Locally-Rooted Directors

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Abstract

We study the influence of locally-rooted directors, i.e., board members with personal ties to a company's geographic location, on firm performance. Locally-rooted directors may be elected for two contrasting reasons. First, they may provide important local know-how and business relations that can prove beneficial to a company. Second, they may be elected solely because of social ties with company insiders, such as fellow board directors, top executives, or large shareholders. In the latter case, locally-rooted directors may lack both relevant experience, business skills, and independence. We use the directors' alma mater as a proxy for local roots. Almost 30% of all directors in our sample are locally-rooted. The empirical analysis indicates that locally-rooted directors are negatively related with Tobin's Q, which suggests that they are chosen due to their social ties with insiders rather than because they add local business know-how. However, the negative relationship with Tobin's Q is not present in domestically-oriented companies, i.e., firms without material foreign sales, and firms in regulated industries. Thus, the results do not rule out that, in some cases, the presence locally-rooted directors may be optimal.

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1. Introduction

Bad corporate performance is often ascribed to weaknesses in corporate governance in general and poor board composition in particular (see, e.g., Shleifer and Vishny, 1997; Daily, Dalton, and Cannella, 2003). The lack of board directors' independence and business skills may lead to weak monitoring and poor managerial advice (see, e.g., Adams, Hermalin, and Weisbach, 2010, and Johnson, Schnatterly, and Hill, 2013, for two surveys on the importance of board of directors). Research on board of directors follows two seminal theories: Agency Theory (AT) and Resource-Dependence Theory (RDT). AT emphasizes the board's role in mitigating agency problems between managers and outside investors (Jensen and Meckling, 1976; Fama and Jensen, 1983). According to this theory, directors' independence is the relevant factor in assessing the composition corporate boards (e.g., Hermalin and Weisbach, 1991; Bhagat and Black, 2002; Bhagat and Bolton, 2008; Hwang and Kim, 2009; Nguyen and Nielsen, 2010; Nguyen, 2012). RDT focuses on the external linkages of the board of directors and their expertise in advising management (Pfeffer and Salancik, 1978; Hillmann and Dalziel, 2003). According to this theory, directors' external linkages (e.g., Finkelstein, Hambrick, and Cannella, 2009), but also busyness (e.g., Ferris, Jagannathan and Pritchard, 2003; Fich and Shivdasani, 2006) as well as business skills (Dalziel, Gentry, and Bowerman, 2011; Khanna, Jones, and Boivie, 2014; Volonté and Gantenbein, 2016) are important elements of the directors' value contributions. Scholars have also investigated numerous other director characteristics, such as gender diversity (e.g., Farrell and Hersch, 2005; Adams and Ferreira, 2009; Ahern and Dittmar, 2012), racial diversity (Carter, Simkins, and Simpson, 2003), nationality (Masulis, Wang, and Xie, 2012), affiliation to business elites (see, e.g., Nguyen, 2012), or their social ties to other directors or the CEO (see, e.g., Stevenson and Radin, 2008; Hwang and Kim, 2009; Schmidt, 2015).

In this paper, we add to the extant literature by studying the local roots of directors as an additional characteristic of board members and a further dimension in the composition of corporate boards. We consider directors to be locally rooted if they possess personal ties − gained via relevant life experience − to the region in which a firm is headquartered. We conduct our empirical analysis in Switzerland because of its high cultural diversity, its comparatively small geographic extension, and the remarkably homogenous dispersion of companies' headquarters across its main regions (see Section 3.1: Sample). The cultural heterogeneity of Switzerland can be traced back to its 26 federal states (cantons), its four official languages, the multitude of local dialects, and the religious split in Catholicism and Protestantism. Hence, especially in Switzerland local roots are an important feature of corporate directors. Local roots may have two opposing effects on firm performance. On the one hand, they may provide access to important local know how and experience, as well as valuable links to the company's external

environment, such as municipal authorities, suppliers, and other local stakeholders, making them particularly effective and valuable board members. On the other hand, locally-rooted directors may be appointed on the board because of their personal relationships with corporate insiders, such as the CEO, board members, or controlling shareholders. These social ties may prevent them from being truly independent and acting as effective independent monitors. Given these countervailing hypotheses, the relevance and the actual influence of locally-rooted directors on firm performance is a matter of empirical research.

The paper contributes in several ways to the literature on the (optimal) characteristics of board directors. First, it proposes that directors' local roots in a company's region represent a relevant aspect of the professional profile of board members. Second, it provides a simple way of measuring directors' local roots by focusing on the match between a company's region of incorporation and a director's alma mater.[1] It is important to mention that, in contrast to the Ivy League in the U.S., Oxbridge in the U.K., and the Grandes Ecoles in France, universities in Switzerland are non-elitarian and are therefore less important for setting up professional networks. Students typically choose the closest university to their hometown (see Table A1 and A2, and Figure 1). To illustrate the prevalence of locally-rooted directors in our sample, we take the example of Hugli Holding, an international food company, based in Steinach, 15 kilometers from St. Gallen. In 2015, 5 out of 7 directors graduated from the University of St. Gallen (one with a degree in banking, one with a degree in economics, one with a PhD degree in strategic management, and two with a law degree). Hence, 71% of directors were locally-rooted. Third, the paper presents an empirical analysis on the impact of locally-rooted directors on firm performance. To capture the importance of directors' local-roots, we choose to conduct the study on companies incorporated in Switzerland, a country characterized by pronounced regional diversities and strong local peculiarities (often referred to as "Kantönligeist", i.e., "cantonal spirit") in which, however, the very short geographic distances measured by travel time are likely to play a minor role in the choice of directors: The distance between St. Gallen (in the East) and Geneva (in the West) is only 360 kilometers (224 miles), less than four hours by either car or train. Furthermore, in Swiss federalism, decisions are often made on low hierarchical levels and local roots, familiarity with the local environment, can become an asset.

Our results indicate that locally-rooted directors are highly over-represented in corporate boards. Further, and most importantly, their presence is negatively related to firm performance as measured by Tobin's Q. The result is stronger for export-oriented firms suggesting that locally-rooted directors generate costs

[1] The use of educational institutions as a proxy of cultural proximity builds on the work of Cohen, Frazzini, and Malloy (2008), Nguyen (2012), Fracassi and Tate (2012), Ishii and Xuan (2014), and Schmidt (2015). However, while these authors use the common educational institution as a proxy of social ties among individuals, we consider directors to be locally rooted if they graduated from the closest university to the company's headquarters.

rather than benefits. This result is statistically and economically significant even after accounting for a large set of common controls. However, there is no significant relationship between locally-rooted directors and firm performance for companies without relevant foreign sales and for companies in regulated industries, suggesting that boards with an overrepresentation of locally-rooted directors may be optimal for the needs of those firms. Furthermore, we find no empirical evidence that common local roots of directors with controlling shareholders, CEOs, and Chairmen matter.

The remainder of the paper is structured as follows. Section 2 provides a review of the related literature and develops the research hypotheses to be tested. Section 3 describes the data and presents the results. Section 4 concludes with a summary.

2. Related literature and hypothesis

In this study, we focus on the importance of locally-rooted directors and their link to company valuation. Board directors have different duties, most notably monitoring and advising management, in relation to which their competences, skills, and characteristics must be defined and assessed. By considering the company's requirements and the corresponding set of skills desirable for directors, shareholders should spend considerable time and resources in evaluating, selecting, and electing board directors at annual general meetings. In practice, however, directors are often elected on the board for more banal reasons, including their relationship with the CEO, board members, controlling shareholders, or because of their status and reputation (see, e.g., Cohen, Frazzini, and Malloy, 2012).

Local roots may be part of the specific set of skills that match the requirements of companies. For example, locally-rooted directors may have access to local networks. Alternatively, locally-rooted directors may be elected just because of their local acquaintanceships, which would actually reduce their social independence and monitoring efforts. A priory, locally-rooted directors may therefore have both a positive and a negative influence on firm performance.

2.1 Positive Aspects of Local Roots

As suggested by the Resource Dependence Theory (Pfeffer and Salancik, 1978), locally-rooted directors may be beneficial to firms for several reasons. First, an important feature of directors is their access to networks, i.e., the number, importance, and strength of their links to the firm's external environment and stakeholders (e.g., customers or suppliers). As argued by Koenig and Gogel (1981), locally-rooted board members may have better access to information and resources in the local community where the company is headquartered. In this respect, locally-rooted board members may provide added value to the board by offering higher-quality advisory services to management. For example, they are likely better lobbyist because of their privileged relations to local authorities. This can be beneficial in a variety of situations,

such as public tender calls, negotiations related to expansion of plants, restructurings of operations, the agreement on severance schemes in the aftermath of layoffs, and in obtaining favorable tax treatments. In compliance with this view, Goldman, Rocholl, and So (2013) show that politically connected directors increase procurement contracts. Such privileged relationships may well exist also with locally-rooted directors. Locally-rooted directors may also provide networks to local suppliers, to the chambers of commerce, or even important local celebrities. Further, as law cases are usually treated on local courts, knowing locally-accredited prosecutors and lawyers can be advantageous. This is especially critical in federated countries where many decisions are made at the local level. Local roots may help building up social capital within a firm and therefore positively affecting firm performance. Along these lines, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997) argue that social capital contributes to a firm's value and arises from networks, norms, and mutual recognition.

Second, mutual trust on the board reduces monitoring costs (Zak and Knack, 2001). An additional positive aspect of local roots may lay in the fact that locally-rooted directors increase mutual trust both inside the board and outside the board, between the firm and stakeholders (e.g., employees, state, and NGOs) (see, e.g., Westphal, 1999). Trust between people that are culturally similar is also higher than between culturally dissimilar people (see, e.g., Guiso, Sapienza, and Zingales, 2009). Trust decreases uncertainty, asymmetry of information between board members and between the board and the CEO, and lowers coordination costs (Cai, Nguyen, and Walking, 2017).

Third, geographical closeness is another positive feature of locally-rooted directors. Locally-rooted directors are likely to live close to the headquarters. Alam, Chen, Ciccotello, and Ryan (2014) find that the distance between the directors' residential address and the headquarters influences their costs of gathering information, which leads to a trade-off between director expertise and information-gathering costs. Masulis, Wang, and Xie (2012) show that foreign independent directors are negatively related to both firm performance and the intensity of monitoring as measured by the attendance to board meetings, CEO compensation, and the frequency of CEO turnover. They reason that the distance of foreign directors to the headquarters generates oversight costs. Mazur and Salganik-Shoshan (2017) show that geographic proximity of institutional investors facilitates interpersonal connections and private communication among them, which in turn induces firms to increase incentive-based compensation. Directors with local roots may also be more accessible to inputs from coordinating institutional investors. Accordingly, Lerner (1995) shows that venture capitalists are less likely to sit on boards of distant firms as monitoring intensity is especially high in start-ups.

