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ORIGINAL RESEARCH

Locally-rooted directors

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Abstract
We study the influence of locally-rooted directors (LRDs)—board members with personal ties to a company's geographic location—on firm performance. On the one hand, LRDs may provide valuable local know-how and access to local networks. On the other hand, as their appointments may go back to social ties with insiders (e.g., corporate directors, top executives, or large shareholders), LRDs may be used to extract rents and lack relevant experience, business skills, and independence. Using the directors' alma mater as a proxy for local roots, LRDs turn out to be heavily overrepresented, making up 30% of all directors in our sample. We show that LRDs are negatively related to Tobin's Q. However, this finding does not apply to domestically-oriented companies, i.e., firms without material foreign sales, and firms in regulated industries. Thus, while the results indicate that LRDs harm firm performance on average, their presence may be optimal in some cases.

Keywords Corporate governance · Board of directors · Social ties · Firm value

JEL Classification G30 · G34

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 et al. 2003). The lack of board directors' independence and business skills may lead to weak monitoring, poor managerial advice, and suboptimal strategic decisions (see, e.g., Adams et al. 2010, and Johnson et al. 2013, for two surveys on the importance of the board of directors). In this paper, we study the directors' local roots as an additional 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 where a firm is headquartered.

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Local roots may have two opposing effects on firm performance. On the one hand, according to Resource Dependence Theory (Pfeffer and Salancik 1978), locally-rooted directors (LRDs) 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, financing institutions, and other local stakeholders, making them particularly effective and valuable board members. On the other hand, according to Agency Theory (Jensen and Meckling 1976); Fama and Jensen 1983), LRDs may be appointed because of their personal relationships with corporate insiders, such as the CEO, board members, or controlling shareholders (see e.g., Cheung et al. 2013). These social ties may prevent them from being truly independent and acting as effective monitors. Given these countervailing hypotheses, the relevance and the actual influence of LRDs on firm performance is a matter of empirical research.

The paper contributes in several ways to the growing literature on (optimal) board characteristics. First, we add to this literature by proposing directors' local roots as an additional distinctive dimension in the array of features that determine the contribution of corporate boards and their members to firm outputs. For instance, recent research has highlighted the influence of board diversity (e.g., Chen et al. 2023a; Xie et al. 2024), directors' co-option (e.g., Chen et al. 2023b), board overconfidence (Twardawski and Kind 2023), and directors' military experience (e.g., Nawaz and Nawaz 2024) on firm outputs. The effects of local roots on firm performance relate both to Resource Dependence Theory (positive effects due to local know-how and access to powerful local networks) and Agency Theory (negative effects due to lack of independence, commitment to local communities, and lack of monitoring skills), which represent the two most prominent and successful theories for explaining the performance of corporate boards (see, e.g., Johnson et al. 2013). Importantly, LRDs (and the reasons for choosing them) significantly differ both from (non-locally-rooted) domestic directors and from foreign directors. In particular, the latter are known to be selected for their country-specific know-how by firms with substantial foreign operations, an international shareholder base, and cross-border acquisition intentions (Masulis et al. 2012; Miletkov et al. 2017; Xiang et al. 2023). In contrast to both domestic directors and foreign directors, LRDs may provide specific local know-how and better access to information and resources in the local community. However, due to their personal relations and their commitment to local communities, LRDs may give more attention to the interests of local stakeholders than to those of shareholders (e.g., in decisions on the relocation of production sites that involve lay-offs of the local workforce). This conflict of interest does not exist in that form with the other two types of directors.

Second, we provide a simple way of measuring directors' local roots by focusing on the match between the headquarters' location and a director's alma mater. The use of educational institutions as a proxy of cultural proximity is inspired by the work of Cohen et al. (2008), Nguyen (2012), Fracassi and Tate (2012), Ishii and Xuan (2014), and Schmidt (2015) who use the common educational institution as a proxy of social ties among individuals (individual-individual relations). In this paper, we acknowledge the importance of the alma mater in the personal development of individuals but use it to capture the linkages of a director to the firm's headquarters region (individual-headquarters' location relations).

Third, we contribute to a strand of research that emphasizes that boards are endogenously formed institutions designed to deal with firm-specific challenges (Hermalin and Weisbach 2003; Pathan and Skully 2010). Similar to studies that question the idea that "one size fits all" (see, e.g., Coles et al. 2008; Lehn et al. 2009) and argue that certain board characteristics are value-increasing for some firms but not for others, we investigate whether the effect of locally-rooted directors on firm valuation varies in the cross-section,

depending on firm characteristics related to the theoretically-grounded effects of local roots.

To investigate the phenomenon of locally-rooted directors (LRDs) and their influence on firm valuation, we carry out our research in Switzerland—a country that offers several unique and favorable features for the purposes of our study. First, Switzerland is characterized by a particularly pronounced cultural diversity and strong local peculiarities (often referred to as "Kantönligeist", i.e., "cantonal spirit"). Second, due to its federal structure, decisions are often made on low hierarchical levels, which makes local roots (and thus familiarity with the local environment) a valuable asset. Third, its comparatively small geographic extension lets travel time likely play a minor role in the choice of directors: the distance between St. Gallen on the eastern border and Geneva on the western border amounts to only 360 km, or 224 miles, less than four hours by either car or train. Finally, the distribution of companies' headquarters across its main regions is remarkably even (see Sect. 3.1: Sample). The cultural heterogeneity of Switzerland can be traced back to its 26 federal states (cantons), its four official languages,[1] the multitude of local dialects,[2] and the religious split in Catholicism and Protestantism.[3] Hence, especially in Switzerland local roots of corporate directors are distinctive and well measurable while travel time and geographic distances may unlikely restrict the pool of potential corporate directors and play a major role in choosing them.

Our results indicate that LRDs are highly over represented in corporate boards, making up almost 30% of board members. For example, in Hügli Holding, an international food company based in Steinach, 15 km from St. Gallen, five out of seven directors graduated from the University of St. Gallen: one with a degree in banking, one with a degree in economics, one with a Ph.D. degree in strategic management, and two with a law degree. Second, and most importantly, the fraction of LRDs is negatively related to firm performance as measured by Tobin's Q. The result is particularly strong for export-oriented firms, suggesting that LRDs generate net costs in firms where the local business is of minor importance. On the contrary, there is no significant relationship between LRDs and firm performance for companies without relevant foreign sales and for companies in regulated industries, suggesting that boards with an overrepresentation of LRDs may match the needs of those firms. The results hold even after accounting for a large set of common controls and using the University locations as instruments for the percentage of LRDs.

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.

[1] The four official languages in Switzerland are (in decreasing order of dispersion): German, French, Italian, and Romansh.

[2] There are about 1800 German local dialects in Switzerland (see Lameli et al. 2020).

[3] The last civil war in Switzerland took place in 1847 and emerged from a conflict between the more rural, conservative, Roman Catholic cantons and the more urban, liberal, and mostly Protestant, cantons and ended in the Swiss Federal Constitution of 1848. Today, 36% of the Swiss are Roman Catholic and 24% are Protestant (Source: CIA—The World Factbook: https://www.cia.gov/library/publications/the-world-factbook/index.html).

2 Related literature and hypotheses

In this study, we focus on the importance of LRDs and their link to firm performance. Boards of directors have different duties—most notably monitoring, advising management, and setting the strategy—in relation to which their competencies, skills, and characteristics must be defined and assessed. Therefore, shareholders should spend considerable time and resources evaluating, selecting, and (re-)electing board directors at annual general meetings. In practice, however, directors are often proposed and elected on the board for other reasons, including their relationship with the CEO, board members, and controlling shareholders, or because of their status and reputation (see, e.g., Cohen et al. 2012).

Local roots may be part of the specific set of skills that matter for the ideal profile of board members. For example, locally-rooted directors may have access to valuable local networks. Alternatively, LRDs may be elected just because of their local acquaintanceships, which would reduce their social independence and, consequently, their monitoring efforts. A priori, LRDs may, therefore, have either a positive or a negative (net) influence on firm performance.

2.1 Positive aspects of local roots

As suggested by the Resource Dependence Theory (Pfeffer and Salancik 1978), LRDs may be beneficial to firms for several reasons. First, an important feature of corporate directors is their access to networks, i.e., the number, importance, and strength of their linkages to the firm's external environment and stakeholders (e.g., customers, suppliers, financing institutions, or governmental and regulatory institutions). 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, LRDs 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 with local authorities and institutions. This can be beneficial in a variety of situations, such as public tender calls, negotiations related to the expansion of plants, restructurings of operations, the agreement on severance schemes in the aftermath of layoffs, and in obtaining favorable tax treatments (Hillman et al. 1999; Faccio et al. 2006; Duchin and Sosyura 2012). In compliance with this view, Goldman et al. (2013) show that politically connected directors increase procurement contracts (see also Guo et al. 2021). Such privileged relationships may well exist thanks to LRDs. LRDs may also provide networks to local suppliers, the chambers of commerce, or even important local celebrities. Further, as legal disputes are usually resolved by 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 build up social capital within a firm and thereby positively affect firm performance. Along these lines, La Porta et al. (1997) argue that social capital contributes to firm value and arises from networks, norms, and mutual recognition. LRDs are also more aware of the country-specific expectations, duties, and responsibilities of board members (Firoozi et al. 2019).

