363 (0.389) |
| HE # Relationship Host | | | | -0.960 ** (0.450) |
| HE # Visit Home | | | | 1.525 *** (0.495) |
| Financial Capital | 0.072 (0.068) | 0.108 (0.192) | 0.099 (0.190) | 0.096 (0.194) |
| Age at Return | 0.001 (0.008) | -0.071 *** (0.015) | -0.080 *** (0.016) | -0.077 *** (0.016) |
| Male | 2.378 *** (0.593) | 2.252 *** (0.601) | 2.225 *** (0.567) | 2.268 *** (0.576) |
| Number of observations | 1773 | 1773 | 1773 | 1773 |
| Control Variables | | | | |
| Year of Return | NO | YES | YES | YES |
| Home Country FE | NO | YES | YES | YES |
| Host Country GDP | NO | YES | YES | YES |
| Time Abroad | NO | YES | YES | YES |
| Reason Emigration | NO | NO | YES | YES |
| Type of Return | NO | NO | YES | YES |

Note. The table includes the results of robustness check in which financial capital is measured using imputed values for question L12.1. HE stands for 'Highly Educated'.

Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1

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