Fourth, related to the Stewardship Theory (Donaldson and Davis, 1991), locally-rooted directors may also act altruistically and in the best interest of the firm because their motivation increases with their

identification with the region and its stakeholders. Because locally-rooted directors identify themselves with the company and the local community and they likely feel obliged to help fostering their region's economic development, they should be particularly committed to the firm's success and be intrinsically motivated to work hard. In fact, such intrinsic motives may also influence a director's decisions to join the board (De Jong, Hooghiemstra, and Van Rinsum, 2014). As pointed out by Masulis and Mobbs (2014), reputational issues may also play a role in explaining why graduates of a local university may serve more likely on the board of a closely located firm than on more prestigious boards.

2.2 Negative Aspects of Local Roots

While the positive features of locally-rooted directors are mostly related to their advising role, the majority of aspects that may have an adverse effect on firm values are associated with their monitoring task. First, from an Agency Theory perspective, the board's foremost task consists in monitoring the management in the best shareholders' interests. For an unbiased control of the firm's resources, directors' independence is crucial (see Jensen and Meckling, 1976). Agency costs arise from the intrinsic conflict of interests between managers and shareholders. Self-interested managers may engage in a long list of activities that benefit themselves, but harm shareholders: building empires (Jensen, 1986), enforcing excessive pay packages (Bertrand and Mullainathan, 2001), entrenching themselves (Shleifer and Vishny, 1989), shirking (Bertrand and Mullainathan, 2003), or using corporate resources for private consumption (Yermack, 2006). The traditional view of directors' independence focuses on the material relationships with the firm. It defines directors as either insiders or outsiders (independent). Non-independent outsiders are often denominated as "grey" or "affiliated" directors. Independent boards are generally considered to be better monitors and thereby improve firm performance. However, even conventionally-defined independent directors can be dependent on the management by having close relationships or friendships with its members. As a consequence of this weaker monitoring, executives may be replaced too late or paid too much, which may harm shareholders (Adams and Ferreira, 2007). The problem of dependent or captured board members is particularly severe if the CEO has a strong power in the directors' nomination process (Shivdasani and Yermack, 1999). Researchers have started to investigate the presence of even more subtle social ties between board directors and CEOs (see, e.g. Hwang and Kim, 2009; Cohen, Frazzini, and Malloy, 2012). For example, Hwang and Kim (2009) measure the directors' (in)dependence from the CEO by considering their social ties arising from the same alma mater, shared military service, regional origin, discipline of study, and industry experience and are able to link it to the strength of their monitoring activity. Nguyen (2012) shows that social ties between CEOs and directors decrease the probability of CEOs being dismissed after poor performance. The relevance of social ties between business actors has also been examined in other circumstances. For instance, Ishii and Xuan (2014) show

that social ties between acquirer and target firms have an adverse effect on the performance of the merger. Because locally-rooted directors may have social ties to other (local) board members, controlling shareholders' or the CEO, they rather impede board independence and therefore may harm firm valuation. Social ties between controlling shareholders and directors may create a certain dependency that induces the latter to help the former to extract private benefits of control. For example, corporate directors may decide that the company financially supports pet-projects of controlling shareholders (e.g., arts or sports). In this respect, locally-rooted directors may be nominated because of their social ties rather than their capability to monitor the management.

Second, locally-rooted directors can be more committed to local stakeholders than to their fiduciary duties as directors (see Böhler, Rapp and Wolff, 2010). For example, they may refrain from closing an unprofitable plant or from switching to a better supplier. Furthermore, locally-rooted directors may lack national and international experience, a global network, and general business skills compared to candidates in the nationwide or worldwide pool of potential board members.

Third, Knyazeva, Knyazeva, and Masulis (2013) use the size of the pool of local directors measured as the number of U.S. nonfinancial firms headquartered near a given firm as an instrument for board independence. Board independence is shown to be higher when the pool of potential directors is larger. Thus, firms that rely on the rather narrow local market of directors may miss the opportunity to find truly independent directors.

Finally, from a social psychological perspective, Similarity-Attraction Theory posits that individuals and groups have preferences for people that resemble themselves (Byrne and Griffitt, 1973). Similarity can refer to psychological (e.g., shared values or mindsets) or demographic traits (e.g., gender or educational background). Top management teams are inclined to reproduce themselves (Westphal and Zajac 1996; Boone et al., 2004; Nielsen, 2009). While new directors are ultimately elected by shareholders at general meetings, candidates are nominated by the incumbent board of directors. Cronyism and "homophily" within the board may hamper the effectiveness of the board and cover firm risks (McPherson, Smith-Lovin, and Cook, 2001). Local roots of directors may therefore be an important factor for reproduction tendencies within board of directors. Directors who are chosen on the board because of their similarity won't raise potentially controversial opinions that are not in line with the expected opinion of the group. Such uniformity could harm firm performance and is an argument against the so-called "old boys network" (see, e.g., Adams and Ferreira, 2009). If locally-rooted directors are mostly elected because they are handpicked by the CEO, they will likely behave too passively. Locally-rooted directors are therefore unlikely to limit rent seeking activities and tolerate conflicts of interest and critical related-party transactions. Directors may lower their efforts, receive higher compensation, enjoy fringe benefits (e.g.,

by organizing board meetings in luxurious surroundings), and protect each other from critical assessments and (potential) liability claims.

2.3 Hypotheses

Locally-rooted directors may provide important linkages to the firm's (local) external environment and know-how in the local economy. Given the federal structure of Switzerland and its strong local cultural diversity, locally-rooted directors may be for good reason in high demand. On a less positive note, the demand of locally-rooted directors may reflect the managerial intent to reduce boards' monitoring and extract private benefits. Notwithstanding the goodness of the motive for appointing locally-rooted directors, we expect them to be in high demand in Switzerland because of the strength and relevance of local factors. We therefore formulate the first hypothesis as follows:

H1: Locally-rooted directors are overrepresented in corporate boards.

As argued, locally-rooted directors may provide important local know-how and valuable links with political and economic authorities, suppliers, courts, and important individuals and institutions around the companies' headquarters. In addition, locally-rooted directors may establish trust, which can help sustaining firm performance. On the other hand, locally-rooted directors may only be elected on the board because of social ties. Such directors may fail to act as rigorous monitors. We hypothesize that the former effect is stronger than the latter.

H2: Locally-rooted directors are positively related to firm performance.

Locally-rooted directors may have social ties with various parties including the controlling shareholder. This dependence may lead to conflict of interests regarding the prevention of the extraction of private benefits by controlling shareholders. We therefore formulate the following hypothesis:

H3: Locally-rooted directors are negatively related to firm performance in locally-controlled firms.

In a globalized world, local know-how becomes potentially less important. As many Swiss companies are highly internationalized and locally-rooted likely lack international experience and access to global networks directors, we formulate the following hypothesis.

H4: Locally-rooted directors are negatively related to firm performance in international-oriented firms

3. Data and Variables

3.1 Sample

In this study, we analyze the effect of locally-rooted directors on firm performance. We derive local roots from the director's educational background. The approach is similar to the one used by several scholars for measuring social ties via mutual educational institutions (see, e.g., Cohen, Frazzini, and Malloy, 2008; Nguyen, 2012; Fracassi and Tate, 2012; Ishii and Xuan, 2014; Schmidt 2015). In our case, we consider a director as locally rooted if she graduated from the university closest to the company's headquarters. Our definition of local roots offers several advantages. First, it is easily available as it can be collected from the directors' resumes published in annual reports. Second, it represents an objective and measurable criterion. Third, while it does not consider all possibilities to build up local roots, it makes sure that a director classified as locally rooted has been exposed to a certain local environment for a period of at least three years, in an age characterized by a steep learning curve.

Our empirical analysis is based on a sample of 2,035 firm-year observations in Switzerland and information about 14,425 directorships. For the purposes of our study, Switzerland offers a number of decisive advantages that can hardly be found in other countries.

First, Switzerland is a well-developed country with a liberal economic system and a high degree of internationalization. Its capital market is comparatively strong[2] and its legal system is efficient. The board of directors is the highest operative organ in the corporation. Similarly to the U.S., companies can solely be run by the boards of directors. In practice, however, daily business is delegated to a separate management board, especially in public companies. Nevertheless, the board retains non-delegable tasks, such as setting the firm's strategy and organization. In Switzerland, boards of directors are elected individually each year during the General Shareholder Meeting and have a strong position vis-à-vis top management. An additional interesting fact regarding the legal system is the prevalence of companies with one or more controlling shareholders. Over half of all exchange-listed firms are governed by Swiss shareholders who control 20 percent or more of voting rights. Thus, Swiss boards are often elected by a group of controlling shareholders rather than being selected by an overly powerful CEO (see, e.g., Shivdasani and Yermack, 1999). However, high ownership concentration is typically prevalent in

[2] In spite of its small size in terms of both geographic extension (130th in the World) and population (92th in the World with its 8 million inhabitants, http://data.worldbank.org/indicator/SP.POP.TOTL), Switzerland is the 19th largest economy in terms of GDP (635,650 million US dollars in 2011, http://databank.worldbank.org/databank/download/GDP.xls), its capital-market-to-GDP ratio (2.33) is the third worldwide and larger than UK (1.37) and US (1.17), and some of its companies are very well known, successful, and reputable even by international standards. As an illustration, the Financial Times Global 500 list of largest firms in the World comprises 14 Swiss companies, among them Nestlé, Novartis, Roche, UBS, and ABB.

countries with weak investor protection and small capital markets, both of which does not apply to Switzerland (see La Porta et al., 1998).

Second, Switzerland is a country with a comparably low percentage of university graduates (15% in 2010 and only 7% in 1990; BFS, 2011)[3]. Interestingly however, 75 percent of all board members in our sample (Swiss and foreigners) possess a university degree. All universities are publicly financed, accessible to all students with a Swiss "maturity" diploma, and offer a similar educational standard. There are no elite universities similar to *Ivy League* in the United States, *Oxbridge*[4] in the United Kingdom, and the *grandes écoles* in France, which typically leads to a small world of business elites with social ties formed at universities (see, e.g., Nguyen, 2012). Therefore, students generally choose the closest university to their hometown (see Table A2). For example, in 2015, more than 50 percent of all students at the University of Basel came from the four closest cantons (Basel-Stadt, Basel-Landschaft, Aargau, and Solothurn). In addition, Swiss universities are all located around the most important Swiss cities and not on a green field. This enables students to knot contacts both with fellow students and local institutions outside the university.

Third, in spite of its small geographic extension, Switzerland offers regional diversity and has strong local peculiarities ("Kantönligeist"). It has a distinct federal structure as it is subdivided into 26 cantons (to be precise, 20 cantons and 6 half-cantons) each with ample political autonomy, own political systems, tax authority, school systems, traditions etc. Swiss federalism creates three levels of government interaction (federal, cantonal, and community) and, therefore, various linkages to local administrations may be needed. Furthermore, Switzerland can be subdivided into four parts depending on the prevalent language (German, French, Italian, and Romansh). On top of these official languages, the use of dialects with distinct regional characteristics is very common, even in the business environment. Nevertheless, despite differing languages or belonging to one of the two main religions in Switzerland (Roman Catholic or Protestant), there are no pronounced differences in income, access to education or other level of discriminations between the four groups. Internal migration is rather weak (OECD, 2002).