Second, an additional positive aspect of LRDs may lay in the fact that they increase mutual trust both inside and outside the board, i.e., between the firm and stakeholders (e.g., employees, state, and NGOs) (see, e.g., Westphal 1999). Mutual trust inside the board is likely to reduce monitoring costs (see Zak and Knack 2001). Trust among people who are

culturally similar is also higher than amongst culturally dissimilar people (see, e.g., Guiso et al. 2009). In this respect, common local roots decrease uncertainty and information asymmetry among board members and between the board and the CEO, thereby lowering coordination costs (Cai et al. 2017).

Third, geographical closeness is another positive feature of LRDs. LRDs are likely to live close to the headquarters. Alam et al. (2014) find that the distance between the directors' residential address and the headquarters influences their information gathering costs, leading to a trade-off between director expertise and information-gathering costs. Masulis et al. (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. For such directors, gathering information about the firm, a country's economy and business practices, the legal environment, and the institutional environment in general is more costly. Mazur and Salganik-Shoshan (2017) show that the 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.

Finally, related to the Stewardship Theory (Donaldson and Davis 1991), LRDs may also act altruistically and in the firm's best interest because their motivation increases with their identification with the region and its stakeholders. As LRDs identify themselves with the company and the local community and likely feel obliged to help foster their region's economic development, they should be particularly committed to the firm's success and intrinsically motivated to exert effort in this direction. In fact, such intrinsic motives may also influence a director's decision to join the board in the first place (De Jong et al. 2014). As pointed out by Masulis and Mobbs (2014), reputational issues may play an important role in explaining why graduates of a local university are more likely to serve 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 value are associated with their monitoring task. First, from an Agency Theory perspective, the board's foremost task consists in monitoring the management in the shareholders' best interests. For an unbiased control of the firm's resources, directors' independence is crucial (see Jensen and Meckling 1976; Fama and Jensen 1983). Agency costs arise from the conflict of interest 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 directors). Non-independent outsiders are often denominated as "gray" or "affiliated" directors. Independent boards are generally considered to be better monitors and thereby improve firm performance. However, even conventionally defined independent directors can lack true independence by having close relationships or friendships with key executives. As a consequence of 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 among corporate directors or with CEOs (see, e.g., Davis et al. 2003; Conyon and Muldoon 2006; Hwang and Kim 2009; Cohen et al. 2012; Tan et al. 2021). 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 them 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 acquirers and targets have an adverse effect on the performance of mergers. Because LRDs may have social ties to other (local) board members, controlling shareholders, or the CEO, they may restrain board independence and may, therefore, harm firm performance. In particular, 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, directors may decide that a company shall financially support pet projects of controlling shareholders (e.g., arts or sports). In this respect, LRDs may be nominated because of their social ties rather than their capability to monitor top executives.

Second, locally-rooted directors may be more committed to local stakeholders than to their fiduciary duties as directors (see Böhler et al. 2010). For example, they may refrain from closing an unprofitable plant or from switching to a better supplier. Furthermore, LRDs may lack relevant industry-specific and international experience, access to global networks, and general business skills compared to other candidates in the broader supra-regional pool of potential corporate directors (see, e.g., Masulis et al. 2012; Oxelheim et al. 2013; Drobetz et al. 2018).

Third, in the spirit of this paper, Knyazeva et al. (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, the Similarity-Attraction Theory posits that individuals and groups have preferences for people who resemble themselves (Byrne and Griffitt 1973). Similarity can refer to psychological characteristics (e.g., shared values or mindsets) or demographic traits (e.g., gender or educational background). Top management teams are inclined to reproduce themselves (Zajac and Westphal 1996; Nielsen 2009). In fact, while new directors are ultimately elected by shareholders at general meetings, candidates are nominated by the incumbent board members. Cronyism and "homophily" within the board may hamper its effectiveness (McPherson et al. 2001). In this context, LRDs may be an important factor for boosting reproduction tendencies within boards. Directors selected on the

board because of their similarity will not raise potentially controversial opinions that are not in line with the expected view 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). In such situations, 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

As argued in Sect. 2.1, LRDs may provide important linkages to the firm's (local) external environment and know-how in the local economy. These positive features can lead to a high representation of LRDs on the board of directors. However, as elaborated in Sect. 2.2, their appointments may also reflect, at least in some circumstances, the managerial intent to reduce boards' monitoring and extract private benefits. Notwithstanding the motives for appointing LRDs, we expect them to be in high demand. We therefore formulate the first hypothesis as follows:

H1 Locally-rooted directors are overrepresented in corporate boards.

On average, we expect the benefits of LRDs (enhanced advisory skills due to local know-how and links to local political, economic, and regulatory institutions) to outweigh their potential costs (weaker monitoring due to lower independence). Thus, we hypothesize the following:

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

The board of directors has been argued to be an "endogenously determined institution" (Hermalin and Weisbach 2003, p. 9). Therefore, the optimal composition of the board depends on the firm characteristics and the business environment. In particular, in an international business domain, the benefits of local know-how and local linkages should become comparatively less relevant, while international experience and access to global networks—characteristics that LRDs are likely to lack—should become more important (Masulis et al. 2012; Oxelheim et al. 2013). For instance, as internationally-oriented firms tend to be larger and, therefore, tend to rely more heavily on non-local sources of financing, the value contribution of LRDs in this type of firms should be lower. Thus, as a subset of companies in our sample are highly active in international markets, LRDs in those companies may create costs that exceed the benefits of their local roots. We, therefore, formulate the following hypothesis.

H3 In internationally-oriented firms, locally-rooted directors are negatively related to firm performance.

On the contrary, the benefits of local know-how and local linkages should become comparatively more important in regulated industries, where LRDs can fully exploit their privileged access to local networks to influence the decisions of local authorities. Due to the strong dependence on regulating authorities, the superior lobbying skills of well-connected, locally-rooted directors should be of particular use in regulated industries. In fact, Helland and Sykuta (2004) find that regulated firms have more directors with a political background. Further,

Goldman et al. (2009) show that politically-connected directors have a positive impact on firm value. We, therefore, formulate the following hypothesis.

H4 In regulated industries, the contribution of locally-rooted directors to firm performance is particularly large.

3 Data and variables

3.1 Sample

In this study, we analyze the effect of locally-rooted directors on firm performance. We derive directors' local roots from their 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 et al. 2010; Nguyen 2012; Fracassi and Tate 2012; Ishii and Xuan 2014; Schmidt 2015). In our case, we consider a director as locally rooted if he graduated from the university closest to the company's headquarters. It is noteworthy that for Swiss companies with multiple production sites, the official headquarters often serves as the primary physical locus of their business operations. This is the place where top management meets, major decisions are made, and the corporate culture develops. Moreover, it is common practice for annual meetings to be held in proximity to these headquarters. The location of the corporate headquarters typically reflects the company's historical roots, frequently aligning with the site of the company's founding and occasionally even the birthplace of its founders. These headquarters have often remained the company's central hubs since their inception.[4] Consequently, the headquarters not only symbolizes the identity of a city or town but also embodies deep-rooted traditional ties with the local community. This connection is manifested in various forms, such as sponsorship activities and lobbying efforts.

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 ensures that a director classified as locally rooted has been exposed to a certain local environment for at least three years in an age characterized by a steep learning curve.

[4] In our dataset of 2035 firm-year observations, we observed 13 instances of headquarters relocations, including one case where a company returned to its original headquarters. In seven of these relocation events, the change of headquarters location did not affect their proximity to university regions, as the new locations were still near the same universities. Of the six remaining relocations, three occurred due to mergers. Typically, such mergers result in significant adaptions in board composition due to changes in ownership. In two of the other three instances, there were no locally-rooted directors on the board either before or after the relocation. The only case where a relocation materially impacted our focus variable was with Valora Holding Ltd. In 2008, the shareholders decided to move the registered office to the operational site. This atypical situation, where the historical registered office was different from the production site, led to an increase in the proportion of locally-rooted directors from 20 to 40%.

Our sample includes all firms in the Swiss Performance Index (SPI), the main index of the SIX Swiss Exchange. It consists of 2035 firm-year observations from 2005 to 2015 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,[5] and its legal system is efficient. The board of directors is the highest operative organ in the corporation. Similar to the U.S., companies can be run solely by 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, corporate directors are elected individually at the Annual General 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% or more 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). While high ownership concentration is typically prevalent in countries with weak investor protection and small capital markets, these conditions do not apply to Switzerland (see Djankov et al. 2008).

Second, Switzerland is a country with a comparably low percentage of university graduates (15% in 2010 and only 7% in 1990; BFS 2011).[6] Interestingly, however, 75% of all board members in our sample (Swiss and foreigners) possess a university degree (see Table 13). All Swiss universities are publicly financed, are accessible to all students with a Swiss "maturity" diploma, and offer similar educational standards. There are no elite universities similar to *Ivy League* in the United States, *Oxbridge*[7] in the United Kingdom, and the *Grandes Écoles* in France, which typically lead 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 14). For example, in 2015, more than 50% 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.

[5] 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.

[6] 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.

[7] Oxford and Cambridge.

