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"Being there" and the continued importance of the local in finance

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Abstract: We examine the role of tacit knowledge and the need for proximity in shaping the geography of the sell-side equity research, as one of the most knowledge intensive parts of the financial sector, which forecasts the value of firms, and as such has major significance for the whole economy. We use a unique combination of professional experience, a purpose-built quantitative dataset on analysts' coverage, and extensive expert interview material. Our analysis, focused on three highly globalised sectors (metals & mining, oil & gas, and semiconductors), documents the leading positions of Toronto, Calgary & Houston, and Taipei & San Francisco, respectively, as sell-side equity research centers, matching or exceeding the role of New York or London as global financial centers. We argue that this geography reflects the continued significance of specialised and localised tacit knowledge, which is crucial to sell-side equity analysts for three inter-related reasons: the need for preferential access to local information and knowledge networks in the forecasting process; the importance of individual interpretative and analytical expertise; and the growing pressure for rapid analysis and response to new information. In short, equity analysts have to 'be there', at the sources of industry-specific information and knowledge.

Keywords: financial centers; knowledge specialization; knowledge territoriality; geographic proximity; sell-side equity research; tacit knowledge

1 Introduction

One of the more contested topics in economic geography is the debate over the need for geographic proximity in the production and dissemination of tacit knowledge, which can be defined as the skills and insights acquired through practical application and individual experience that defy codification and are difficult to transfer through formal means (Gertler 2003). On the one hand are those who argue that technological advances have weakened the spatial fix of tacit knowledge and allowed its transfer across scales far larger than the local through other forms of relational proximity (*inter alia* Amin and Cohendet 2004; O'Leary et al. 2014). On the other hand, however, are those who argue that the production of such knowledge remains grounded in the local with more specialized and complex knowledge requiring geographic proximity in its production and dissemination, a phenomenon which explains the continued concentration of economic activities (*inter alia* Bassens et al. 2021; Clark 2005; Morgan 2004; Storper and Venables 2004).

Gertler's contributions to this debate have been critical, framing three core considerations when investigating tacit knowledge: How it is produced; how can it be identified and appropriated; and how it can be reproduced and shared (2003). He stressed that the importance of context in all these issues often impeded the ability of knowledge to "transcend the bonds of spatial proximity" with "technological fixes and corporate will" unlikely to be sufficient to overcome the involved obstacles to its successful transfer over distance (2003: 95). As such, physically "being there" was critically important in the various knowledge processes.

Much has changed since this paper was published. It is now suggested that new technologies have enabled interpersonal relationships to be as effective in the virtual as in the physical world. Furthermore, reductions in the cost of long-distance travel have enabled more frequent periods of manufactured physical proximity. Given the importance of inter-personal connectivity in the transfer of specialized tacit knowledge, it could be argued that these advances have weakened Gertler's spatial bonds and the need to "be there". Or, as Amin and Cohendet concluded, that technological advances have made a "mockery of the idea that spatial proximity and "being there" are one and the same" (2004: 108).

This paper revisits the importance of Gertler's "being there" and the need to be "local" when producing tacit knowledge. It does so by investigating the production of tacit knowledge in finance, an industry which remains highly dependent on the production, accumulation, and application of specialized knowledge (Clark and Monk 2013;

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Grote et al. 2002; Petry 2020). Specifically, it examines the role of tacit knowledge and the need for proximity in shaping the geography of the sell-side equity research – a specialized function within the financial sector designed to address the information and knowledge asymmetries endemic within equity markets by providing investment recommendations to investors (Bratton and Wójcik 2022, 2023, 2024).

The paper is based on mixed methods. It uses a unique custom-made dataset which maps the location of 11,307 sell-side equity research analysts, as of June 2021, as well as their scope of activities (research coverage), domain specialization, and nature of their employers. The quantitative analysis was complemented with 80 interviews with participants from across the equity research complex. The project was aided by the professional experience and networks of one of the authors who has substantial experience in equity research (both as an analyst and as a director of research). As such, our paper offers both empirical and methodological contributions to financial and economic geography.