Fourth, geographic distances measured by travel time are likely to play a minor role in the election of directors because the universities are evenly dispersed across the country (see Figure 1). Switzerland is comparatively small in terms of geographic extension: 130th in the World, approximately half the size of South Carolina, and just double the size of New Jersey. In addition, the transportation infrastructure

[3] Considering the fact that the average age of directors in the sample is 57, the bulk of directors graduated from university in the 1970s. We assume that the fraction of people of the even-aged population who graduated from university was considerably lower in the 1970s than in 1990.

[4] Oxford and Cambridge.

(railroads and highways) is quite efficient. The "local director market", as suggested by Knyazeva, Knyazeva, and Masulis (2013), is likely to play a minor role.

Fifth, the small population compared to its economy generates a relatively low supply of candidates for directorships (see Loderer and Peyer, 2002). In the past, the so-called "old boys net-work" was operated through business associations, societies, interest groups, political affiliations, and the Swiss Army. However, this director net-work considerably decreased in the last 25 years, replacing mainly Swiss males with foreign directors. In 1988, foreign directors accounted for only 10% of all board members in Swiss blue-chip firms, while in 2015, 64% of the directors were foreigners, which underlines Switzerland's openness. In fact, by international comparison, the proportion of foreign directors is unrivalled (SpencerStuard, 2017).

Finally, yet importantly, a decisive advantage of Switzerland for the purposes of this study is the high standard of transparency required by the SIX Stock Exchange with respect to information concerning corporate governance. For each director, a short CV has to be published in the annual report, which allows us to identify the directors' alma mater.

The combination of large public companies, non-elitarian universities, pronounced cultural diversity, but short travel time makes Switzerland an interesting research ground for investigating the role of locally-rooted directors.

We target all firms included in the Swiss Performance Index (SPI), the main index of SIX Swiss Exchange. Our sample consists of 2,035 firm-year observations from 2005 to 2015.

After the introduction of Directive Corporate Governance, which requires transparency in matters of corporate governance, companies increasingly disclose information about their directors' educational backgrounds. This allows us to collect the University degree of each director but restricts our analysis to the period after 2005. Further information is obtained by *BoardEx*, *Base de données Elites suisses XXe* (www2.unil.ch/elitessuisses), and research on the internet.[5] Information on the firms' headquarters, firm age, and equity structure is from the commercial registers (www.zefix.ch). Data on business and geographical segments stem from annual reports while financial data is from Thomson Reuters Datastream.

3.2 Measuring directors' local roots

Locally-rooted directors. Our main focus variable is the proportion of directors with local roots (*Locally-rooted directors*). We use the location of the alma mater as a proxy for local roots. Specifically, we

[5] We thank the University of Manchester for providing us with access to BoardEx during the research stay of Christophe Volonté at Manchester Business School.

classify directors as locally-rooted directors if they graduated from the headquarters' closest university. We define the firm's location as the location of its headquarters (see, e.g., Coval and Moskowitz 1999; Hilary and Hui, 2009). The closest university is determined by the lowest travel time by car from the headquarters as indicated by maps.google.com (see Table A3). We consider only the nine universities from which more than one percent of all directors in the sample have graduated (see Table A1). This measure for local roots ascertains that a director has been (voluntarily) living at least 3 years in the location we consider her local roots. In addition, students are at a stage when they establish informal social contacts, for example, within extracurricular and recreational activities in sports clubs, while playing music, or clubbing. According to McPherson, Smith-Lovin, and Cook (2001), educational institutions provide a natural basis for social networks that often result in a high level of interaction as well as strong and long-lasting relationships. Even after graduation, the connection to the own alma mater is likely to remain strong, which is also reflected in the numerous memberships in alumni organizations. As a result, directors have likely established a social network within the university or in the area the campus is located. These social ties may even directly relate to other board members, CEOs, shareholders, local authorities, suppliers and customers.

Finding a good proxy for local roots is not easy because the concept is per se subject to some interpretation and requires detailed knowledge on a director's background. We recognize that due to data availability constraints, we are not able to identify other potential sources of social ties, such as golf clubs, social clubs, charitable organizations, political parties, etc. However, there are other reasons that underline the importance of both education and proximity. First, educational ties between different parties create comparative information advantages (see Cohen, Frazzini, and Malloy, 2010). For example, the amount of charitable donations to educational institutions shows the closeness of graduates to the alma mater. Similarly, Flap and Kalmijn (2001) and Bhowmik and Rogers (1971) evidence that school relationships are on average much more homophile than those formed in other settings . Second, also in a globalized world, local roots are still regarded as important. For instance, financial economists perceive a local bias in stock ownership, which in some cases also generates higher returns (see, e.g., Coval and Moskovitz 2001; Ivkovic and Weisbenner 2005).

Alternative proxies for local roots are the place of birth, the place of origin (which as a Swiss specialty is recorded in the passport), or the place of residence. However, all three information are very difficult to obtain and inaccurate. The place of birth is not a good indicator for local roots because people might have been born where they have not lived. The place of origin is simply transferred from one generation to the next. It is rather a historical indication and most Swiss have not even ever lived in their place of origin. Finally, for tax reasons, many managers in Switzerland live in regions where income taxes are low, such

as Central Switzerland, which makes the place of residence often temporary and a poor indicator of local roots.

3.3 Dependent Variable and Controls

Tobin's Q. Our dependent variable is *Tobin's Q* which is calculated as the total assets plus market value of equity minus book value of total equity divided by total assets and is the most widely used proxy for firm performance in corporate governance studies (see Agrawal and Knoeber, 1996; Loderer and Peyer, 2002).[6]

To mitigate the problem of omitted variables, we use several control variables that are widely used in corporate governance and *Q* regressions (see, e.g., Demsetz and Villalonga, 2001; Bebchuk, Cohen, and Ferrell, 2009; Aggarwal, Erel, Stulz, and Williamson, 2010; Knyazeva, Knyazeva, and Masulis, 2013). Following several studies that highlight the importance of firm size in corporate finance, we compute *Size* as the logarithm of total assets. *Sales growth* is computed as the median yearly sales growth over four years. *Firm age* is the logarithm of the number of years of the firm's existence. It is calculated as the current year plus 1 minus the year of the firm's establishment. Older firms may be more locally connected (e.g., through an old-boys network). *Profitability* is the ratio of EBITDA to assets (i.e., return on assets). *Liquidity* is the ratio of cash holdings to total assets. *Investments* is the ratio of capital expenditures to total assets. *Tangibility* is the ratio of property, plant and equipment to total assets. *R&D* is the ratio of expenditures in Research and Development to total assets (restricted to a maximum of 1). R&D expenditures indicate the growth prospects of a company. We use this measure instead of the ratio of research and development expenditures to total assets because we would otherwise lose too many firm observations. *Leverage* is the total debt to total assets (restricted to a maximum of one). Furthermore, we employ 15 *Industry dummy* variables to capture time-invariant industry characteristics, such as growth opportunities and influence by politics or regulations, and *Time fixed effects* to account for economy-wide time effects, such as recessions and expansions.

[Insert Table 1 here]

3.4 Descriptive statistics

Despite our relatively narrow definition of locally-rooted directors, almost 30 percent of all directors have graduated from the local university (see Table 2). This figure is slightly declining over time (see Figure 2). In Table2, we also compare the differences in means and medians (*t*-test/Wilcoxon tests) for several

[6] Our market value of equity includes all classes of listed or unlisted equity. The market value of listed equity is the average stock price 5 days before and 5 days after the last trading day of the year multiplied by the number of outstanding listed equity securities. The value of the unlisted equity is derived from the market prices through their nominal values following the procedure of Swiss tax law.

firm characteristics between companies that have at least one locally-rooted director and firms without locally-rooted directors. The comparison shows that there are significant differences between the two groups of firms. For example, companies with a presence of locally-rooted directors are older, have lower liquidity, but higher leverage. The comparison shows the importance of controlling for these firm characteristics in our regressions.

[Insert Table 2 here]

4. Empirical Results

We start the empirical analysis by measuring the over-representation *locally-rooted directors* who graduated from any of the seven universities and the two federal technical universities in Switzerland located in one of the seven main university regions we consider in this study (see Table 3). Following Grinblatt and Keloharju (2001), we calculate over-representation by dividing the average number of local graduates on the board (e.g., University of Basel) in a region (e.g., Basel) by the average number of directors who are graduates from this university (e.g., University of Basel) in all Swiss companies. Table 3 shows that in all regions the directors with a local university degree are significantly over-represented (in bold). Additionally, Table 4 underlines the over-representation based on regressions. The dependent variables are the proportions of graduates from each university and the main independent variables are regional dummy variables (e.g., Basel is set to 1 if the company is headquartered in the Basel region). Therefore, the results support Hypothesis 1 according to which locally-rooted directors are overrepresented in corporate boards. Analogous to the "home bias" in stock ownership, which depends on familiarity, distance, language, and culture (see, e.g., Coval and Moskowitz, 1999; Grinblatt and Keloharju, 2001), potentially there is also a local bias in the selection of board members. Although Switzerland is a comparatively small country and distances should likely play a minor role in director selections, the market for board directors seems to be subject to a strong regional segmentation. In our sample, almost 30 percent of all directors can be defined as locally-rooted directors.

[Insert Table 3 here]

[Insert Table 4 here]

As indicated in Figure 2, the proportion of locally-rooted directors on boards decreased in the last ten years. By accepting the view that boards of directors are endogenous and optimally determined (Hermalin and Weisbach, 2003), this drop suggests that the value of locally-rooted directors has diminished over the years.

4.1 Baseline model

Table 5 presents regression results on the relationship between Tobin's Q and locally-rooted directors using cluster-robust Huber/White standard errors. Controlling for time trends, industry fixed effects, and a battery of controls, the empirical evidence suggests that locally-rooted directors are negatively related with firm performance.

[Insert Table 5 here]

4.2 Controlling for locally-controlled firms

Most importantly, we include a dummy variable *Locally-controlled firm* that equals 1 if the company is controlled by a local shareholder who holds 20 percent or more voting rights (and 0 otherwise). The presence of locally-rooted directors may be a consequence of the election by a large local shareholder and their social ties with the candidate (see, e.g., Kim, 2007; Dahyaa, Dimitrov, and McConnell, 2008). The local roots of shareholders are difficult to identify since (1) a number of private persons may control a company through an investment company or a holding and (2) they may have residence in tax-friendly municipalities which do not correspond to their roots. We therefore assume that shareholders who are based in Switzerland have local roots. We also create an additional variable denominated *Long term locally-controlled firm* if the local controlling shareholder has not changed in the last 12 years, i.e., since 1998. Shareholders who have been holding a company for a longer term may establish strong social ties to directors.

To control for potential bias due to an inequality of voting rights and cash flow rights, we include *Dual class* which is a dummy variable and equals 1 if the company has more than one class of equity outstanding (and 0 otherwise). Dual class firms are common in Switzerland and usually allow the largest shareholder to control the company with fewer cash flow rights. Furthermore, *Shareholding directors* is the proportion of directors either who are large shareholders (more than 3% of voting rights) or who represent large shareholders such as families. We therefore have to reject Hypothesis 2 that locally-rooted directors are positively related to firm performance.