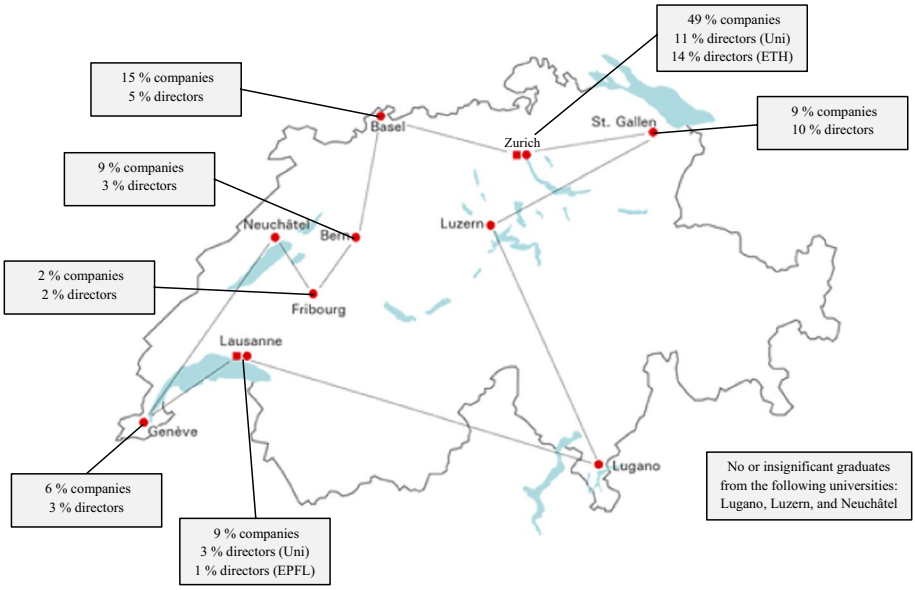

Fig. 1 Universities in Switzerland

Third, despite 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 six half-cantons), each with ample political autonomy, its own political systems, tax authority, school systems, traditions, etc. Swiss federalism creates three levels of government authorities (federal, cantonal, and community). 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 widespread, even in the business environment. Nevertheless, despite the use of different languages or belonging to one of the two main religions (Roman Catholic or Protestant), in Switzerland, there are no pronounced inequalities in income, access to education, or other socio-economic indicators between these groups. Internal migration is rather weak (Liebig et al. 2007).

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 Fig. 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 (railroads and highways) is quite efficient. For these reasons, the existence of segmented "local director markets", as suggested by Knyazeva et al. (2013), is unlikely.

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 network" was operated through business associations, societies, interest groups, political affiliations, and the Swiss Army. However, this director network has considerably decreased in the last 25 years: broadly speaking, many Swiss male directors have been replaced by 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 unrivaled (Spencer Stuart 2018).

Finally, yet very 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 of exchange-traded firms, which allows us to identify the directors' alma mater.

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

After introducing the Directive on Information Relating to Corporate Governance issued by the SIX Stock Exchange in 2002, which requires transparency in corporate governance matters, companies had to disclose information about their directors' educational backgrounds. This allows us to collect the University degree of each director, but it also restricts our analysis to the period after 2005. Further information is obtained by *BoardEx*, *Base de données élites suisses* (www2.unil.ch/elitessuisses) and research on the internet. The commercial registers provide information on the firms' headquarters, firm age, and equity structure (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

Our focus variable of this study is the proportion of corporate directors with local roots (*Locally-rooted directors*). We use the location of the alma mater as a proxy for local roots. Specifically, we classify directors as locally-rooted 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). We only consider the nine universities from which more than one percent of all directors in the sample have graduated (see Table 13). The closest university is determined by the lowest travel time by car from the respective firms' headquarters, as indicated by maps.google.com (see Table 15).[8] Our measure for local roots ascertains that a director has lived (voluntarily) for at least three years in the location we consider her local roots. Students are generally in a stage of their life when they establish informal social contacts, for example, while engaged in extracurricular and recreational activities in sports clubs, playing music, or clubbing. According to McPherson et al. (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

[8] For each firm, there is only one university whose graduates are classified as locally-rooted. This is due to the fact that in our sample no city/town hosts two universities, which is a peculiarity and an advantage of the Swiss setting. The only two exceptions to this general rule are Zürich (that hosts both University of Zürich and ETH Zürich) and Lausanne (that hosts both University of Lausanne and EPFL). However, in both cases, the "second university" (ETH and EPFL, respectively) offers curricula in the domain of technical studies (STEM) and thus deserves a separate treatment. In our baseline setting, we consider directors with a technical degree as locally rooted if they graduated from the closest of the two technical universities. We follow this procedure because these directors did not have the opportunity to graduate in the chosen technical field from a university closer to the company's headquarters.

a result, directors have likely established a social network within the university and its region.

Finding a good proxy for local roots is not easy because the concept is per se subject to leeway and interpretation, and it further requires detailed knowledge of a director's background. We recognize that due to data availability constraints, we may not be able to identify some 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 among different parties create comparative information advantages (see Cohen et al. 2010). For example, the amount of charitable donations to educational institutions vividly shows the strong connection of graduates to their alma mater. Similarly, Flap and Kalmijn (2001) and Bhowmik and Rogers (1971) find 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 Moskowitz 2001; Ivkovic and Weisbenner 2005).

Possible alternative proxies for local roots are the place of birth, the place of origin (which, as a Swiss specialty, is recorded in the passport), and the place of residence. However, all these three metrics are both very difficult to obtain and inaccurate. The place of birth is not a particularly accurate indicator for local roots as people are often born in a different place than where they later live. The place of origin is simply transferred from one generation to the next. Thus, it is rather a historical indication of the ancestors' origin. As a matter of fact, the large majority of Swiss citizens have never lived in their place of origin as indicated in the passport. Finally, for tax reasons, many managers in Switzerland choose to live in regions where income taxes are low, such as Central Switzerland, which also makes the place of residence a rather poor indicator of local roots.

3.3 Dependent variable and controls

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. It is the most widely used proxy for firm performance in corporate governance studies (see Agrawal and Knoeber 1996; Loderer and Peyer 2002).[9]

To mitigate the problem of omitted variables, we run *Q* regressions by using several control variables that are customary in corporate governance (see, e.g., Demsetz and Villalonga 2001; Bebchuk et al. 2009; Aggarwal et al. 2009; Knyazeva et al. 2013). Following several studies highlighting 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 one 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.

[9] 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.

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%
Firm 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

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 one). R&D expenditures indicate the growth prospects of a company. *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 (see Table 1 for the definitions of the variables).

3.4 Descriptive statistics

Despite our relatively narrow definition of locally-rooted directors, almost 30% of all directors turn out to have graduated from the closest university (see Table 2). This figure has slightly declined over time (see Fig. 2), which may be explained by the abolishment (in 2003) of a rule that required Swiss boards to have a majority of directors who were both Swiss nationals and permanent residents.[10] In Table 2, we also compare the differences in means and medians (*t*-test/Wilcoxon tests) for several 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 LRDs are older, have lower liquidity, but higher leverage. The comparison shows the importance of controlling for these firm characteristics in our regressions.

[10] 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 ("Feindgesetzgebung").

Table 2 Summary statistics

	All					Boards with presence of locally-rooted directors	Boards without presence of locally-rooted directors	
Number of firms	2035					1586	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	–/(–)
Firm 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	***/(***)

The table provides summary statistics for the variables in the full sample. The sample is based on 2035 observations from 2005 to 2015. The equality of means is tested using two-sample t-tests, and the equality of medians is tested using Wilcoxon tests. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, * respectively

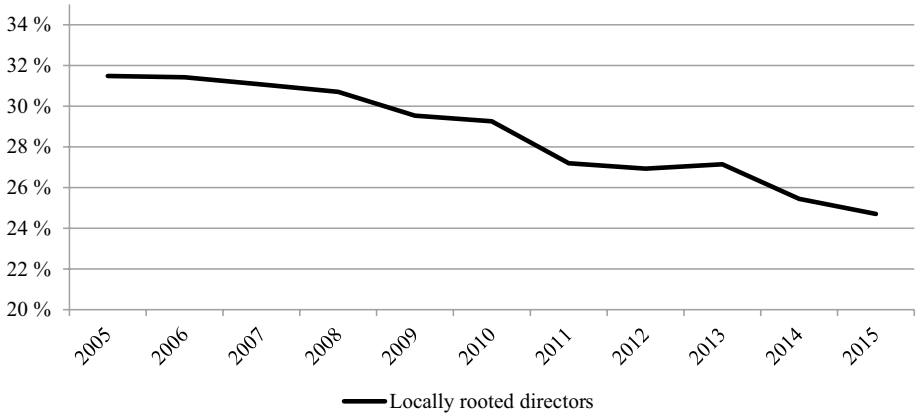

Fig. 2 Development of locally-rooted directors

Table 3 Summary statistics documenting over representation of locally-rooted directors (H1)

	Number of firm-years	University							Federal Technical University	
Region		Basel	Bern	Fribourg	Geneva	Lausanne	St. Gallen	Zurich	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
Geneva	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

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

4 Empirical results

4.1 Overrepresentation of locally-rooted directors

We start the empirical analysis by measuring the overrepresentation of *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. Following Grinblatt and Keloharju (2001), we calculate overrepresentation by dividing for all Swiss companies in a given region (e.g., Basel) the average number of local graduates on the board (e.g., for the board of Roche Holding AG, graduates from University of Basel) by the average number of directors who graduated from this university. Table 3 shows that in all regions the directors with a local university degree are heavily

Table 4 Tobin's Q and locally-rooted directors (H2)

Independent Variables	Dependent variable: Tobin's Q			
	(I)		(II)	
(Intercept)	1.45949	(***)	1.62315	(***)
	(0.395)		(0.407)	
Locally-rooted directors			−0.40381	(***)
			(0.118)	
Size	−0.02539		−0.03317	(*)
	(0.019)		(0.019)	
Sales growth	0.10134		0.12886	
	(0.191)		(0.192)	
Firm age	−0.01253		0.00127	
	(0.034)		(0.033)	
Profitability	3.75637	(***)	3.80576	(***)
	(0.526)		(0.510)	
Liquidity	0.72868	(***)	0.73495	(***)
	(0.234)		(0.229)	
Investments	3.33021	(***)	3.07806	(***)
	(1.014)		(0.979)	
Tangibility	−1.11394	(***)	−1.02349	(***)
	(0.174)		(0.176)	
R&D	1.64828	(***)	1.65490	(***)
	(0.454)		(0.435)	
Leverage	0.20420		0.14189	
	(0.195)		(0.188)	
Fixed effects	Industries, Years		Industries, Years	
Adjusted R^2	51.77%		52.92%	

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. Cluster-robust standard errors are reported in parentheses, and significance at the 1%, 5%, and 10% levels is indicated by ***, **, *, respectively

overrepresented (in bold). The results support Hypothesis 1, according to which locally-rooted directors are overrepresented in corporate boards. Similarly 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), there is, potentially, 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 cultural segmentation. In our sample, almost 30% of all directors can be defined as locally-rooted directors.