We present evidence that specialized financial knowledge remains spatially bound and defined by local circumstances. This is revealed through the local, not global, orientation of equity research and the tendency for the specialized knowledge required for financial forecasting to be geographically anchored. As examples, we highlight the domain knowledge specializations of selected financial centers: Toronto (metals & mining), Calgary and Houston (oil & gas), and San Francisco and Taipei (technology). We outline the three characteristics of finance which continue to favor local tacit knowledge over global codified knowledge: the need for preferential access to local information and knowledge networks in the forecasting process; the continued importance of individual interpretative and analytical expertise; and the ongoing pressure for the rapid analysis of, and subsequent response to, new information. These, in aggregate, highlight the continued importance of tacit knowledge and of "being there" in finance despite the technological advances and regulatory changes seen over the last two decades.

The following section briefly develops the contested debate on the need for geographic proximity in the production and distribution of tacit knowledge. It then highlights finance as an industry in which tacit knowledge remains important and more specifically, introduces the relevance of sell-side equity research, as a subset of highly specialized knowledge-dependent financial professionals, to the debate. Section three explains how we investigated the nature of financial knowledge in sell-side equity research. Section four uses quantitative data on the geographies of sell-side equity research to reveal the local foundation of such specialized knowledge. Section five shifts to qualitative, interview-based evidence, in outlining the characteristics of financial knowledge, and its production, which continue to favor local geographies and individual expertise. Section six closes by concluding that Gertler's "being there" remains as relevant today as it did when he published his paper on the topic more than 20 years ago.

2 Tacit knowledge, proximity, and finance

The geographies of knowledge play an outsized role in economic geography with its production, application, and distribution seen to be a core component in the literatures on globalization, economic development and competitiveness, agglomeration, industrial clusters, advanced business services, world cities, and financial centers. Across these literatures, there is a general view that tacit knowledge remains crucial in explaining spatial outcomes given the geographic constraints involved in its production and dissemination. These reflect the importance of the individual as the principal carrier of such knowledge and the subsequent presumption that its transfer is favored by face-to-face communication, high frequency interactions, and high-trust reciprocal relationships (Morgan 2004; Wijngaarden et al. 2020). All these, it is argued, favor physical proximity in its production and transfer and, therefore, anchor such knowledge within spatial constraints (Gertler 2003; Howells 2002; Maskell and Malmberg 1999; Storper and Venables 2004; Whitfield et al. 2020).

But this presumption, and the subsequent tacit/local and codified/global dualism, is contested and nuanced with various theories arguing that tacit knowledge can now be transferred over distance. At its simplest, this can be through the permanent or temporary movement of individuals (Grabher 2002; Tenold et al. 2021). But it is also argued that new technologies have freed tacit knowledge from the local by allowing its transfer across distance through other forms of relational proximity including cognitive, institutional, organized, and social (Amin and Cohendet 2004; Bathelt and Li 2014; Bathelt et al. 2004; O'Leary et al. 2014). From this perspective, tacit knowledge is no longer seen as spatially fixed in the local but can be produced and transferred in a more geographically agnostic manner (Faulconbridge 2006). Others have also stressed the 'thickening' of and significance of context for codified knowledge (Asheim and Isaksen 2002).

Within this debate, Gertler emphasized the importance of "shared language, culture, norms and conventions, attitudes, values and expectations" to generate the trust necessary to facilitate the flow of tacit knowledge (2001: 13). These factors, he argued, meant that tacit knowledge is primarily produced within a local context and often spatially bound (Gertler 2003; Gertler and Vinodrai 2005). This is not to suggest the production of tacit knowledge is an exclusively local process, as knowledge production can be informed by inputs from non-local sources (Gertler and Levitte 2005; Wolfe and Gertler 2004). But even in such situations some of the more important knowledge linkages remain primarily local, especially when raising capital (Gertler and Levitte 2005). Bathelt and Cantwell (2025) contribute to such nuanced readings of tacit knowledge, by emphasizing the role of local industry-based professional communities that rely on both tacit and codified knowledge linking local actors with global networks, e.g. by supporting internationalization of local companies through inward and outward investment.