[Insert Table 6 here]

The results in Table 6 show that the presence of local controlling shareholders has no effect on the significant negative relationship between locally-rooted directors and Tobin's Q. Interaction terms with Locally-rooted directors and locally-controlled firms appear to have no relation to Tobin's Q. We therefore have to reject Hypothesis 3 that locally-rooted directors are negatively related to firm performance in locally-controlled firms.

4.3 Controlling for firm strategy and risk characteristics

The presence of locally-rooted directors may be a consequence of other firm characteristics and they may have an indirect impact on Tobin's Q through, for example, risk. We therefore include additional control variables that account for a firm's strategy and risk characteristics. *Foreign sales* is the ratio of foreign sales to total sales. *Foreign sales dummy* is a dummy variable and equals 1 if the company has positive sales abroad (and 0 otherwise). *Number of geographic segments* is the logarithm of the number of geographic segments as indicated by the segment information in the annual report. Swiss firms have traditionally had a large share of export sales. *Diversification* is a dummy variable that equals 1 if the company operates in more than one business segment as indicated in the annual report (see e.g. Anderson et al. 2000). *M&A activity* is the logarithm of the number of takeovers in the past 5 years (e.g., Alam, Chen, Ciccotello, and Ryan, 2014). *Risk* is standard deviation of daily returns over the past year (e.g., Knyazeva, Knyazeva, and Masulis 2013). *Cash flow* is the ratio of the sum of net income and all non-cash charges or credits to total assets (e.g., Alam, Chen, Ciccotello, and Ryan, 2014). *Stock liquidity* is bid-ask spread calculated as the ratio of $ask_{i,t}$ minus $bid_{i,t}$ to the average between the bid and the ask price.

[Insert Table 7 here]

Also after including several other control variables for firm characteristics, the relationship between locally-rooted directors and Tobin's Q remains negative. However, Column V indicates that this relationship is driven by export-oriented firms. The interaction term with locally-rooted directors and foreign sales is negative, while locally-rooted directors as a stand-alone is insignificant.

4.4 Controlling for board and director characteristics

Board size is the number of directors on the board. A higher board size allows access to more locally-rooted directors (e.g., friends) (Yermack, 1996). *Independence* is the fraction of directors who are not executives, not former executives and who have no business ties with the company. Board independence is the most widely used measurement for the board's characteristics. The independence criterion follows the definition of the Swiss Code of Best Practice in Corporate Governance in which directors are considered independent if they are not currently employed by the firm or if a gap of three years has elapsed since previous employment there, and if they have neither financial nor business ties to the firm. *International experience* is the proportion of directors who are foreigners or who have worked abroad and may therefore account for a potential lack of international experience of locally-rooted directors. *Tenure* is the logarithm of the average number of years that a board member has been on the board. Until 2003, Swiss boards had to be composed by a majority of people who live in Switzerland and who are Swiss citizens.[7] Thereby, board members with longer tenure may be more likely to be locally-rooted directors.

[7] Since 1919 (or 1936), Swiss boards had to be composed by a majority of directors who live in Switzerland and who are Swiss citizens (Swiss company law Art. 708 1). This rule was introduced during World War I and based on enemy legislation ("Feingesetzgebung").

Co-option is the proportion of directors who have been elected on the board after the CEO takes office (see Coles, Daniel, and Naveen, 2014). *Number of external activities* is the number of other appointments by directors including other directorships, executive positions or memberships in charities or interest groups. It therefore proxies for busyness in the local market for corporate directors. *Busy* is the proportion of directors who have 3 or more external directorships (directorships count as 1 and chairmanships as 1.5 directorships). *Concentration of degrees* is a Herfindahl index of degrees in business/economics, law, technical and natural sciences. A value of 1 indicates that all directors have the same degree.

[Insert Table 8 here]

4.5 Controlling for local interrelationships

Locally-rooted directors may also have a negative impact on Tobin's Q because of their personal ties with the Chairman or the CEO. We therefore define two measures to account for social ties between directors and the CEO. *Locally-rooted Chairman* is 1 if the Chairman is locally-rooted (and 0 otherwise) and *Locally-rooted CEO* is 1 if the CEO is locally-rooted (and 0 otherwise).

[Insert Table 9 here]

According to the regression results in Table 9, personal ties with the Chairman and the CEO, and the directors seem not to have an impact on Tobin's Q.

4.6 Instrumental variables approach: University regions

Alongside omitted variable bias, reverse causation is another important problem of endogeneity. Higher firm performance may induce firms to seek directors from more distant regions or from abroad because of their specialist know-how instead of locally-rooted directors whose know-how may be restricted as indicated by our results.

We use the seven University locations in Switzerland as instruments for Locally-rooted directors and estimate our model using 2SLS (University of Fribourg region is set to 0). We believe that University locations in Switzerland are valid instruments. Firstly, the fraction of Locally-rooted directors is likely to be dependent on the economic and cultural environment of the company's headquarters, hence, the region and therefore relevant. Three regions (Basel, Geneva and Zurich) are highly urbanized and internationalized and dispose of the three most important airports in Switzerland by large. Hence, their access to a director pool is potentially larger and they are consequently less dependent on locally-rooted directors in contrast to more rural and peripheral regions. Furthermore, these regions depict different cultural characteristics along language (Swiss German and French) and religion (Protestantism and

Catholicism) which likely affects the level of people's trust and their openness to directors who are not familiar with the headquarters' environment (see, e.g., Guiso, Sapienza, and Zingales, 2009). In some regions, the overlap of people involved in economic and non-economic activities is higher than in others explaining the relevance of local roots to board appointments. Secondly, Regions are determined outside the model and thereby exogenous. These regions are not likely to have an impact on firm performance for reasons we do not account for such as industry affiliation in case of regional economic clusters (e.g., the pharmaceutical industry in Basel). None of the listed companies in our sample is dependent on the economic conditions of the regions because all sell their goods in other regions or worldwide. Also relocations are very rare events, companies are often old and can therefore be described as rooted within their region. High F-statistic of 70.76 for Locally-rooted directors indicates the relevance of these instruments.

[Insert Table 10 here]

4.7 Robustness checks: Specification of locally-rooted directors

Locally-rooted directors may also miss the conventional test for board independence. Therefore, we define *Locally-rooted non-executive directors* and *Locally-rooted independent directors* to account for board independence. Our main focal variable defines locally-rooted directors as those directors who graduated from the closest university. 15% of all directors graduated from the two federal universities (ETHs) which offer specific courses especially in technical and natural sciences with one campus in each of the large language regions of Switzerland (German and French). We construct two additional variables that account for these specifics. *Locally-rooted directors (without two federal technical universities)* excludes directors who graduated from the two federal universities altogether. *Locally-rooted directors' overrepresentation* is the ratio of the number of locally-rooted directors to the average number of locally-rooted directors within the company's headquarters region.

[Insert Table 11 here]

As the results in Table 11 show, the results do not substantially change. Locally-rooted directors are still negatively related with firm performance. The results suggest that locally-rooted directors are (on average) chosen because of social ties rather than because of their local know-how or linkages.

[Insert Table 11 here]

4.8 Robustness checks: Subsamples

Recurrent findings illustrate that some directors add value in specific industries or environments. For example, regulated firms have more directors with a background in politics and politicians on board have

an impact on firm value (Helland and Sykuta, 2004; Goldman et al., 2009). Furthermore, the relevance international experience depends on the grade of internationalization of the company (Masulis, Wang, and Xie, 2012; Oxelheim et al., 2013). As the value of locally-rooted directors may differ for companies which share the same external environment, we run our base model on a number of subsamples: Domestically-oriented companies, regulated companies (utilities and banks), excluding companies in the Italian part and excluding financial firms.

[Insert Table 12 here]

As the results show, Locally-rooted directors are not significantly negatively related with firm performance in companies without foreign sales, confirming the results from Table 7, and in regulated companies. In addition, Locally-rooted directors are not significantly and negatively correlated with Tobin's Q in firms that are controlled by long term local shareholders. The proportion of locally-rooted directors may therefore be optimally chosen in domestically-oriented companies, regulated industries, and in long term controlled firms as suggested by Hermalin and Weisbach's (2003) statement that "boards are endogenously driven institutions". However, sample sizes are restricted which may explain insignificant results, as well. We therefore cannot reject Hypothesis 4 that locally-rooted directors are negatively related to firm performance in international-oriented firms.

[Insert Table 12 here]

5. Conclusion

The boards of directors' main roles consist of strategy setting, monitoring, and advising management. While Agency Theory stresses the first task and underlines the importance of the boards' independence for monitoring management, Resource Dependence Theory emphasizes the second task and underlines the importance of the boards' knowledge and ties to the external environment to advise management and set the firm's strategy. In this study, we use a new classification of directors – being locally-rooted or not – to account for both the directors' (social) independence and their knowledge and links to the (local) external environment. Locally-rooted directors may be valuable due to their access to important local know how and experience, as well as valuable links to the company's external environment, such as municipal authorities, suppliers, and other local stakeholders. However, they may be less independent because of social ties with board of directors, the CEO, shareholders, local stakeholders. Further, their general managerial knowledge, experience, and external linkages may be limited. We find that almost 30% of all board members can be defined as locally-rooted. Our results show that the fraction of locally-rooted directors is negatively related to Tobin's Q. The findings suggest that locally-rooted directors are (on average) chosen because of social ties and with the aim of extracting private benefits rather than

because of their valuable local know-how or linkages. Nevertheless, in some cases – in particular in domestically-oriented companies, regulated industries, and long term locally-controlled firms – their presence on boards may be optimal.

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Tables

Table 1
Definition of variables

Variable	Description
Locally-rooted directors	Ratio of locally-rooted directors to total number of directors. Locally-rooted directors have graduated from the nearest university to the company's headquarters (measured by maps.google.ch)
Tobin's Q	Total assets plus market value of equity minus book value of total equity divided by total assets, winsorized at 5% and 95%
Size	Total liabilities and total shareholders' equity
Sales growth	Geometric mean of annual net sales growth over 4 periods, winsorized at 5% and 95%
Age	Year of the firm's establishment minus the current year plus 1
Profitability	Ratio of EBITDA to lagged total assets, winsorized at 5% and 95%
Liquidity	Ratio of cash and equivalents to total assets
Investments	Ratio of capital expenditures to total assets
Tangibility	Ratio of property, plant and equipment to total assets
R&D	Ratio of R&D expenditures to total assets
Leverage	Ratio of total liabilities to total assets

Table 2
Summary statistics

The table provides summary statistics for the variables in the full sample. The sample is based on 2,035 observations from 2005 to 2015.