As indicated in Fig. 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.

4.2 Locally-rooted directors and firm performance: baseline model

Table 4 presents regression results on the relationship between Tobin's Q and locally-rooted directors using cluster-robust Huber/White standard errors. Controlling for industry effects, time trends, and a battery of controls, the results suggest that locally-rooted directors are negatively related with firm performance. In particular, all else being equal, boards with a ten percentage points larger fraction of locally-rooted directors are associated with lower Tobin's Q by 4.04 (Model III) to 5.55 (Model IV) percentage points. Put differently, moving from a fraction of locally-rooted directors equal to the first quartile (11%) to the third quartile (43%) lowers the predicted Tobin's Q by 12.82 percentage points (based on Model III) to 17,61 percentage points (based on Model IV). Thus, the relation between locally-rooted directors and Tobin's Q is significant both in statistical and in economic terms. Therefore, we have to reject Hypothesis 2, which is that locally-rooted directors are positively related to firm performance. Thus, despite the numerous good reasons for appointing LRDs to corporate boards (see Sect. 2.1), the empirical findings suggest that in the average firm, the negative aspects of LRDs (most likely related to their weaker monitoring and lack of skills and experience, see Sect. 2.2) dominate on the margin.

4.3 Locally-rooted directors and firm performance: instrumental variables approach

Alongside the omitted-variable bias, reverse causation is another potential source of endogeneity. Higher firm performance may induce firms to seek directors from more distant regions (even from abroad) instead of locally-rooted directors, because the former may possess relevant experience and specialist know-how that the latter likely lack. To address this issue, we use the seven university locations in Switzerland as instruments for LRDs and estimate our model using 2SLS. We believe that University locations in Switzerland are valid instruments as they likely comply with the IV's relevance condition and exclusion condition.

According to the relevance condition, the chosen instrument—in our case the university regions—must be strongly correlated with the endogenous explanatory variable, in our case the fraction of locally-rooted directors. Otherwise, the IV estimates become biased and inefficient, and the resulting inference may be unreliable. On theoretical grounds, we expect the fraction of LRDs in a firm to be influenced by the regional environment of the companies' headquarters for several reasons. In fact, the regions considered in the paper are characterized by distinctive cultural and geographic features that affect both the local demand and the local supply of different types of directors. On the one hand, language and religion (Mayer 1951), as well as other local peculiarities, e.g., the degree of urbanization and political orientation (Steenbergen 2010), likely influence the level of people's trust and their openness to directors who are not familiar with the headquarters' environment (see, e.g., Guiso et al. 2009). In some regions, the overlap of people involved in economic and non-economic activities is higher than in others, which explains the regional variations in the relevance of local roots for board appointments. On the other hand, the presence of important international airports in some of the regions considered (Basel, Geneva, and Zurich) but not in others, and the different levels of agglomerations (highest in Basel, Bern, Geneva, Lausanne, and Zurich with one-third of the overall Swiss population) likely influence the relevant supply of different types of directors. Fortunately, the relevance condition can be tested empirically, and this is usually done through appropriate tests in the

first-stage regression. In our setting, the F-statistics of the joint significance of the excluded instruments (i.e., dummy variables for university locations) in the first-stage regression is 12.02. According to Staiger and Stock (1997), a value of over 10 indicates the relevance of the instruments. Second, with respect to the exclusion condition, the direct formal test of whether the instrument is uncorrelated with the error term in the outcome equation is not feasible because the error term is unobservable. Therefore, theoretical justifications are particularly important. First, the characteristics of the regions are determined outside the model and are, therefore, at least for the purposes of this study, exogenous. In particular, it is unlikely that the short-term success (or the lack of it) of the firms in a region influences the social, cultural, and geographic characteristics of that region. Second, these geographic regions are not likely to have direct effects on firm performance for reasons we do not account for in the regressions, e.g., industry affiliation. In particular, none of the listed companies in our sample is dependent on the regions' economic conditions because they all sell their goods either in the other Swiss regions or internationally. Finally, as already argued, relocations are very rare, and the majority of companies are well-rooted in their region.

The results in Table 5 show that even when using the university regions as instrumental variables, LRDs are negatively related to Tobin's Q in the second-stage IV regression, which supports a causal interpretation of the results.

4.4 Locally-rooted directors in internationally-oriented firms and firms in regulated industries

The optimality of board composition depends on a firm's external environment (Hermalin and Weisbach 2003). As the value of LRDs differs across companies that operate in different environments, in Table 6, we re-run our baseline model on a number of subsamples: (i) internationally-oriented firms vs. domestically-oriented firms (Model I vs. Model II) and (ii) companies in regulated vs. non-regulated industries (Model III vs. Model IV).

The last two rows of Table 6 show that the proportion of LRDs is significantly higher in companies without foreign sales (31.1% vs. 27.9%) and in regulated industries (31.6% vs. 27.8%). These descriptive findings comply with the conjecture that LRDs are generally less valuable and less demanded in internationally-oriented and non-regulated firms. The regressions in Table 6 analyze the relation of LRDs with firm performance across four relevant subsamples. Strikingly, LRDs are not significantly related to firm performance in domestically-oriented companies (no foreign sales, Model II) and regulated firms (Model III). Based on these results and following the view of Hermalin and Weisbach (2003) that "boards are endogenously driven institutions", the higher proportion of LRDs chosen by firms in domestically-oriented sectors and regulated industries may be optimal. Conversely, the negative and significant coefficients of LRDs in internationally-oriented companies (Model I) and in firms in non-regulated industries (Model IV)—i.e., precisely those firms in which the benefits of LRDs are expected to be lower—show that the use of LRDs in those firms is excessive, despite being already significantly lower than in the other firms.

According to Hypothesis 3, LRDs may harm firm value if a firm is internationally oriented. Our model, therefore, accounts for a firm's internationalization profile. To examine the impact of LRDs in internationally-oriented firms, we include the interaction terms *Locally-rooted directors* × *Foreign sales (dummy)* and *Locally-rooted directors* × *Number of geographic segments*. *Foreign sales (dummy)* is a dummy variable and equals one if the company has positive sales abroad (and zero otherwise). *Number of geographic segments*

Table 5 Instrumental variables approach: University locations

Independent variables	Dependent variables			
	First stage Locally-rooted directors (I)		Second stage Tobin's Q (II)	
(Intercept)	0.29414	(*)	2.03317	(***)
	(0.152)		(0.490)	
Locally-rooted directors			−1.41544	(**)
			(0.707)	
Basel	0.10166			
	(0.066)			
Bern	0.07889			
	(0.075)			
Fribourg	−0.00056			
	(0.143)			
Lausanne	0.08166			
	(0.072)			
St. Gallen	0.20246	(***)		
	(0.077)			
Zurich	0.10874	(*)		
	(0.058)			
Size	−0.01777	(**)	−0.05266	(**)
	(0.008)		(0.023)	
Sales growth	0.04456		0.19779	
	(0.093)		(0.236)	
Firm age	0.03164	(**)	0.03585	
	(0.015)		(0.046)	
Profitability	0.11483		3.92950	(***)
	(0.124)		(0.505)	
Liquidity	0.02455		0.75066	(***)
	(0.075)		(0.234)	
Investments	−0.66283	(***)	2.44639	(**)
	(0.206)		(1.026)	
Tangibility	0.20568	(**)	−0.79690	(***)
	(0.088)		(0.271)	
R&D	0.02623		1.67150	(***)
	(0.151)		(0.424)	
Leverage	−0.14855	(*)	−0.01421	
	(0.078)		(0.225)	
Fixed effects	Industries, Years		Industries, Years	
Adjusted R^2	17.25%		48.01%	
F-statistics for joint-significance of instruments (University locations)	12.02	(***)		

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. Dummy variables indicate the name of the closest university to the company's headquarters (e.g., Basel). The University of Geneva (i.e., Geneva) serves as the reference group and is set to zero. Cluster-robust standard errors are reported in parentheses, and significance at the 1%, 5%, and 10% levels is indicated by ***, **, *, respectively

is the logarithm of the number of geographic segments as indicated by the segment information in the annual report. Traditionally, Swiss firms have a large share of export sales. Similarly, Hypothesis 4 states that in regulated industries, the contribution of locally-rooted directors to firm performance is particularly large. We, therefore, include the interaction term *Locally-rooted directors*×*Regulated industries (dummy)* to investigate this channel. Regulated industries comprise banks, insurance companies, financial services, and utilities.