This brings us to the world of finance. Although Gertler did not explicitly investigate knowledge production in finance, we view his conceptualizations as highly relevant to the industry, given most aspects of finance are built on attempts to manufacture and exploit knowledge advantages, or conversely, to negate the knowledge advantages held by other (Clark 2018; Clark and Monk 2013). To achieve this, financial professionals derive their value from the production, accumulation, and exploitation of highly specialized expertise, whether in terms of products, platforms, client relationships, markets, or asset prices and valuations. In the process, financial professionals congregate in local, regional, national, and international financial centers, which often specialize in particular markets, and exhibit a high degree of inertia in their development (Glückler and Wójcik 2023; Schamp 2018; Walther et al. 2011). Finance is, therefore, one of the most knowledge-intensive business services and highly dependent on individual expertise. As such, understanding the various knowledge processes within the industry can provide new insights into the need for geographic proximity in the production, application, and distribution of tacit knowledge.

Geographers, however, face challenges when investigating the distribution and production of tacit knowledge (Bassens et al. 2021; Short et al. 1996; van Meeteren et al. 2016). The first are the methodological difficulties of defining, identifying, and measuring such knowledge. It is, by definition, a highly individual characteristic and difficult to measure consistently on a global scale. The second is the challenge of understanding how tacit knowledge is produced and then subsequently applied as an input into various knowledge processes. These are often highly specialized processes, situationally specific, and opaque to external observers. As such, investigations into the production of tacit knowledge by geographers are often confined to observable or assumed outputs, e.g., patents, rather than the inputs to the creation of such knowledge (Malmberg and Maskell 2002; Ren et al. 2023).

Both these challenges are acute in finance given the high degree of specialization, the small numbers of individuals often involved, and the opacity of the various knowledge processes (as per Heinemann's "black box" (2014)). But one knowledge component of the financial system visible to external study is sell-side equity research. This is a highly specialized function which acts as an information and knowledge intermediary between firms seeking public equity financing and investors. Sell-side equity research analysts work for equity brokerages, often within investment banks, and provide value by forecasting the future financial performances of listed companies and providing investment recommendations to investors (their clients).

Equity research is one of the most knowledge intensive activities within finance, and it is highly individual. The production, quality, and value of an analyst's research product is dependent on the accumulation of complex and highly specialized knowledge, embodied within and carried by individual analysts, not institutions, and tailored to specific client requirements through reciprocal relationships. It is, therefore, typified by high human capital intensity, low capital intensity, and high individual autonomy (von Nordenflycht 2010). Analysts use both codified and tacit knowledge in a spiral intersection to form new knowledge (Nonaka 2007).

In this context, codified inputs include company earnings releases, other industry information, and current market valuations. But such inputs tend to be current or historic in nature, not forward looking. As such, analysts draw upon their individual expertise when forecasting a company's forward earnings, deriving a target valuation, and, finally, making an investment recommendation. This is done by creating a model forecasting a specific company's future financial performance, typically over a three- to ten-year horizon. This summarizes the analyst's base case for the company's forward revenues, earnings, cash flows, and balance sheet. And it is the accuracy of these forecasts which determines the value of the analysts to their clients. Individual analyst knowledge is, therefore, a critical component of the forecasting process. Analysts with better information sources, and superior analytical and interpretative capabilities, are expected to make more accurate forecasts.