			All			Boards with presence of locally-rooted directors	Boards without presence of locally-rooted directors	
Number of firms			2,035			1,586	449	t-test /
Variable	Mean	Median	Min	Max	S.D.	Mean	Mean	(Wilcoxon-test)
Locally-rooted directors	0.2866	0.2500	0.0000	1.0000	0.2389	–	–	
Tobin's Q	1.6110	1.2780	0.8229	3.8100	0.8215	1.5477	1.8337	*** / (***)
Size	26,150	965	0.3	2,393,000	148,759	27,531	21,261	– / (***)
Sales growth	0.0323	0.0200	-0.1494	0.2992	0.1081	0.0334	0.0285	– / (–)
Age	75	59	1	497	63	79	62	*** / (***)
Profitability	0.0937	0.0976	-0.0833	0.2733	0.0898	0.0939	0.0930	– / (–)
Liquidity	0.1685	0.1164	0.0000	0.9859	0.1684	0.1598	0.1992	*** / (***)
Investments	0.0320	0.0259	0.0000	0.4182	0.0357	0.0317	0.0331	– / (–)
Tangibility	0.2194	0.1839	0.0000	0.9439	0.2127	0.2252	0.1990	** / (–)
R&D	0.0297	0.0000	0.0000	1.0000	0.0776	0.0274	0.0379	* / (–)
Leverage	0.5577	0.5457	0.0000	1.0000	0.2457	0.5682	0.5205	*** / (***)

Table 3
Summary Statistics Documenting Over-representation of Locally-rooted Directors

The table presents the over-representation of 9 Swiss university graduates and their representation on boards in different regions in Switzerland. The figures represent the difference between the number of graduates in the regions and the Swiss average.

Region	Number of firms	University Basel	Bern	Fribourg	Geneve	Lausanne	St. Gallen	Zurich	Federal Technical University ETH	EPF
Basel	315	**4.1**	1.0	0.4	0.9	0.1	0.6	0.8	0.7	1.5
Bern	189	0.8	**2.4**	0.0	0.9	0.5	0.7	0.6	**1.2**	0.2
Fribourg	36	1.5	0.0	**8.8**	2.6	1.6	0.4	0.1	0.4	0.0
Geneve	121	0.5	0.4	0.7	**5.5**	1.7	0.2	0.5	0.5	1.6
Lausanne	191	0.0	0.5	1.8	2.2	**6.2**	0.6	0.5	0.8	**7.0**
St. Gallen	184	0.7	0.5	0.9	0.1	0.2	**2.6**	**1.3**	1.0	0.0
Zurich	999	0.5	1.1	0.9	0.4	0.5	1.0	**1.2**	**1.2**	0.2

Table 4
Overrepresentation of locally-rooted directors

The table presents regression coefficient estimates for graduates from Swiss universities. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

	Dependent Variables											
Independent variables	U Basel (I)		U Fribourg (II)		U Geneve (III)		U Lausanne (IV)		U St. Gallen (V)		U Zurich (VI)	
(Intercept)	0.07795		-0.01824		0.07908	(*)	0.08203		0.03169		-0.04620	
Region	(0.068)		(0.033)		(0.041)		(0.078)		(0.167)		(0.090)	
Basel	0.13866	(***)	0.00763		-0.01586		-0.02208	(*)	-0.02034		0.01642	
	(0.036)		(0.008)		(0.018)		(0.013)		(0.026)		(0.031)	
Fribourg	0.05605		0.18934		0.07926		0.05183		0.02727		-0.04006	
	(0.070)		(0.123)		(0.070)		(0.060)		(0.058)		(0.053)	
Geneve	0.00005		0.01831	(*)	0.09844	(*)	0.03091		-0.05717	(*)	-0.02545	
	(0.024)		(0.010)		(0.056)		(0.021)		(0.031)		(0.030)	
Lausanne	-0.03423	(**)	0.02635	(**)	0.02252		0.18185	(***)	-0.02919		-0.04111	
	(0.016)		(0.012)		(0.025)		(0.039)		(0.035)		(0.028)	
St. Gallen	-0.00998		0.01615		-0.03678	(**)	-0.02243	(*)	0.20032	(***)	0.07016	(**)
	(0.024)		(0.010)		(0.018)		(0.012)		(0.054)		(0.034)	
Zurich	-0.00831		0.01903	(**)	-0.02495		-0.00346		0.02343		0.05158	(**)
	(0.015)		(0.008)		(0.018)		(0.013)		(0.026)		(0.026)	
Size	-0.00341		0.00035		-0.00462		-0.00567		0.00270		0.00242	
	(0.003)		(0.001)		(0.004)		(0.004)		(0.004)		(0.005)	
Sales growth	-0.07041	(**)	0.01572		-0.01890		0.01547		0.04285		-0.00052	
	(0.033)		(0.015)		(0.029)		(0.030)		(0.049)		(0.062)	
Age	0.00863		-0.00041		-0.00235		-0.00352		0.02198	(***)	0.00385	
	(0.006)		(0.003)		(0.005)		(0.005)		(0.008)		(0.010)	
Profitability	0.05207		-0.01689		-0.02226		0.08627	(*)	-0.04890		-0.06269	
	(0.056)		(0.023)		(0.039)		(0.045)		(0.071)		(0.077)	
Liquidity	-0.00981		-0.01741		-0.00941		-0.05019	(**)	0.07906		0.06730	
	(0.032)		(0.015)		(0.028)		(0.024)		(0.049)		(0.050)	
Investments	-0.15698		-0.12112	(*)	-0.00418		-0.15415		0.09045		-0.18965	
	(0.109)		(0.064)		(0.054)		(0.097)		(0.142)		(0.153)	
Tangibility	0.03426		0.04012		-0.01978		-0.01046		0.07583	(*)	0.14098	(**)
	(0.041)		(0.039)		(0.021)		(0.029)		(0.042)		(0.066)	
R&D	-0.06315		0.00606		0.00599		0.02628		-0.09817		-0.16066	(**)
	(0.070)		(0.015)		(0.040)		(0.051)		(0.065)		(0.070)	
Leverage	-0.04022		-0.00491		0.06714	(*)	0.01719		0.05084		0.00718	
	(0.032)		(0.012)		(0.035)		(0.028)		(0.037)		(0.047)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Multiple R^2	30.79%		29.33%		23.26%		40.63%		27.42%		17.17%	
Adjusted R^2	29.34%		27.84%		21.65%		39.38%		25.89%		15.42%	
F	21.10	***	19.68	***	14.38	***	32.46	***	17.92	***	9.83	***

Table 5
Baseline model: Tobin's Q and Locally-rooted Directors

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively

Independent variables	Dependent Variable: Tobin's Q							
	(I)		(II)		(III)		(IV)	
(Intercept)	1.34138	(***)	1.79096	(***)	1.49738	(***)	1.76984	(***)
	(0.395)		(0.355)		(0.405)		(0.078)	
Locally-rooted directors			-0.46094	(***)	-0.40903	(***)	-0.55475	(***)
			(0.122)		(0.118)		(0.168)	
Size	-0.02243		-0.02586		-0.03012			
	(0.020)		(0.020)		(0.020)			
Sales growth	0.11507		0.13214		0.14404			
	(0.191)		(0.189)		(0.193)			
Age	-0.01147		-0.01248		0.00264			
	(0.034)		(0.028)		(0.033)			
Profitability	3.75940	(***)	4.13246	(***)	3.80955	(***)		
	(0.529)		(0.507)		(0.513)			
Liquidity	0.72536	(***)	0.87982	(***)	0.73162	(***)		
	(0.235)		(0.284)		(0.229)			
Investments	3.13765	(***)	2.81910	(**)	2.87061	(***)		
	(1.046)		(1.106)		(1.009)			
Tangibility	-1.09280	(***)	-1.04845	(***)	-0.99972	(***)		
	(0.176)		(0.161)		(0.178)			
R&D	1.67422	(***)	2.46960	(***)	1.68273	(***)		
	(0.456)		(0.463)		(0.436)			
Leverage	0.18748		-0.19768		0.12330			
	(0.197)		(0.170)		(0.189)			
Fixed effects	Industries, Years		No		Industries, Years		No	
Multiple R^2	52.82%		45.14%		54.01%		2.60%	
Adjusted R^2	51.97%		44.87%		53.16%		2.55%	
F	62.14	***	166.55	***	63.38	***	54.32	***

Table 6
Controlling for locally-controlled firms

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

Independent variables	Dependent Variable: Tobin's Q							
	(I)		(II)		(III)		(IV)	
(Intercept)	1.48486	(***)	1.57353	(***)	1.57363	(***)	1.58465	(***)
	(0.397)		(0.422)		(0.422)		(0.428)	
Locally-rooted directors	-0.34591	(**)	-0.49093	(***)	-0.49080	(***)	-0.49301	(***)
	(0.166)		(0.148)		(0.147)		(0.146)	
Locally-controlled firm	0.00882							
	(0.101)							
Long term locally-controlled firm			-0.16971		-0.17004	(*)	-0.16928	
			(0.105)		(0.102)		(0.103)	
Locally-rooted directors × Locally-controlled firm	-0.08873							
	(0.230)							
Locally-rooted directors × Long term locally-controlled firm			0.28578		0.28531		0.28706	
			(0.226)		(0.230)		(0.228)	
Dual class firm					0.00158		0.00312	
					(0.081)		(0.083)	
Shareholding directors							-0.01649	
							(0.117)	
Size	-0.03034		-0.02938		-0.02938		-0.02973	
	(0.019)		(0.020)		(0.020)		(0.020)	
Sales growth	0.13943		0.13060		0.13088		0.13242	
	(0.192)		(0.192)		(0.189)		(0.189)	
Age	0.00399		0.00494		0.00489		0.00495	
	(0.034)		(0.034)		(0.034)		(0.034)	
Profitability	3.80360	(***)	3.83970	(***)	3.83964	(***)	3.83498	(***)
	(0.512)		(0.509)		(0.510)		(0.515)	
Liquidity	0.73780	(***)	0.74773	(***)	0.74767	(***)	0.74787	(***)
	(0.231)		(0.230)		(0.230)		(0.230)	
Investments	2.87539	(***)	2.83024	(***)	2.82973	(***)	2.82576	(***)
	(1.015)		(1.026)		(1.025)		(1.026)	
Tangibility	-0.99577	(***)	-0.99787	(***)	-0.99755	(***)	-0.99742	(***)
	(0.184)		(0.177)		(0.176)		(0.176)	
R&D	1.66748	(***)	1.62933	(***)	1.62907	(***)	1.62399	(***)
	(0.439)		(0.437)		(0.436)		(0.434)	
Leverage	0.13019		0.09997		0.10014		0.09838	
	(0.191)		(0.186)		(0.187)		(0.188)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Multiple R^2	54.03%		54.32%		54.32%		54.33%	
Adjusted R^2	53.13%		53.43%		53.41%		53.39%	
F	60.12	***	60.84	***	59.29	***	57.82	***