In Table 7, Model II, the coefficient of the interaction term of locally-rooted directors with foreign sales (or, alternatively, with the number of geographic segments in Model IV) is negative and significant, while the coefficient of locally-rooted directors as a stand-alone variable ceases to be statistically significant.

We cannot, therefore, reject Hypothesis 3, which posits that Locally-rooted Directors (LRDs) are negatively related to firm performance in internationally-oriented firms. Contrarily, Model VI demonstrates that the impact of LRDs in regulated industries is significantly more substantial than in the rest of the sample, thus supporting Hypothesis 4. However, it's important to note that this effect on Tobin's Q in regulated industries is derived by summing the coefficients of *Locally-rooted directors* (−0.49674) and the interaction term *Locally-rooted directors*×*Regulated industries* (0.51080). Consistent with the findings of Table 6, Model III, this calculation suggests that the influence of LRDs on Tobin's Q in regulated industries is negligible and not statistically significant.

4.5 Channels of the negative effect of locally-rooted directors on firm performance

In order to better understand the underlying mechanisms for the contribution of LRDs on firms' valuations, we adopt the following procedure. First, we test whether, in our sample, LRDs and non-LRDs differ along selected professional characteristics that, according to past research (Agency Theory and Resource Dependence Theory), are related to the performance of board directors. Second, we test whether any of those features mediate the effects of LRDs on Tobin's Q. Third, we focus on alternative explanations of the results by running additional regression models with appropriate interaction terms.

For this purpose, we report in Table 8 the differences in board directors' features. Panel A refers to characteristics related to the directors' (lack of) independence, e.g., board independence (Knyazeva et al. 2013) and tenure (Huang and Hilary 2018). Panel B reports information on directors' activities that may reduce their attention to the matters of the focal firm but may also provide access to valuable resources, e.g., the number of external activities (Cashman et al. 2012), busy directors (Fich and Shivdasani 2006), external CEO positions (Fahlenbrach et al. 2010), and directors with political connections (Goldman et al. 2009). Finally, Panel C reports additional information on board directors that have attracted considerable attention in past research as drivers of directors' performance, e.g., industry know how, CEO experience, financial know how, and international experience (e.g., Oxelheim et al. 2013; Volonté and Gantenbein 2016) and gender (Bennouri et al. 2018; Chen et al. 2023a).

Strikingly, Table 8 shows several significant differences between LRDs and non-LRDs, which may help explain the results presented in the previous section. Specifically, LRDs are more often former company executives, have more often business relationships with the company, and have longer tenure, on average. However, Panel A also indicates that LRDs' stronger lack of independence is not due to their role as executive directors. Panel B shows that LRDs pursue fewer external activities, especially concerning high-level external positions as CEO and board chairman, which may indicate that they are less qualified. On

Table 6 Tobin's Q and locally-rooted directors in different subsamples

Independent variables	Dependent variable: Tobin's Q							
	(I)		(II)		(III)		(IV)	
(Intercept)	1.47931	(***)	3.27376	(***)	0.99189	(***)	1.66688	(***)
	(0.466)		(1.030)		(0.121)		(0.477)	
Locally-rooted directors	−0.47686	(***)	0.10497		0.02100		−0.48568	(***)
	(0.143)		(0.113)		(0.046)		(0.141)	
Size	−0.02516		−0.09612	(***)	−0.00775		−0.03787	
	(0.022)		(0.034)		(0.005)		(0.024)	
Sales growth	0.32881		−0.47402		0.26422	(***)	0.11202	
	(0.242)		(0.315)		(0.097)		(0.241)	
Firm age	0.02167		−0.02267		0.00810		−0.00699	
	(0.039)		(0.032)		(0.011)		(0.042)	
Profitability	3.66733	(***)	3.25806	(***)	2.52730	(***)	3.90743	(***)
	(0.503)		(0.971)		(0.506)		(0.528)	
Liquidity	1.00057	(***)	0.08235		0.30747	(**)	0.82327	(***)
	(0.268)		(0.254)		(0.125)		(0.257)	
Investments	4.69335	(***)	0.46282		−0.11533		3.24397	(***)
	(1.219)		(0.601)		(0.442)		(1.047)	
Tangibility	−1.33605	(***)	−1.20271	(***)	−0.14690		−1.02080	(***)
	(0.305)		(0.355)		(0.183)		(0.192)	
R&D	1.14664		1.32604	(***)	0.24309	(**)	1.59649	(***)
	(0.826)		(0.332)		(0.114)		(0.443)	
Leverage	−0.01485		0.84937	(***)	0.84937	(***)	0.14605	
	(0.225)		(0.259)		(0.259)		(0.206)	
Subset	Foreign sales		No foreign sales		Regulated industries		Non regulated industries	
Observations	1,535		500		479		1,556	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years	

Table 6 (continued)

Independent variables	Dependent variable: Tobin's Q			
	(I)	(II)	(III)	(IV)
Adjusted R^2	51.18%	63.62%	49.20%	47.36%
LRDs in the subsamples	27.9%	31.1%	31.6%	27.8%
Difference in LRDs (t-test)	3.19 p. p (2.74) (***)		3.87 p. p (3.43) (***)	

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. *Foreign sales* is a dummy variable and equals one if the company has positive sales abroad (and zero otherwise). *Regulated industries* is a dummy variable and equals one if the industry is regulated (and zero otherwise). Cluster-robust standard errors are reported in parentheses, and significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively

Table 7 Tobin's Q and locally-rooted directors in internationally-oriented firms (H3) and regulated industries (H4)

Independent variables	Dependent Variable: Tobin's Q											
	(I)		(II)		(III)		(IV)		(V)		(VI)	
(Intercept)	1.61874	(***)	1.56839	(***)	1.62676	(***)	1.58390	(***)	1.62315	(***)	1.62807	(***)
	(0.406)		(0.407)		(0.411)		(0.406)		(0.407)		(0.409)	
Locally-rooted directors	−0.40312	(***)	−0.04633		−0.40717	(***)	0.00912		−0.40381	(***)	−0.49674	(***)
	(0.118)		(0.112)		(0.119)		(0.117)		(0.118)		(0.140)	
Foreign sales (*dummy*)	0.01693		0.15420	(*)								
	(0.059)		(0.085)									
Number of geographic segments (*log*)					0.01673		0.13529					
					(0.059)		(0.083)					
Regulated industries (*dummy*)									−0.24722		−0.34605	(*)
									(0.203)		(0.203)	
Locally-rooted directors × Foreign sales (*dummy*)			−0.45826	(***)								
			(0.171)									
Locally-rooted directors × Number of geographic segments (*log*)							−0.40246	(***)				
							(0.133)					
Locally-rooted directors × Regulated industries (dummy)											0.51080	(***)

Table 7 (continued)

Independent variables	Dependent Variable: Tobin's Q											
	(I)		(II)		(III)		(IV)		(V)		(VI)	
											(0.153)	
Size	−0.03417	(*)	−0.03894	(*)	−0.03501		−0.04210	(*)	−0.03317	(*)	−0.03299	(*)
	(0.020)		(0.020)		(0.023)		(0.023)		(0.019)		(0.019)	
Sales growth	0.12872		0.13518		0.13150		0.14067		0.12886		0.13342	
	(0.192)		(0.194)		(0.191)		(0.191)		(0.192)		(0.193)	
Firm age	0.00088		0.00366		0.00140		0.01183		0.00127		−0.00185	
	(0.033)		(0.033)		(0.033)		(0.034)		(0.033)		(0.033)	
Profitability	3.80726	(***)	3.81245	(***)	3.80922	(***)	3.82460	(***)	3.80576	(***)	3.81411	(***)
	(0.509)		(0.506)		(0.508)		(0.504)		(0.510)		(0.507)	
Liquidity	0.74139	(***)	0.73388	(***)	0.74184	(***)	0.75953	(***)	0.73495	(***)	0.72290	(***)
	(0.227)		(0.225)		(0.227)		(0.228)		(0.229)		(0.228)	
Investments	3.05931	(***)	3.08101	(***)	3.05412	(***)	3.04401	(***)	3.07806	(***)	3.05358	(***)
	(0.991)		(0.980)		(0.988)		(0.983)		(0.979)		(0.971)	
Tangibility	−1.01228	(***)	−1.01321	(***)	−1.01082	(***)	−1.00263	(***)	−1.02349	(***)	−0.99561	(***)
	(0.187)		(0.184)		(0.181)		(0.179)		(0.176)		(0.178)	
R&D	1.65650	(***)	1.72663	(***)	1.64881	(***)	1.65264	(***)	1.65490	(***)	1.66629	(***)
	(0.434)		(0.434)		(0.437)		(0.441)		(0.435)		(0.431)	
Leverage	0.14378		0.14053		0.14033		0.12110		0.14189		0.13750	
	(0.187)		(0.185)		(0.188)		(0.185)		(0.188)		(0.187)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Adjusted R^2	52.90%		53.14%		52.91%		53.31%		52.92%		53.20%	

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. *Foreign sales* is a dummy variable and equals one if the company has positive sales abroad (and zero otherwise). *Number of geographic segments* is the number of geographic segments as indicated by the segment information in the annual report. *Regulated industries* is a dummy variable and equals one if the industry is regulated (and zero otherwise). Cluster-robust standard errors are reported in parentheses, and significance at the 1%, 5%, and 10% levels is indicated by ***, **, *, respectively

the other hand, LRDs are more often affiliated with political parties, which is likely a sign of their local connections. Panel C indicates that, on average, LRDs possess fewer professional competencies related to CEO experience, financial know how, and international experience than non-LRDs. In contrast, there are no significant differences between LRDs and non-LRDs concerning industry know how, age, and gender.