But analyst knowledge is not a static construct. It is, instead, continually modified as new information is accessed from a variety of sources, including companies, clients, and colleagues. This new information can relate to a multitude of complex and dynamic factors including business strategies, market competition, input costs, technological developments, regulatory frameworks, government policies, and management capabilities. As outlined subsequently, this information collection is most often undertaken within high-trust and long-term personal relationships. It is also enabled and facilitated by shared specialized expertise and understanding of the topic which allow for the reciprocal exchange of information and knowledge (Bratton and Wójcik 2023, 2024).

Any new information is subsequently fused with an analyst's tacit knowledge through a process of individual-specific interpretation and analysis, before being subsequently codified into published research reports which present the analyst's earnings forecasts and investment recommendations based on the information available to the analyst. These are then made available to investor clients, regardless of location, either through email, third party aggregators (e.g., Bloomberg), or directly via the analyst's company's research portal. The value of an analyst's knowledge is continually assessed by clients through a periodic ranking of all relevant sell-side analysts. This ranking translates to payments made to the analyst's employer and subsequently, their compensation.

Highlighting the differences between the various knowledge-based activities, however, equity research is distinct from those such as accountancy and law in its use of knowledge to make forward-looking forecasts. Analysts may use codified knowledge as operating frameworks, e.g. standardized valuation methodologies, but the all-important inputs to these frameworks are individual decisions based on an analyst's capabilities and expertise, both in terms of specialized domain knowledge as well as their ability to collect new information and to make accurate forecasts using their analytical and interpretative skills. This expertise can be acquired through various mechanisms, including prior relevant industry expertise (Bradley et al. 2017), proximity to firms (Bae et al. 2008), the availability of supporting resources (Gao et al. 2022), and the quality of colleagues (Groysberg and Lee 2010).

Primary information sources, including contacts at firms, are seen as a particularly important input for research analysts (Bratton and Wójcik 2022). Such information is usually collected through highly personal and high trust relationships, often involving the reciprocal exchange of information. Such interactions can either be formal (e.g., regular structured meetings with senior management) or informal (e.g., spontaneous interactions with industry contacts). Although it is recognized that not all information transfers require a physical engagement, the COVID-19 pandemic provided evidence that face-to-face interactions are often more effective than virtual platforms at building such personal high-trust relationships and enabling the subsequent transfer of complex and unstructured information (Bratton and Wójcik 2022). Although such face-to-face interactions can be manufactured through periods of temporary proximity, analysts able to engage physically with their information sources more frequently will, over time, be expected to have access to an overall superior information pool than their competitors.

In summary, equity research analysts are important components of the knowledge creation processes found within finance and personify Nonaka's (2007) spiral interaction between tacit and codified knowledge. They are "knowledge enablers", who produce knowledge locally using their tacit knowledge before codifying their views into stated investment opinions, the eponymous buy, sell, hold recommendations, which are disseminated widely across geographies and actors (Gertler 2003: 88). In addition, and unlike many other KIBS activities, they are public figures with their location, stock coverage, forecasts and recommendations publicized on various media and data platforms. This means that analysts can be identified, and mapped, at the global scale. From this perspective, sell-side equity research represents a unique population set which not only reveals how highly specialized financial knowledge is geographically distributed, but also provides insights into the knowledge production processes which continue to anchor many economic and financial geographies.

3 Investigating the localized nature of financial knowledge

This paper addresses the need for proximity in the financial industry by drawing on an extensive research project into the geographies of sell-side equity research, based on two large and unique datasets – the first quantitative and the second qualitative.

The first mapped the global sell-side equity research industry, as of June 2021. This identified 11,307 research analysts, their city location, their employers, the companies they covered, i.e., their sector expertise, and the headquarter addresses of the companies covered. The analysts were identified from multiple sources including Refinitiv, Bloomberg, LinkedIn, and corporate websites (although,

for reference, the vast majority were identified through Refinitiv and Bloomberg which both maintain large datasets of sell-side equity research coverage which allowed for analyst identification). Their city locations were determined through their publicly disclosed office telephone numbers. Analysts were identified in 193 centers. Each of these analysts cover one or more companies, a process which involves forecasting the financial performance of the covered companies, deriving a valuation, and providing an investment recommendation. In total, these 11,307 analysts covered 17,871 firms through 121,430 coverage relationships. By a coverage relationship we mean a relationship between an analyst and a covered firm.