Table 7
Controlling for firm strategy and risk characteristics

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

Independent variables	Dependent Variable: Tobin's Q									
	(I)		(II)		(III)		(IV)		(V)	
(Intercept)	1.49852	(***)	1.49166	(***)	1.49932	(***)	1.43827	(***)	1.34186	(***)
	(0.409)		(0.403)		(0.407)		(0.398)		(0.403)	
Locally-rooted directors	-0.40881	(***)	-0.40835	(***)	-0.41244	(***)	-0.32900	(***)	0.10277	
	(0.118)		(0.118)		(0.119)		(0.120)		(0.127)	
Foreign sales	0.00676									
	(0.077)									
Foreign sales dummy			0.01725						0.21681	(**)
			(0.059)						(0.099)	
Number of geographic segments					0.01686					
					(0.059)					
Locally-rooted directors × Foreign sales dummy									-0.54492	(***)
									(0.181)	
Diversification							-0.16165	(**)	-0.18228	(**)
							(0.076)		(0.079)	
M&A activity							0.05101		0.05462	
							(0.053)		(0.052)	
Risk							0.02283		0.02373	
							(0.083)		(0.083)	
Cash flow							-0.41104	(***)	-0.42244	(***)
							(0.099)		(0.097)	
Stock liquidity							0.10186		0.07390	
							(0.133)		(0.123)	
Size	-0.03051		-0.03114		-0.03197		-0.02499		-0.03288	
	(0.021)		(0.020)		(0.023)		(0.022)		(0.022)	
Sales growth	0.14521		0.14403		0.14688		0.04698		0.04206	
	(0.190)		(0.192)		(0.191)		(0.187)		(0.187)	
Age	0.00259		0.00227		0.00281		-0.00022		0.00228	
	(0.033)		(0.033)		(0.034)		(0.034)		(0.033)	
Profitability	3.80988	(***)	3.81106	(***)	3.81301	(***)	4.27332	(***)	4.30781	(***)
	(0.513)		(0.512)		(0.511)		(0.521)		(0.517)	
Liquidity	0.73388	(***)	0.73823	(***)	0.73863	(***)	0.72787	(***)	0.73693	(***)
	(0.226)		(0.228)		(0.228)		(0.245)		(0.238)	
Investments	2.86579	(***)	2.85123	(***)	2.84613	(***)	2.74747	(***)	2.71617	(***)
	(1.013)		(1.020)		(1.018)		(0.988)		(0.977)	
Tangibility	-0.99656	(***)	-0.98819	(***)	-0.98680	(***)	-0.95581	(***)	-0.91476	(***)
	(0.180)		(0.189)		(0.184)		(0.185)		(0.193)	
R&D	1.68154	(***)	1.68449	(***)	1.67676	(***)	0.78743		0.85800	(*)
	(0.435)		(0.435)		(0.438)		(0.499)		(0.492)	
Leverage	0.12456		0.12517		0.12165		0.06030		0.06164	
	(0.185)		(0.188)		(0.189)		(0.181)		(0.177)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Multiple R^2	54.01%		54.01%		54.02%		55.64%		56.03%	
Adjusted R^2	53.13%		53.14%		53.14%		54.71%		55.07%	
F	61.68	***	61.69	***	61.70	***	59.83	***	57.91	***

Table 8
Controlling for board and director characteristics

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

Independent variables	Dependent Variable: Tobin's Q									
	(I)		(II)		(III)		(IV)		(V)	
(Intercept)	1.64722	(***)	1.66940	(***)	1.73361	(***)	1.67448	(***)	1.79675	(***)
	(0.407)		(0.407)		(0.416)		(0.412)		(0.412)	
Locally-rooted directors	-0.41026	(***)	-0.35172	(***)	-0.33292	(***)	-0.35875	(***)	-0.27451	(**)
	(0.117)		(0.119)		(0.118)		(0.119)		(0.123)	
Board size	0.09828		0.10667		0.11330		0.10567		0.10068	
	(0.101)		(0.100)		(0.101)		(0.100)		(0.101)	
Independence	-0.33293	(**)	-0.29626	(**)	-0.30035	(**)	-0.25809	(*)	-0.29622	(**)
	(0.153)		(0.144)		(0.138)		(0.138)		(0.136)	
International experience			0.19479	(*)	0.17619		0.20793	(*)	0.22218	(**)
			(0.110)		(0.108)		(0.109)		(0.107)	
Tenure					-0.05568				-0.06165	
					(0.056)				(0.057)	
Co-option							-0.13094	(**)		
							(0.063)			
Number of external activities					-0.01004				-0.00891	
					(0.015)				(0.014)	
Busy							-0.04223			
							(0.118)			
Concentration of degrees									-0.30190	(*)
									(0.164)	
Size	-0.03556	(*)	-0.04817	(**)	-0.04669	(**)	-0.04957	(**)	-0.04711	(**)
	(0.021)		(0.023)		(0.023)		(0.023)		(0.023)	
Sales growth	0.05655		0.04264		0.03671		0.09044		0.06912	
	(0.201)		(0.200)		(0.200)		(0.201)		(0.194)	
Age	0.00474		0.01220		0.02017		0.01206		0.02466	
	(0.032)		(0.033)		(0.034)		(0.033)		(0.033)	
Profitability	3.84119	(***)	3.87635	(***)	3.92619	(***)	3.91245	(***)	3.92039	(***)
	(0.507)		(0.508)		(0.496)		(0.504)		(0.489)	
Liquidity	0.73368	(***)	0.71331	(***)	0.72759	(***)	0.73938	(***)	0.74229	(***)
	(0.222)		(0.220)		(0.218)		(0.217)		(0.218)	
Investments	2.80521	(***)	2.77595	(***)	2.77913	(***)	2.75145	(***)	2.71690	(***)
	(1.034)		(1.044)		(1.039)		(1.042)		(1.027)	
Tangibility	-0.98988	(***)	-0.94956	(***)	-0.94728	(***)	-0.93080	(***)	-0.95206	(***)
	(0.173)		(0.176)		(0.173)		(0.176)		(0.174)	
R&D	1.62292	(***)	1.54775	(***)	1.52483	(***)	1.53063	(***)	1.55950	(***)
	(0.438)		(0.439)		(0.439)		(0.438)		(0.434)	
Leverage	0.14746		0.11321		0.10410		0.11596		0.09824	
	(0.192)		(0.190)		(0.188)		(0.185)		(0.183)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Multiple R^2	54.60%		54.87%		54.99%		55.12%		55.26%	
Adjusted R^2	53.71%		53.96%		54.04%		54.17%		54.30%	
F	61.52	***	60.61	***	57.94	***	58.24	***	57.19	***

Table 9
Controlling for local interrelationships

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 1,798 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

Independent variables	Dependent Variable: Tobin's Q									
	(I)		(II)		(III)		(IV)		(V)	
(Intercept)	1.46529	(***)	1.46335	(***)	1.48135	(***)	1.47834	(***)	1.44835	(***)
	(0.402)		(0.403)		(0.402)		(0.402)		(0.400)	
Locally-rooted directors	-0.49172	(***)	-0.47811	(***)	-0.42922	(***)	-0.40901	(***)	-0.47617	(**)
	(0.131)		(0.184)		(0.120)		(0.133)		(0.190)	
Locally-rooted Chairman									0.08499	
									(0.089)	
Locally-rooted CEO					0.03431		0.06041		0.05612	
					(0.051)		(0.106)		(0.105)	
Locally-rooted directors × locally-rooted Chairman			-0.03333						-0.02135	
			(0.208)						(0.206)	
Locally-rooted directors × locally-rooted CEO							-0.06928		-0.07415	
							(0.218)		(0.213)	
Size	-0.02901		-0.02904		-0.02953		-0.02940		-0.02843	
	(0.020)		(0.020)		(0.020)		(0.020)		(0.020)	
Sales growth	0.14355		0.14524		0.14299		0.14427		0.14515	
	(0.192)		(0.193)		(0.192)		(0.192)		(0.193)	
Age	0.00424		0.00473		0.00272		0.00315		0.00504	
	(0.033)		(0.034)		(0.033)		(0.034)		(0.034)	
Profitability	3.80545	(***)	3.80339	(***)	3.80598	(***)	3.80780	(***)	3.80323	(***)
	(0.510)		(0.509)		(0.512)		(0.513)		(0.510)	
Liquidity	0.73805	(***)	0.73782	(***)	0.72701	(***)	0.72132	(***)	0.72788	(***)
	(0.230)		(0.230)		(0.229)		(0.231)		(0.232)	
Investments	2.89268	(***)	2.89225	(***)	2.85081	(***)	2.84406	(***)	2.86845	(***)
	(0.999)		(0.999)		(1.015)		(1.020)		(1.010)	
Tangibility	-1.00300	(***)	-1.00489	(***)	-0.99817	(***)	-1.00182	(***)	-1.00677	(***)
	(0.177)		(0.178)		(0.178)		(0.179)		(0.179)	
R&D	1.69217	(***)	1.69628	(***)	1.68436	(***)	1.68936	(***)	1.70129	(***)
	(0.433)		(0.434)		(0.435)		(0.437)		(0.435)	
Leverage	0.11775		0.11604		0.12831		0.12382		0.11609	
	(0.189)		(0.191)		(0.190)		(0.193)		(0.194)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Multiple R^2	54.14%		54.15%		54.03%		54.04%		54.17%	
Adjusted R^2	53.27%		53.25%		53.16%		53.14%		53.23%	
F	62.02	***	60.40	***	61.75	***	60.15	***	57.46	***

Table 10
Instrumental variables approach: Uni locations

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

	First stage		Second stage	
Independent variables	Dependent Variables Locally-rooted directors		Tobin's Q	
	(I)		(II)	
(Intercept)	0.28276	(*)	1.91600	(***)
	(0.170)		(0.491)	
Locally-rooted directors			-1.50680	(**)
			(0.720)	
Basel	0.10191			
	(0.143)			
Bern	0.07970			
	(0.144)			
Geneve	0.00055			
	(0.143)			
Lausanne	0.08212			
	(0.141)			
St. Gallen	0.20186			
	(0.145)			
Zurich	0.10931			
	(0.137)			
Size	-0.01757	(**)	-0.05077	(**)
	(0.008)		(0.023)	
Sales growth	0.04601		0.22177	
	(0.093)		(0.241)	
Age	0.03180	(**)	0.04051	
	(0.015)		(0.047)	
Profitability	0.11519		3.94410	(***)
	(0.124)		(0.507)	
Liquidity	0.02439		0.74843	(***)
	(0.075)		(0.236)	
Investments	-0.67647	(***)	2.15390	(**)
	(0.209)		(1.066)	
Tangibility	0.20742	(**)	-0.74991	(***)
	(0.088)		(0.282)	
R&D	0.02838		1.70560	(***)
	(0.151)		(0.427)	
Leverage	-0.14989	(*)	-0.04897	
	(0.078)		(0.229)	
Fixed effects	Industries, Years		Industries, Years	
Multiple R^2	18.89%		47.45%	
Adjusted R^2	17.18%		46.48%	
F	11.05	***	44.97	***