All the peculiar characteristics of LRDs shown in Table 8 are plausible candidates for explaining the effects of LRDs on Tobin's Q. To dig deeper into this issue and address the question of the economic mechanisms (channels) of the effects in a more structured way, we formally test whether any of those variables mediate the effects of LRD on Tobin's Q (see Fig. 3). In particular, we follow Baron and Kenny's (1986) established three-step procedure. First, we estimate the influence of LRDs on the mediating variable (by including controls). Second, we regress Tobin's Q on our focus variable, *Locally-rooted directors* (with controls but without the mediating variable). Third, we estimate a model to explain firms' Tobin's Q that includes both *Locally-rooted directors* and the mediating variable. To exert a mediating effect, a variable should (i) be significantly related to *Locally-rooted directors* in the first-step regression, (ii) affect Tobin's Q in the third-step regression, and (iii) lead to a significant reduction of the coefficient of *Locally-rooted directors* when moving from the second-step regression to the third-step regression. Out of all the variables presented in Table 8, in the full sample, only *International experience* complies with the above conditions. As shown in Table 9 international experience (partially) mediates the negative effect of LRDs on Tobin's Q in the full sample and the subsample of internationally-oriented firms. Thus, we can see that the lower international experience of LRDs contributes to explaining their poorer performance. Somehow, surprisingly, for all the other plausible channels (lack of independence and lack of attention), the data does not seem to support mediating effects.

It is conceivable that the negative effect of LRDs on firm performance is due to their collusion with locally-rooted CEOs or locally-rooted chairmen within the same firm. To test this possibility, in Table 10, we add to our baseline model interaction terms of our focus variable *Locally-rooted directors* with *Locally-rooted CEO* and *Locally-rooted chairman*. The fact that our focus variable remains negative and significant and none of the interaction terms are significant indicates that the measured effects are not due to collusion. Similarly, in Table 11 we add interactions of our focus variable with two variables that indicate the current and long-term presence of locally-rooted controlling shareholders (*Locally-controlled firm* and *Long term locally-controlled firm*). Even in this case, we do not find evidence that collusion with majority shareholders drives our results.

4.6 Robustness

We round up the empirical analysis by re-running the baseline regression using alternative definitions of our focus variable. In particular, we define *Locally-rooted non-executive directors* and *Locally-rooted independent directors* to disentangle the effect of their local roots from that of their independence. Further, we define *Locally-rooted directors (without two federal technical universities)* by excluding directors who graduated from the two federal universities. This avoids the different treatment of technical universities with respect to being local, as described in Footnote 7, Sect. 3.2. Finally, we define *Locally-rooted directors' overrepresentation* as the ratio of the number of locally-rooted directors to the average number of locally-rooted directors within the company's headquarters region. Table 12

Table 8 Statistics on locally-rooted directors

	Locally-rooted directors	Non-locally rooted directors	*t*-test/(Wilcoxon-test)
Number of directors	4002	10,423	
Panel A: Lack of independence			
Executive	0.0640	0.0781	***/(***)
Grey director	0.1664	0.1201	***/(***)
Former executive	0.0897	0.0737	***/(***)
Business relationships	0.0785	0.0535	***/(***)
Independence	0.7696	0.8013	***/(***)
Long tenure	0.3558	0.2556	***/(***)
Shareholding director	0.3081	0.2788	***/(***)
Full independence	0.3866	0.4718	***/(***)
Panel B: Lack of attention			
Busy director	0.3818	0.3906	–/(–)
Number of external activities	3.7	3.8	**/(–)
External chairman positions	0.5	0.6	***/(–)
External director positions	1.7	1.7	–/(–)
External CEO positions	0.2	0.2	**/(***)
External officer positions	0.3	0.3	–/(–)
Director with political connections	0.2	0.1	***/(***)
Panel C: Professional competencies and other director characteristics			
Industry know how	0.5260	0.5398	–/(–)
CEO experience	0.4840	0.5055	**/(**)
Financial know how	0.5280	0.6262	***/(***)
International experience	0.3351	0.5869	***/(***)
Female	0.0777	0.0788	–/(–)
Age	57.5	57.6	–/(–)

Statistics on locally-rooted directors. The table provides statistics on the difference between locally-rooted directors and non-locally rooted directors. The sample is based on 14,425 director observations from 2005 to 2015. *Executive* is an actual executive (i.e., executive director) of the company. *Grey director* is a non-executive director who is a former executive or/and has material business relationships with the company. *Former executive* is a former executive of the company. *Business relationships* is a director with material business relationships with the company (e.g., as a consultant). *Independence* is a non-executive director who is neither a former executive nor has business relationships with the company. *Long tenure* is a director who has been a member of the board for nine or more years. *Shareholding director* is a director with significant shareholding or representative of a significant shareholder. *Full independence* is an independent director who has neither a long tenure nor is a shareholding director. *Busy director* is a director who has three or more external directorships (directorships count as 1 and chairmanships as 1.5 directorships). *Number of external activities* is the number of all external activities of the director (incl. political appointments etc.). *External chairman positions* is the number of external chairman positions of the director. *External director positions* is the number of number of external director positions of the director. *External CEO positions* is the number of external CEO positions of the director. *External officer positions* is the number of external officer/management positions of the director. *Director with political connections* is a director who has political ties, e.g., by being an actual or former politician. *Industry know how* is a director who has work experience in the same industry in which the company operates. *CEOexperience* is a director who is an actual CEO or has been CEO in the past. *Financial know how* is a director with experience in finance, business, or economics (e.g., they have studied finance or worked at a bank). *International experience* is a director who is foreigner or who has worked abroad. *Female* is a female director. *Age* is the director's age. The equality of means is tested using two-sample t-tests, and the equality of medians is tested using Wilcoxon tests. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, * respectively

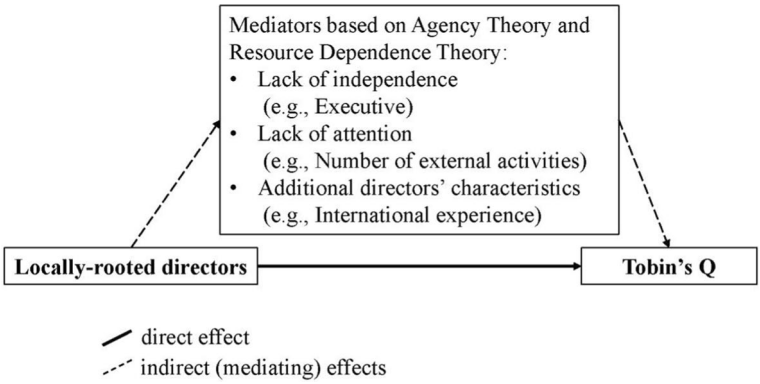

Fig. 3 Headquarters of the largest internationally and domestically-oriented companies in each university region

shows that the negative and significant relationship between LRDs and Tobin's Q is unaffected by the alternative definitions of our focus variable.

Finally, we re-run the baseline regression with additional controls, such as board size (Yermack 1996), board independence (Knyazeva et al. 2013), international experience (e.g., Oxelheim et al. 2013), and female directors (see, e.g., Bennouri et al. 2018), tenure (Huang and Hilary 2018), co-option (Coles et al. 2014), number of external activities (see, e.g., Cashman et al. 2012), busy directors (Fich and Shivdasani 2006), directors with political connections (see, e.g., Goldman et al. 2009), and the degree of concentration with respect to the field of study (to account for homophily). In all the regressions tested (see Table 16), the coefficients of LRD remain negative and significant, which reinforces the novelty and uniqueness of the LRD-effect proposed in this paper.

5 Conclusion

The boards of directors' main roles consist of monitoring, advising management, and strategy setting. While Agency Theory stresses the importance of board independence for monitoring management, Resource Dependence Theory emphasizes the relevance of board knowledge and linkages to the external environment for advising management and setting a firm's strategy. In this study, we propose and test a new classification of directors: locally-rooted or not. Locally-rooted directors may be valuable due to their access to important local know-how and experience, as well as their relevant linkages to the company's external local environment, such as municipal authorities, suppliers, and other local stakeholders. However, they may be less independent because of social ties with other board members, the CEO, shareholders, and local stakeholders. Further, their general managerial knowledge, experience, and wider external linkages may be limited. We measure directors' local roots based on the match between a company's region of incorporation and a director's alma mater. Almost 30% of all board members can be defined as locally-rooted. Our results show that in the average firm, the fraction of locally-rooted directors is negatively related to Tobin's Q. The lower international experience of locally-rooted directors partially explains their negative influence on firm performance. In some cases, however—in

Table 9 Channel: International experience as a mediator of locally-rooted directors (LRD)

Sample	First equation Dependent variable = mediator Independent variable = LRD			Second equation Dependent variable = *Q* Independent variable = LRD			Third equation Dependent variable = *Q* Causal variable = LRD			Mediator			Indirect effect	Bootstrap results CI lower/upper
Full sample	−0.28912	(0.062)	(***)	−0.40381	(0.118)	(***)	−0.33568	(0.120)	(***)	0.23566	(0.117)	(**)	−0.06810	[−0.1463, −0.0700]
Foreign sales	−0.29873	(0.071)	(***)	−0.47686	(0.143)	(***)	−0.40045	(0.152)	(***)	0.25580	(0.137)	(*)	−0.07640	[−0.1734, −0.0600]
No foreign sales	−0.16230	(0.093)	(*)	0.10497	(0.113)		0.13545	(0.110)		0.18781	(0.152)		−0.03050	[−0.1412, −0.0100]