This dataset reveals the global distribution of specialized financial expertise, thereby addressing earlier concerns that "knowledge is large unobservable … and largely unmeasurable" (Foray 2004: 9) and that "we have no readily available measures of the complexity, or the tacit nature of knowledge located in particular places" (Balland and Rigby 2017: 4). But it also highlights the continued importance of local information flows within finance. This is seen in the domestic orientation of financial research with, for example, 83 % of all research coverage by sell-side equity analysts on domestic, not foreign, companies (Bratton and Wójcik 2023). In fact, this percentage is understated by London which is relatively unique as a financial center given its primary position within Europe, and if it is excluded, domestic coverage accounts for 88 % of all research activities. In terms of coverage that can be considered truly global (i.e., inter-continental), this accounts for just 5 % of all research activities.

To understand why information flows within financial research continue to tend towards the local, the research project also undertook an extensive interview program with participants from across the sell-side equity research complex. This is the second dataset that this paper draws upon. A total of 70 semi-structured interviews were undertaken in 2021 to assess the extent to which the COVID-19 restrictions on mobility and in-person interactions had impacted their access to information and consequently, their knowledge of their covered companies. In this phase, nearly all the participants were located in Asia, particularly Hong Kong (30) and Singapore (12). The initial focus on Asia was driven by three factors: first, the relative paucity of research on its financial geographies compared to Europe and the United States; second, the region adopted some of the most severe restrictions during the pandemic; and third, one of the author's privileged access to networks within the Asian sell-side equity research industry.

The participants primarily worked at international investment banks, while the high proportion of participants in Hong Kong and Singapore reflects the role these two cities play in the Asian geography of international investment banks. The majority of the participants were sell-side research analysts (45) and research managers (7). A further 13 were from the buy-side (analysts and portfolio managers) with the remainder from corporate investor relations and sell-side equity sales. Each interview typically lasted 1 h and were guided by a predetermined set of questions, although each interview sequence differed according to the individual participant's circumstances and experiences. Each interview, however, sought to identify the extent to which the COVID-19 restrictions on mobility and face-to-face communication had impaired the ability to source information and the analyst's overall knowledge capabilities.

These interviews provided substantive insights into the creation of specialized financial knowledge (see Bratton and Wójcik 2022, 2024), which informed the drafting of this paper. But to provide further context and insights specific for the analysis presented below, a further 10 interviews were undertaken in Nov-Dec 2024, including three in Toronto, two in both Hong Kong and Taipei, and one each in San Francisco, New York, and London. These supplementary interviews were undertaken to provide more insights into the knowledge specializations demonstrated by five financial centers: Toronto and its metals & mining expertise; Calgary and Houston and their specialized oil & gas expertise; San Francisco and Taipei as hubs of specialized technology expertise. These centers are of interest to the research question given they all demonstrate highly specialized research activities, in terms of sector expertise. All these sectors are large and of strategic significance to the global economy. Furthermore, some of these centers (Calgary, Houston, and San Francisco) exist despite the absence of an equity trading venue. We acknowledge the limitation that only 10 interviews were conducted with analysts in the cities we focus on. Nevertheless, given the global character of the sectors at the center of our analysis, our knowledge gained from other interviews was also relevant to the analysis.