Table 11
Robustness checks: Specification of locally-rooted directors

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

Independent variables	Dependent Variable: Tobin's Q							
	(I)		(II)		(III)		(IV)	
(Intercept)	1.43539	(***)	1.42409	(***)	1.38018	(***)	1.33873	(***)
	(0.392)		(0.392)		(0.405)		(0.397)	
Locally-rooted non-executive directors	-0.45139	(***)						
	(0.120)							
Locally-rooted independent directors			-0.47090	(***)				
			(0.128)					
Locally-rooted directors (without two federal technical universities)					-0.29458	(**)		
					(0.141)			
Locally-rooted directors overrepresentation							-0.00910	(**)
							(0.004)	
Size	-0.02657		-0.02496		-0.02585		-0.02249	
	(0.019)		(0.019)		(0.020)		(0.020)	
Sales growth	0.13273		0.09299		0.13241		0.11244	
	(0.193)		(0.195)		(0.192)		(0.191)	
Age	0.00512		-0.00059		-0.00691		-0.00979	
	(0.033)		(0.033)		(0.034)		(0.033)	
Profitability	3.79931	(***)	3.81435	(***)	3.76865	(***)	3.75775	(***)
	(0.512)		(0.515)		(0.523)		(0.526)	
Liquidity	0.72993	(***)	0.72784	(***)	0.72149	(***)	0.72746	(***)
	(0.227)		(0.228)		(0.233)		(0.233)	
Investments	2.91488	(***)	3.00657	(***)	2.99352	(***)	3.02530	(***)
	(1.015)		(1.007)		(1.020)		(1.048)	
Tangibility	-0.99007	(***)	-1.01317	(***)	-1.03271	(***)	-1.04942	(***)
	(0.176)		(0.175)		(0.180)		(0.176)	
R&D	1.69815	(***)	1.69111	(***)	1.67451	(***)	1.69067	(***)
	(0.433)		(0.440)		(0.442)		(0.447)	
Leverage	0.11628		0.12546		0.19033		0.17952	
	(0.191)		(0.191)		(0.192)		(0.195)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Multiple R^2	54.15%		53.97%		53.21%		53.03%	
Adjusted R^2	53.30%		53.12%		52.34%		52.16%	
F	63.74	***	63.29	***	61.37	***	60.93	***

Table 12
Robustness checks: Subsamples

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2,035 firm-year observations. Cluster-robust standard errors are reported in parentheses and Significance at the 1 percent, 5 percent, and 10 percent levels is indicated by ***, **, * respectively.

Independent variables	Dependent Variable: Tobin's Q																	
	(I)		(II)		(III)		(IV)		(V)		(VI)		(VII)		(VIII)			
(Intercept)	1.50840	(***)	4.61597	(***)	0.99189	(***)	1.54568	(***)	1.79019	(***)	1.12216	(***)	1.13591		1.53805	(***)		
	(0.473)		(0.375)		(0.121)		(0.484)		(0.601)		(0.361)		(0.739)		(0.534)			
Locally-rooted directors	-0.47510	(***)	0.06599		0.02100		-0.49121	(***)	-0.40265	(**)	-0.42014	(***)	-0.10003		-0.57210	(***)		
	(0.143)		(0.103)		(0.046)		(0.141)		(0.174)		(0.155)		(0.194)		(0.149)			
Size	-0.02598		-0.08320	(**)	-0.00775		-0.03424		-0.04725		0.00586		0.01092		-0.04011	(*)		
	(0.022)		(0.034)		(0.005)		(0.025)		(0.032)		(0.017)		(0.035)		(0.024)			
Sales growth	0.32478		-0.47572		0.26422	(***)	0.12727		0.32789		0.21848		0.35235		0.14241			
	(0.242)		(0.314)		(0.097)		(0.242)		(0.256)		(0.242)		(0.306)		(0.234)			
Age	0.02121		-0.02484		0.00810		-0.00535		-0.03536		0.03567		-0.02202		-0.00357			
	(0.039)		(0.031)		(0.011)		(0.043)		(0.054)		(0.035)		(0.063)		(0.040)			
Profitability	3.67404	(***)	3.50618	(***)	2.52730	(***)	3.90671	(***)	2.72419	(***)	4.39874	(***)	3.13753	(***)	3.85591	(***)		
	(0.502)		(0.975)		(0.506)		(0.531)		(0.726)		(0.555)		(0.766)		(0.573)			
Liquidity	1.00174	(***)	0.04604		0.30747	(**)	0.81835	(***)	0.76130	(***)	1.26444	(***)	0.90881	(***)	0.78771	(***)		
	(0.268)		(0.253)		(0.125)		(0.258)		(0.295)		(0.327)		(0.283)		(0.287)			
Investments	4.77700	(***)	0.18468		-0.11533		3.03388	(***)	4.22889	(***)	0.88139		2.44501	(*)	2.80241	(**)		
	(1.262)		(0.596)		(0.442)		(1.081)		(1.248)		(0.890)		(1.332)		(1.375)			
Tangibility	-1.35177	(***)	-1.22663	(***)	-0.14690		-0.99911	(***)	-1.30015	(***)	-0.60841	(**)	-1.21621	(***)	-0.94808	(***)		
	(0.311)		(0.350)		(0.183)		(0.194)		(0.242)		(0.277)		(0.324)		(0.256)			
R&D	1.13478		1.40345	(***)	0.24309	(**)	1.62723	(***)	1.89252	(***)	1.11209	(*)	1.91138		1.60921	(***)		
	(0.826)		(0.329)		(0.114)		(0.445)		(0.472)		(0.595)		(1.541)		(0.467)			
Leverage	-0.01034		0.81103	(***)	0.81103	(***)	0.12644		0.47354	(*)	-0.31771		0.32641		-0.00643			
	(0.226)		(0.259)		(0.259)		(0.208)		(0.279)		(0.250)		(0.288)		(0.236)			
Subset	Foreign sales		No foreign sales		Regulated industry		Non regulated industries		Locally-controlled		Non-Locally-controlled		Long term locally-controlled firm		Non-Long term locally-controlled firm			
Observations	1,535		500		479		1,556		1,088		947		734		1,301			
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries,Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years			
Multiple R^2	52.31%		67.83%		51.54%		48.71%		53.66%		60.61%		59.69%		53.81%			
Adjusted R^2	51.16%		65.33%		49.20%		47.59%		52.08%		59.05%		57.67%		52.45%			
F	45.64	***	27.12	***	22.04	***	43.79	***	33.81	***	38.89	***	29.53	***	39.76	***		

APPENDIX

Tables

Table A1
Universities in Switzerland

The table presents figures about Swiss universities and their graduates' representation on corporate boards of directors in SPI firms.

Sample Universities	University figures		Sample figures		
	Number of students	Year of foundation	Fraction of directors	Maximum of directors	Standard deviation
University of Basel (BS)	12,982	1460	5.08%	90.00%	0.118
University of Bern (BE)	15,406	1834	3.35%	66.67%	0.080
University of Fribourg (FR)	10.084	1889	1.42%	66.67%	0.059
University of Geneva (GE)	15,514	1559	2.79%	75.00%	0.083
University of Lausanne (LS)	12,947	1537	3.41%	66.67%	0.093
University of St. Gallen (SG)	7,809	1898	10.33%	85.71%	0.150
University of Zurich (ZH)	26,351	1833	10.80%	75.00%	0.147
EPF Lausanne (EPF)	9,395	1969	1.16%	42.86%	0.048
ETH Zurich (ETH)	17,309	1855	13.65%	80.00%	0.177
Excluded Universities					
University of Swiss Italian Region (--)	2,918	1995	0.00%	0.00%	0.000
University of Lucerne (--)	2,654	1848	0.00%	0.00%	0.000
University of Neuchatel (--)	4,345	1838	0.28%	20.00%	0.020
					Study Sample Statistics
All university graduates (incl. foreign universities)			76.60%	100.00%	0.205

Source: www.swissuniversities.ch (access on 4.8.2015) and own data base.

Table A2
Home cantons from students and graduations from Swiss universities in 1981

	U BS	U BE	U FR	U GE	U LS	U LU	U NE	U SG	U ZH	U SI	EPFL	ETHZ	1981 Graduates per Population
Zürich	0%	1%	1%	2%	0%	0%	0%	3%	**63%**	0%	0%	**28%**	0.1%
Bern	1%	**63%**	2%	4%	2%	0%	4%	3%	4%	0%	1%	16%	0.0%
Luzern	13%	16%	11%	1%	1%	2%	1%	9%	24%	0%	0%	22%	0.1%
Uri	4%	26%	19%	0%	0%	7%	0%	4%	22%	0%	0%	19%	0.1%
Schwyz	8%	15%	25%	3%	0%	0%	0%	10%	15%	0%	0%	25%	0.0%
Obwalden	0%	26%	11%	0%	0%	0%	0%	11%	26%	0%	0%	26%	0.1%
Nidwalden	22%	39%	17%	0%	0%	0%	0%	0%	11%	0%	0%	11%	0.1%
Glarus	0%	12%	0%	0%	0%	0%	0%	12%	65%	0%	0%	12%	0.0%
Zug	2%	6%	0%	2%	0%	0%	0%	11%	66%	0%	0%	13%	0.1%
Fribourg	1%	9%	**47%**	11%	12%	0%	1%	1%	2%	0%	7%	9%	0.1%
Solothurn	23%	30%	4%	1%	0%	2%	0%	6%	12%	0%	0%	23%	0.1%
Basel-Stadt	**80%**	1%	1%	3%	0%	0%	0%	1%	4%	0%	0%	9%	0.1%
Basel-Landschaft	73%	1%	2%	1%	0%	1%	0%	1%	5%	0%	0%	15%	0.1%
Schaffhausen	0%	5%	0%	7%	0%	0%	2%	5%	34%	0%	0%	48%	0.1%
Appenzell A.	10%	7%	3%	3%	0%	0%	3%	14%	28%	0%	0%	31%	0.1%
Appenzell I.	0%	14%	0%	0%	0%	0%	0%	29%	57%	0%	0%	0%	0.1%
St. Gallen	5%	13%	7%	2%	0%	0%	1%	**14%**	33%	0%	0%	24%	0.1%
Graubünden	6%	12%	6%	4%	2%	0%	0%	4%	45%	0%	1%	21%	0.1%
Aargau	14%	8%	1%	1%	1%	0%	0%	6%	41%	0%	0%	27%	0.1%
Thurgau	2%	13%	3%	2%	1%	0%	0%	12%	39%	0%	0%	28%	0.1%
Ticino	2%	9%	14%	21%	10%	0%	1%	3%	15%	0%	3%	22%	0.1%
Vaud	0%	2%	0%	16%	**62%**	0%	1%	0%	1%	0%	**14%**	4%	0.1%
Valais	1%	9%	19%	34%	22%	1%	1%	1%	1%	0%	4%	8%	0.1%
Neuchâtel	0%	4%	1%	20%	15%	0%	48%	1%	0%	0%	3%	7%	0.1%
Genève	0%	1%	0%	**87%**	1%	0%	0%	0%	1%	0%	7%	2%	0.2%
Jura	2%	2%	6%	29%	25%	0%	21%	2%	0%	0%	4%	10%	0.1%
Average	10%	12%	5%	16%	9%	0%	2%	4%	22%	0%	3%	17%	0.1%

Table A3
Firms' Headquarters and their Closest University

The table presents the firms' headquarters location, its postcode, the firms region and its closest university, as well as the travel time and distance from the heaquarter to this university.