The table provides statistics on the mediator effect. The sample consists of 2035 firm-year observations. *Q* denotes Tobin's Q. *International experience* is the proportion of directors who are foreigners or who have worked abroad. *Foreign sales* is a dummy variable and equals one if the company has positive sales abroad (and zero otherwise). Cluster-robust standard errors are reported in parentheses, and significance at 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively

Table 10 Channel: Interrelationships with local chairman and CEO

Independent variables	Dependent variable: Tobin's Q									
	(I)		(II)		(III)		(IV)		(V)	
(Intercept)	2.04815	(***)	2.04576	(***)	2.05492	(***)	2.05027	(***)	2.02612	(***)
	(0.457)		(0.458)		(0.464)		(0.462)		(0.451)	
Locally-rooted directors	−0.49358	(***)	−0.48156	(***)	−0.42906	(***)	−0.40858	(***)	−0.48014	(**)
	(0.131)		(0.184)		(0.119)		(0.134)		(0.191)	
Locally-rooted chairman	0.08247		0.09302						0.08688	
	(0.056)		(0.089)						(0.089)	
Locally-rooted CEO					0.03697		0.06341		0.05937	
					(0.051)		(0.106)		(0.105)	
Locally-rooted directors ×			−0.02943						−0.01753	
Locally-rooted chairman			(0.209)						(0.207)	
Locally-rooted directors ×							−0.07020		−0.07651	
Locally-rooted CEO							(0.218)		(0.213)	
Size	−0.03183		−0.03184		−0.03246	(*)	−0.03230	(*)	−0.03111	
	(0.019)		(0.019)		(0.019)		(0.019)		(0.019)	
Sales growth	0.11179		0.11325		0.11207		0.11335		0.11319	
	(0.193)		(0.194)		(0.193)		(0.193)		(0.193)	
Firm age	0.00038		0.00082		−0.00123		−0.00077		0.00121	
	(0.033)		(0.034)		(0.033)		(0.033)		(0.034)	
Profitability	3.83255	(***)	3.83075	(***)	3.83180	(***)	3.83367	(***)	3.83055	(***)
	(0.510)		(0.509)		(0.513)		(0.513)		(0.510)	
Liquidity	0.74009	(***)	0.73989	(***)	0.72841	(***)	0.72264	(***)	0.72942	(***)
	(0.230)		(0.230)		(0.229)		(0.230)		(0.232)	
Investments	3.10252	(***)	3.10167	(***)	3.06046	(***)	3.05245	(***)	3.07275	(***)
	(0.969)		(0.969)		(0.988)		(0.993)		(0.982)	
Tangibility	−1.02701	(***)	−1.02864	(***)	−1.02215	(***)	−1.02573	(***)	−1.03015	(***)

Table 10 (continued)

Independent variables	Dependent variable: Tobin's Q									
	(I)		(II)		(III)		(IV)		(V)	
	(0.175)		(0.176)		(0.176)		(0.177)		(0.177)	
R&D	1.68675	(***)	1.69037	(***)	1.67825	(***)	1.68333	(***)	1.69590	(***)
	(0.431)		(0.432)		(0.433)		(0.435)		(0.433)	
Leverage	0.13213		0.13060		0.14353		0.13890		0.13058	
	(0.187)		(0.189)		(0.189)		(0.192)		(0.193)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Adjusted R^2	53.25%		53.23%		53.13%		53.12%		53.21%	

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. *Locally-rooted chairman* is a dummy variable and equals one if the chairman is locally-rooted (and zero otherwise). *Locally-rooted CEO* is a dummy variable and equals one if the CEO is locally-rooted (and zero otherwise). Cluster-robust standard errors are reported in parentheses, and significance at the 1%, 5%, and 10% levels is indicated by ***, **, *, respectively

Table 11 Channel: Interrelationship with local shareholders

Independent variables	Dependent variable: Tobin's Q							
	(I)		(II)		(III)		(IV)	
(Intercept)	1.60866	(***)	1.68664	(***)	1.68680	(***)	2.08781	(***)
	(0.401)		(0.420)		(0.420)		(0.486)	
Locally-rooted directors	−0.33778	(**)	−0.47795	(***)	−0.47724	(***)	−0.48762	(***)
	(0.166)		(0.149)		(0.148)		(0.147)	
Locally-controlled firm	0.01115							
	(0.100)							
Long term locally-controlled firm			−0.17315	(*)	−0.17482	(*)	−0.18158	(*)
			(0.104)		(0.102)		(0.104)	
Locally-rooted directors ×	−0.09397							
Locally-controlled firm	(0.228)							
Locally-rooted directors ×			0.27616		0.27386		0.29006	
Long term locally-controlled firm			(0.225)		(0.230)		(0.231)	
Dual class					0.00743		0.00844	
					(0.081)		(0.084)	
Shareholding directors							0.00215	
							(0.117)	
Size	−0.03334	(*)	−0.03211	(*)	−0.03212	(*)	−0.03240	(*)
	(0.019)		(0.019)		(0.019)		(0.019)	
Sales growth	0.12456		0.11695		0.11832		0.10806	
	(0.192)		(0.192)		(0.189)		(0.190)	
Firm age	0.00257		0.00427		0.00404		0.00126	
	(0.034)		(0.034)		(0.034)		(0.034)	
Profitability	3.79975	(***)	3.83691	(***)	3.83660	(***)	3.86198	(***)
	(0.509)		(0.506)		(0.507)		(0.515)	
Liquidity	0.74132	(***)	0.75346	(***)	0.75321	(***)	0.75119	(***)

Table 11 (continued)

Independent variables	Dependent variable: Tobin's Q							
	(I)		(II)		(III)		(IV)	
	(0.230)		(0.230)		(0.230)		(0.230)	
Investments	3.08309	(***)	3.03299	(***)	3.03045	(***)	3.03123	(***)
	(0.984)		(0.998)		(0.996)		(0.998)	
Tangibility	−1.01980	(***)	−1.01943	(***)	−1.01790	(***)	−1.01847	(***)
	(0.181)		(0.175)		(0.175)		(0.174)	
R&D	1.63957	(***)	1.60226	(***)	1.60107	(***)	1.62119	(***)
	(0.438)		(0.436)		(0.435)		(0.432)	
Leverage	0.14908		0.11743		0.11818		0.11369	
	(0.189)		(0.185)		(0.185)		(0.186)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Adjusted R^2	52.90%		53.22%		53.19%		53.39%	

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. *Locally-controlled firm* is a dummy variable and equals one if the company is controlled by a Swiss shareholder with more than 20% of voting rights (and zero otherwise). *Long term locally-controlled firm* is a dummy variable and equals one if the company has been controlled by the same Swiss shareholder with more than 20% of voting rights over the full period (and zero otherwise). *Dual class* is a dummy variable and equals one if the company has two or more classes of equity issued (and zero otherwise). *Shareholding directors* is the proportion of directors with significant shareholding or who represent significant shareholders. Cluster-robust standard errors are reported in parentheses, and significance at the 1%, 5%, and 10% levels is indicated by ***, **, *, respectively

Table 12 Alternative specifications of locally-rooted directors

Independent variables	Dependent variable: Tobin's Q							
	(I)		(II)		(III)		(IV)	
(Intercept)	1.99702	(***)	1.99236	(***)	1.96789	(***)	1.90453	(***)
	(0.449)		(0.442)		(0.461)		(0.455)	
Locally-rooted non-executive directors	−0.45225	(***)						
	(0.120)							
Locally-rooted independent directors			−0.47413	(***)				
			(0.127)					
Locally-rooted directors (without two federal technical universities)					−0.29311	(**)		
					(0.141)			
Locally-rooted directors' overrepresentation							−0.00871	(**)
							(0.004)	
Size	−0.02952		−0.02786		−0.02875		−0.02540	
	(0.019)		(0.019)		(0.020)		(0.019)	
Sales growth	0.10321		0.06304		0.10046		0.08242	
	(0.194)		(0.196)		(0.193)		(0.192)	
Firm age	0.00133		−0.00432		−0.01079		−0.01364	
	(0.033)		(0.033)		(0.034)		(0.033)	
Profitability	3.82493	(***)	3.84101	(***)	3.79624	(***)	3.78393	(***)
	(0.512)		(0.515)		(0.524)		(0.527)	
Liquidity	0.73164	(***)	0.72958	(***)	0.72339	(***)	0.72929	(***)
	(0.227)		(0.227)		(0.233)		(0.233)	
Investments	3.11832	(***)	3.20760	(***)	3.20465	(***)	3.23320	(***)
	(0.986)		(0.977)		(0.990)		(1.017)	
Tangibility	−1.01284	(***)	−1.03527	(***)	−1.05671	(***)	−1.07355	(***)
	(0.174)		(0.173)		(0.178)		(0.174)	
R&D	1.69260	(***)	1.68635	(***)	1.66853	(***)	1.68418	(***)

Table 12 (continued)

Independent variables	Dependent variable: Tobin's Q			
	(I)	(II)	(III)	(IV)
	(0.431)	(0.438)	(0.440)	(0.445)
Leverage	0.13019	0.13883	0.20486	0.19402
	(0.189)	(0.190)	(0.191)	(0.193)
Fixed effects	Industries, Years	Industries, Years	Industries, Years	Industries, Years
Adjusted R^2	53.29%	53.12%	52.32%	52.12%

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. *Locally-rooted non-executive directors* is the proportion of locally-rooted directors who are non-executive on the board. *Locally-rooted independent directors* is the proportion of locally-rooted directors who are independent on the board. *Locally-rooted directors (without two federal technical universities)* is the proportion of locally-rooted directors on the board without considering the two federal technical universities. *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. Cluster-robust standard errors are reported in parentheses, and significance at the 1%, 5%, and 10% levels is indicated by ***, **, *, respectively

particular in domestically-oriented companies and firms in regulated industries—their presence on boards is not associated with lower valuations and may thus be value-enhancing and optimal.