4 Research centers and specialized financial knowledge

4.1 Toronto and its specialized metals & mining expertise

Toronto provides a particularly pertinent example of the continued importance of place in information flows and

knowledge creation. Recent literature discusses its existence in the shadow of New York (Brail and Kleinman 2022), but also its rise as an investment banking center since the global financial crisis (Wójcik et al. 2018). In terms of equity research analysts, for example, New York has 1,320 versus Toronto's 293. Nevertheless, Toronto was the eighth largest research center globally by research analysts as of June 2021, and more notably, has the world's largest pool of expertise on the metals & mining industry, with more than 70 sector-specific analysts. In total, their coverage accounts for more than a quarter (26 %) of total global research capabilities on this industry. At a more granular scale, Toronto is the main source of global research expertise on gold producers (58 % of all global coverage), copper producers (39 %), and miners of precious metals & minters (31 %). As a center of metals & mining financial expertise, therefore, Toronto is substantially more important than London, New York, or Sydney (Table 1).

To a significant extent, this research expertise reflects the underlying structure of Canada's economy (Blackbourn and Putnam 2025). But its metals & mining industry operates at the global scale with only a small proportion of revenues derived domestically (Hilson et al. 2024). It could be argued, therefore, that coverage could be undertaken just as easily from New York (or even London) given the seemingly low frictions to information exchange between the two cities, and the fact that many of Canada's miners are dual listed in both cities (and often traded in higher volumes in New York). After all, nearly a fifth (18 %) of all research coverage on Canadian companies is already undertaken by US-based analysts. Furthermore, New York based investors remain the single largest client segment for this specialized knowledge and the research knowledge creation process does benefit from co-location with such investors through reciprocal interactions. And yet, despite all these factors, the knowledge required to cover Canada's metals & mining sector remains concentrated in Toronto with New York-based analysts playing a much smaller role in covering metals & mining companies.

4.2 Calgary and Houston and their specialized oil & gas expertise

There are two research centers in North America that function as crucial information nodes and knowledge hubs for the oil & gas industry: Calgary in Canada and Houston in the US. Calgary is the undisputed capital of the Canadian oil & gas sector, hosting the headquarters of most large firms in the sector, with the province of Alberta accounting for most of the Canadian oil & gas production (Blackbourn and Putnam 2025). Houston has been documented as a long-established hub of the global production and financial network of oil, including over-the-counter trading of financial instruments related to oil & gas (Grote et al. 2024).

Calgary has a long history as a regional financial center (see, for example, Kerr 1965) and is the 31st largest research center globally. But its knowledge base is highly specialized with more than two-thirds (69 %) of its research activities undertaken on companies in the oil & gas industry, and a further 13 % on energy equipment & services, a related industry. It is the world's second largest hub for oil & gas expertise, after New York (Table 2). Houston is slightly smaller but is the fourth largest hub for oil & gas expertise. Like Calgary, it has a similar knowledge specialization with

Table 1: The top 10 research centers for the metals & mining industry, as of June 2021.

	Metals & mining industry			By sub-industry	
Center	**Total industry research coverage**	**% Of total global industry coverage**	**% Of center's total research coverage**	**% Of total global gold coverage**	**% Of total global copper coverage**
Toronto	1,039	26 %	32 %	58 %	39 %
London	439	11 %	4 %	8 %	17 %
New York	289	7 %	1 %	5 %	8 %
Sydney	268	7 %	12 %	7 %	10 %
Mumbai	232	6 %	4 %	0 %	0 %
Shanghai	216	5 %	3 %	2 %	3 %
Hong Kong	139	3 %	2 %	2 %	4 %
Beijing	130	3 %	5 %	2 %	2 %
Tokyo	124	3 %	2 %	0 %	0 %
Seoul	107	3 %	2 %	0 %	0 %

Source: Authors analysis based on Bloomberg and Refinitiv data. Total industry research coverage is the number of analyst-covered firm relationships held by analysts located in a city. % of total global industry coverage is the former expressed as a percentage of all analyst-covered firm relationships globally. % of center's total research coverage is the total industry research coverage of a city expressed as a percentage of all analyst-covered firm relationships held by analysts in this city across all industries.