Headquarters	Postcode	Canton	Region	Closest University	Travel time by car	Distance in km
Aigle	1860	VD	Lausanne	LS	36	44
Allschwil	4123	BL	Basel	BS	13	6
Altdorf	6460	UR	Other region	ZH	57	76
Arbon	9320	TG	St. Gallen	SG	17	16
Baar	6340	ZG	Central Switzerland	ZH	29	34
Bad Ragaz	7310	SG	Other region	SG	54	83
Baden	5400	AG	Swiss Plateau	ZH	28	25
Basel	4000	BS	Basel	BS	0	0
Bern	3000	BE	Bern	BE	0	0
Biel/Bienne	2500	BE	Bern	BE	33	41
Boudry	2017	NE	Other region	LS	45	65
Brusio	7743	GR	Other region	SG	3h01	237
Bubendorf	4416	BL	Basel	BS	26	23
Bubikon	8608	ZH	Zurich	ZH	32	28
Buchs (AG)	5033	AG	Swiss Plateau	ZH	26	15
Burgdorf	3400	BE	Bern	BE	27	25
Cham	6330	ZG	Central Switzerland	ZH	27	31
Cheseaux-sur-Lausanne	1033	VD	Lausanne	LS	12	9
Chéserex	1275	VD	Geneva	GE	32	29
Chur	7000	GR	Other region	SG	1h05	103
Dierikon	6036	LU	Central Switzerland	ZH	37	45
Dietlikon	8305	ZH	Zurich	ZH	18	13
Domat/Ems	7013	GR	Other region	SG	1h10	109
Dornach	4143	SO	Basel	BS	17	14
Dottikon	5605	AG	Swiss Plateau	ZH	36	36
Düdingen	3186	FR	Other region	FR	15	11
Eglisau	8193	ZH	Zurich	ZH	28	28
Emmen	6032	LU	Central Switzerland	ZH	40	50
Flamatt	3175	FR	Other region	BE	19	18
Frauenfeld	8500	TG	Other region	SG	36	48
Fribourg/Freiburg	1700	FR	Other region	FR	0	0
Apples	1143	VD	Lausanne	LS	27	22
Genève	1200	GE	Geneva	GE	0	0
Gerlafingen	4563	SO	Swiss Plateau	BE	28	32
Gland	1196	VD	Lausanne	LS	32	36
Glarus	8750	GL	Other region	ZH	51	70
Granges-Marnand	1523	VD	Other region	FR	31	24
Gränichen	5722	AG	Swiss Plateau	ZH	46	48
Hergiswil	6052	NW	Central Switzerland	ZH	41	58
Herisau	9100	AR	St. Gallen	SG	13	11
Hinwil	8340	ZH	Zurich	ZH	31	29
Hochdorf	6280	LU	Swiss Plateau	ZH	45	49
Horgen	8810	ZH	Zurich	ZH	20	21
Horw	6048	LU	Central Switzerland	ZH	43	55
Interlaken	3800	BE	Other region	BE	44	58
Ittigen	3063	BE	Bern	BE	11	6
Jona	8645	SG	Zurich	ZH	31	40
Kilchberg (ZH)	8802	ZH	Zurich	ZH	12	6
Kloten	8302	ZH	Zurich	ZH	17	13
Küsnacht (ZH)	8700	ZH	Zurich	ZH	13	7
Laufenburg	5080	AG	Other region	BS	33	40
Lausanne	1000	VD	Lausanne	LS	0	0
Lenzburg	5600	AG	Swiss Plateau	ZH	39	38
Liestal	4410	BL	Basel	BS	22	19

Locarno	6600	TI	Ticino	ZH	2h28	200
Lupfig	5242	AG	Swiss Plateau	ZH	33	32
Luterbach	4542	SO	Swiss Plateau	BE	35	36
Luzern	6000	LU	Central Switzerland	ZH	42	52
Lyss	3250	BE	Bern	BE	26	29
Männedorf	8708	ZH	Zurich	ZH	29	20
Morges	1110	VD	Lausanne	LS	16	14
Moutier	2740	BE	Other region	BS	56	54
Muttenz	4132	BL	Basel	BS	15	7
Neuhausen	8212	SH	Other region	ZH	46	52
Niederwangen	3172	BE	Bern	BE	10	8
Niederweningen	8166	ZH	Zurich	ZH	35	24
Oberdorf (BL)	4436	BL	Basel	BS	32	30
Oberkirch	6208	LU	Swiss Plateau	ZH	53	71
Olten	4600	SO	Swiss Plateau	BS	45	54
Perlen	6035	LU	Central Switzerland	ZH	36	44
Pfäffikon (SZ)	8808	SZ	Zurich	ZH	26	36
Plan-les-Ouates	1228	GE	Geneva	GE	13	5
Porrentruy	2900	JU	Other region	BS	1h04	69
Prilly	1008	VD	Lausanne	LS	6	3
Quartino	6572	TI	Ticino	ZH	2h25	193
Regensdorf	8105	ZH	Zurich	ZH	20	12
Reinach (BL)	4153	BL	Basel	BS	17	9
Rorschacherberg	9404	SG	St. Gallen	SG	19	15
Rümlang	8153	ZH	Zurich	ZH	19	14
S. Antonino	6592	TI	Ticino	ZH	2h11	184
Schaffhausen	8200	SH	Other region	ZH	43	52
Schindellegi	8834	SZ	Zurich	ZH	27	31
Schlieren	8952	ZH	Zurich	ZH	19	9
Sion	1950	VS	Other region	LS	1h05	94
St. Gallen	9000	SG	St. Gallen	SG	0	0
Stäfa	8712	ZH	Zurich	ZH	32	23
Stans	6370	NW	Central Switzerland	ZH	46	64
Stein am Rhein	8260	SH	Other region	ZH	57	56
Steinach	9323	SG	St. Gallen	SG	16	15
Steinhausen	6312	ZG	Central Switzerland	ZH	28	30
St-Prex	1162	VD	Lausanne	LS	21	18
Tägerwilen	8274	TG	Other region	SG	52	43
Thalwil	8800	ZH	Zurich	ZH	15	12
Uster	8610	ZH	Zurich	ZH	24	24
Uznach	8730	SG	Other region	ZH	39	55
Vaduz	9490	FL	Other region	SG	45	68
Vaz	7082	GR	Other region	SG	1h26	125
Vernier	1214	GE	Geneva	GE	17	7
Vevey	1800	VD	Lausanne	LS	25	19
Waldenburg	4437	BL	Basel	BS	32	31
Wattwil	9630	SG	Other region	SG	40	37
Solothurn	4500	SO	Swiss Plateau	BE	35	40
Wetzikon	8620	ZH	Zurich	ZH	29	29
Winterthur	8400	ZH	Zurich	ZH	31	27
Wolfenschiessen	6386	NW	Central Switzerland	ZH	1h02	76
Yverdon	1400	VD	Other region	LS	33	39
Zermatt	3920	VS	Other region	LS	2h23	172
Zofingen	4800	AG	Swiss Plateau	BS	42	53
Zug	6300	ZG	Central Switzerland	ZH	31	34
Zürich	8000	ZH	Zurich	ZH	0	0

Figures

Figure 1

Universities in Switzerland

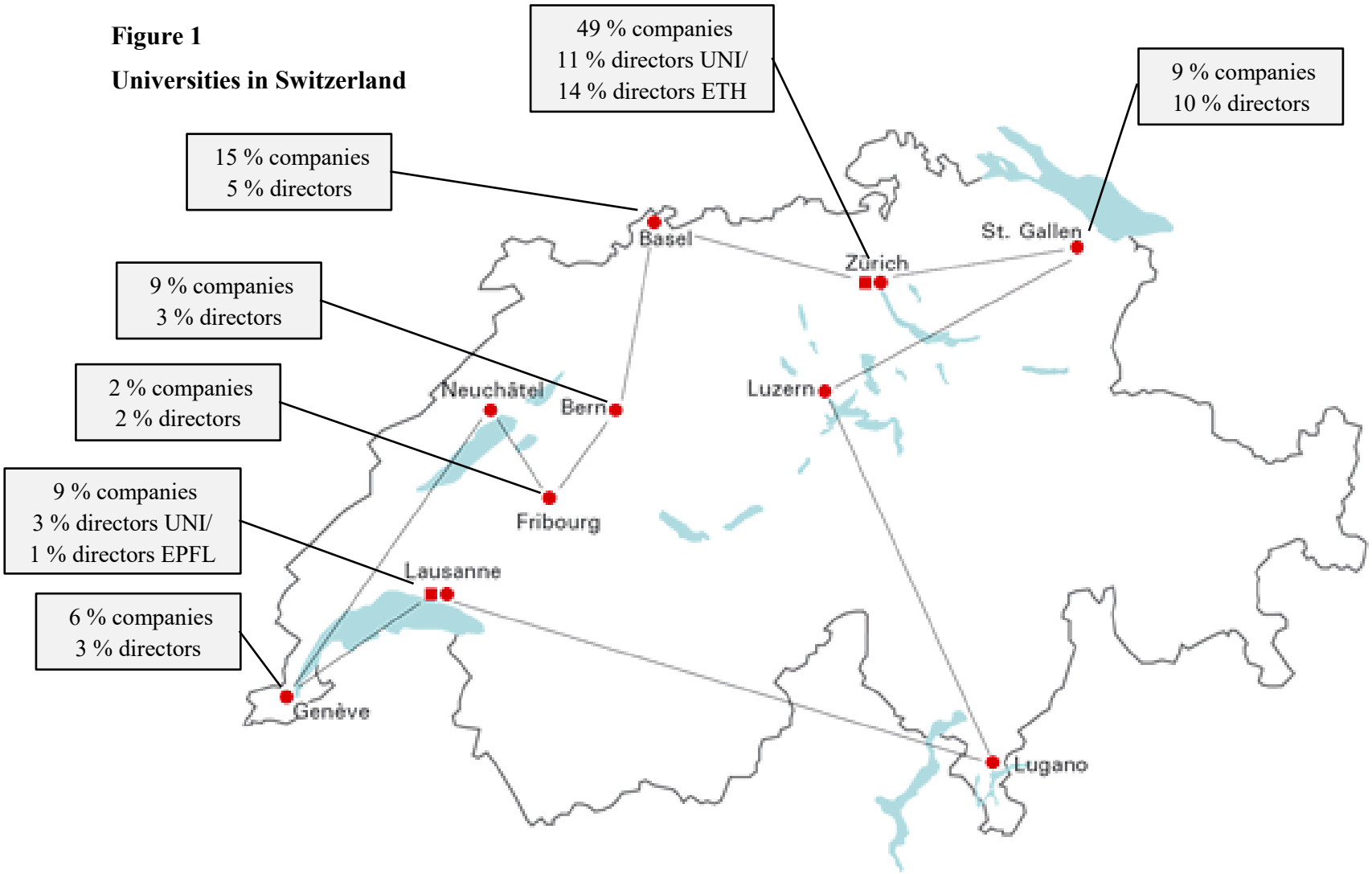

Figure 2

Development of locally-rooted directors