Appendix

See Table 13, 14, 15 and 16.

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Table 13 Universities in Switzerland

Sample universities	University figures		Sample figures		Standard deviation
	Number of students	Year of foundation	Fraction of directors (%)	Maximum of directors (%)	
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)	7809	1898	10.33	85.71	0.150
University of Zurich (ZH)	26,351	1833	10.80	75.00	0.147
EPF Lausanne (EPF)	9395	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 (–)	2918	1995	0.00	0.00	0.000
University of Lucerne (–)	2654	1848	0.00	0.00	0.000
University of Neuchatel (–)	4345	1838	0.28	20.00	0.020
Study sample statistics					
All university graduates (incl. foreign universities)			76.60	100.00	0.205

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

Source: www.swissuniversities.ch (access on 04.08.2015) and own data base

Table 14 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 Total Population (%)
Zürich	0	1	1	2	0	*0*	*0*	3	**63**	*0*	0	**28**	0.07
Bern	1	**63**	2	4	2	*0*	*4*	3	4	*0*	1	16	0.05
Luzern	13	16	11	1	1	*2*	*1*	9	24	*0*	0	22	0.07
Uri	4	26	19	0	0	*7*	*0*	4	22	*0*	0	19	0.08
Schwyz	8	15	25	3	0	*0*	*0*	10	15	*0*	0	25	0.04
Obwalden	0	26	11	0	0	*0*	*0*	11	26	*0*	0	26	0.07
Nidwalden	22	39	17	0	0	*0*	*0*	0	11	*0*	0	11	0.06
Glarus	0	12	0	0	0	*0*	*0*	12	65	*0*	0	12	0.05
Zug	2	6	0	2	0	*0*	*0*	11	66	*0*	0	13	0.06
Fribourg	1	9	**47**	11	12	*0*	*1*	1	2	*0*	7	9	0.09
Solothurn	23	30	4	1	0	*2*	*0*	6	12	*0*	0	23	0.07
Basel-Stadt	**80**	1	1	3	0	*0*	*0*	1	4	*0*	0	9	0.13
Basel-Landschaft	73	1	2	1	0	*1*	*0*	1	5	*0*	0	15	0.10
Schaffhausen	0	5	0	7	0	*0*	*2*	5	34	*0*	0	48	0.06
Appenzell A	10	7	3	3	0	*0*	*3*	14	28	*0*	0	31	0.06
Appenzell I	0	14	0	0	0	*0*	*0*	29	57	*0*	0	0	0.05
St. Gallen	5	13	7	2	0	*0*	*1*	**14**	33	*0*	0	24	0.07
Graubünden	6	12	6	4	2	*0*	*0*	4	45	*0*	1	21	0.07
Aargau	14	8	1	1	1	*0*	*0*	6	41	*0*	0	27	0.06
Thurgau	2	13	3	2	1	*0*	*0*	12	39	*0*	0	28	0.05
Ticino	2	9	14	21	10	*0*	*1*	3	15	*0*	3	22	0.09
Vaud	0	2	0	16	**62**	*0*	*1*	0	1	*0*	**14**	4	0.08
Valais	1	9	19	34	22	*1*	*1*	1	1	*0*	4	8	0.09
Neuchâtel	0	4	1	20	15	*0*	*48*	1	0	*0*	3	7	0.09

Table 14 (continued)

	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 Total Population (%)
Genève	0	1	0	**87**	1	*0*	*0*	0	1	*0*	7	2	0.15
Jura	2	2	6	29	25	*0*	*21*	2	0	*0*	4	10	0.08
Average	10	12	5	16	9	*0*	*2*	4	22	*0*	3	17	0.08

The table shows the proportion of graduates in each canton graduating from the various universities in Switzerland

Bold indicates graduates from cantons that have a university and who graduated from these universities (i.e., canton of Basel-Stadt and University of Basel, U BS)

Italic indicates the three universities (Neuchatel, Luzern, and Lugano) or an insignificant number of graduates in our sample

Table 15 Firms' headquarters and their closest 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

Table 15 (continued)

Headquarters	Postcode	Canton	Region	Closest University	Travel time by car	Distance in km
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

Table 15 (continued)

Headquarters	Postcode	Canton	Region	Closest University	Travel time by car	Distance in km
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

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 headquarters to this university

Table 16 Accounting for additional board and director characteristics

Independent variables	Dependent variable: Tobin's Q									
	(I)		(II)		(III)		(IV)		(V)	
(Intercept)	2.14742	(***)	2.13407	(***)	2.13956	(***)	2.13971	(***)	2.23244	(***)
	(0.451)		(0.438)		(0.433)		(0.452)		(0.452)	
Locally-rooted directors	−0.40845	(***)	−0.34750	(***)	−0.27097	(**)	−0.41825	(***)	−0.39630	(***)
	(0.117)		(0.119)		(0.115)		(0.117)		(0.118)	
Board size	0.10151		0.11037		0.06032		0.10091		0.06725	
	(0.101)		(0.100)		(0.103)		(0.101)		(0.104)	
Independence	−0.33354	(**)	−0.29441	(**)	−0.27835	(**)	−0.30136	(**)	−0.33596	(**)
	(0.151)		(0.143)		(0.139)		(0.146)		(0.149)	
International experience			0.20422	(*)	0.07152					
			(0.110)		(0.130)					
Foreign directors					0.27714					
					(0.173)					
Female directors					0.29937					
					(0.267)					
Tenure					−0.00224					
					(0.008)					
Co-option							−0.12457	(*)		
							(0.064)			
Number of external activities					−0.00554					
					(0.014)					
Busy directors							−0.02690			
							(0.117)			
Directors with political connections									0.20424	
									(0.156)	
Concentration of degrees									−0.18536	
									(0.159)	
Size	−0.03869	(*)	−0.05196	(**)	−0.05605	(**)	−0.03940	(*)	−0.03679	(*)
	(0.021)		(0.023)		(0.023)		(0.021)		(0.021)	

Table 16 (continued)

Independent variables	Dependent variable: Tobin's Q									
	(I)		(II)		(III)		(IV)		(V)	
Sales growth	0.02909		0.01851		0.02802		0.07655		0.07240	
	(0.201)		(0.200)		(0.199)		(0.203)		(0.195)	
Firm age	0.00117		0.00908		0.01486		0.00022		0.00591	
	(0.032)		(0.033)		(0.033)		(0.032)		(0.032)	
Profitability	3.86355	(***)	3.89756	(***)	3.90068	(***)	3.89484	(***)	3.85212	(***)
	(0.509)		(0.510)		(0.505)		(0.505)		(0.504)	
Liquidity	0.73489	(***)	0.71330	(***)	0.74883	(***)	0.75961	(***)	0.73880	(***)
	(0.222)		(0.219)		(0.225)		(0.219)		(0.223)	
Investments	2.99290	(***)	2.95146	(***)	2.93123	(***)	2.96979	(***)	2.96673	(***)
	(1.007)		(1.018)		(1.028)		(1.004)		(1.002)	
Tangibility	−1.01196	(***)	−0.96821	(***)	−0.91485	(***)	−0.99625	(***)	−1.05138	(***)
	(0.171)		(0.174)		(0.179)		(0.171)		(0.175)	
R&D	1.61618	(***)	1.53896	(***)	1.43304	(***)	1.60461	(***)	1.63358	(***)
	(0.436)		(0.437)		(0.430)		(0.436)		(0.431)	
Leverage	0.16091		0.12391		0.12030		0.16406		0.16274	
	(0.190)		(0.188)		(0.188)		(0.185)		(0.188)	
Fixed effects	Industries, Years		Industries, Years		Industries, Years		Industries, Years		Industries, Years	
Adjusted R^2	53.69%		53.97%		54.25%		53.87%		53.88%	

The table presents regression coefficient estimates for Tobin's Q. The sample consists of 2035 firm-year observations. *Board size* is the number of directors on the board. *Independence* is the fraction of directors who are not executives, i.e., board members who are neither former executives nor have business ties with the company. The independence criterion follows the definition of the Swiss Code of Best Practice in Corporate Governance. *International experience* is the proportion of directors who are foreigners or who have worked abroad. *Foreign directors* is the proportion of foreign directors and *Female directors* is the proportion of women on the board. *Tenure* is the logarithm of the average number of years that a board member has been on the board. *Co-option* is the proportion of directors who have been elected to the board after the CEO takes office. *Number of external activities* is the directors' number of other appointments including other directorships, executive positions, or memberships in charities or interest groups. *Busy directors* is the proportion of directors who have three or more external directorships (directorships count as 1 and chairmanships as 1.5 directorships). *Directors with political connections* is the proportion of directors who have political ties, e.g., by being actual or former politicians. *Concentration of degrees* is the Herfindahl index of degrees in business/economics, law, technical and natural sciences. A value of one indicates that all directors have the same degree. Cluster-robust standard errors are reported in parentheses and significance at the 1%, 5%, and 10% levels is indicated by ***, **, *, respectively

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