Table 2: The top 10 research centers for the oil & gas industry, as of June 2021.

Center	Oil & gas industry			By sub-industry	
	Total industry research coverage	% Of total global industry coverage	% Of center's total research coverage	% Of total global E & P coverage	% Of total global S & T coverage
New York	1,020	24 %	5 %	25 %	43 %
Calgary	461	11 %	69 %	25 %	4 %
London	448	10 %	4 %	12 %	2 %
Houston	335	8 %	64 %	11 %	12 %
Mumbai	238	6 %	4 %	1 %	5 %
Oslo	163	4 %	18 %	3 %	11 %
Hong Kong	137	3 %	2 %	1 %	1 %
Moscow	122	3 %	16 %	1 %	1 %
Bangkok	116	3 %	8 %	1 %	1 %
Toronto	110	3 %	3 %	1 %	4 %

Source: Authors analysis based on Bloomberg and Refinitiv data. E & P is "exploration and production" and S & T is "storage and transportation". For other definitions refer to note in Table 1.

64 % of its research coverage undertaken on the oil & gas industry and 15 % on the energy equipment & services industry.

Calgary's and Houston's out-sized role within the oil & gas knowledge complex could be considered surprising given the industry is global in scope with many of its earnings and drivers relatively transparent and set at the global scale, e.g., the market price of oil, not local. In theory, therefore, much of the research coverage in both centers could be undertaken in the larger knowledge centers such as Toronto, New York, or even London, where they could benefit from scale benefits and easier access to investors. And yet all of Canada's 10 largest providers of research on its oil & gas industry have analysts based in Calgary, suggesting an economic benefit of being physically close to corporate headquarters and local knowledge networks.

This need for proximity appears to be further demonstrated by the fact that the knowledge complexes in both centers are based on local firms. Nearly all (94 %) of Calgary's research coverage is on domestic oil & gas firms and more specifically, on local companies (92 % of its oil & gas coverage are on firms headquartered within 100 km of the city). Similarly, Houston's oil & gas knowledge complex is built on local companies with firms headquartered within 100 km of the city accounting for 36 % of its oil & gas research activities and those within 500 km for 52 %. Its expertise on the energy equipment & services sector is even more local in origin with 70 % of associated companies headquartered within 50 km of the city.

4.3 San Francisco and Taipei as hubs of specialized technology expertise

The need for proximity to territorially confined knowledge is also apparent within the technology sector, as highlighted by the knowledge specializations of San Francisco in the US and Taipei in Taiwan (Table 3). While Taipei remains a significant though secondary financial center within Asia (Wójcik et al. 2018), San Francisco has recently risen to the second position after New York as financial center in the USA (Urban et al. 2023).

San Francisco's research complex is the world's 13th largest in terms of coverage undertaken with 121 analysts based in the city, as of June 2021. But its expertise is skewed towards the technology industries with a fifth of its research activities undertaken on the software industry, 13 % on semiconductors, 9 % on biotechnology, and 8 % on IT services. The advantage of being part of this research complex is demonstrated by the fact that 16 of the 20 largest providers of research on the US's software industry, and seven of the 10 largest providers of US semiconductor research, have analysts based in the city.

The continued advantages associated with proximity also seem to underpin Taipei's knowledge specialization. This has the largest research complex for both the semiconductors and technology hardware industries, despite the global orientation of both industries and the city's relative proximity and connectivity to the significantly larger equity research complexes in Hong Kong and Shanghai (Taipei had 237 analysts versus Shanghai's 713 and Hong Kong's

Table 3: The top 10 research centers for the semiconductor industry, as of June 2021.

Center	Semicondictor industry			By sub-industry	
	Total industry research coverage	% Of total global industry coverage	% Of center's total research coverage	% Of total global semiconductor foundry coverage	% Of total global semiconductor equipment coverage
Taipei	543	17 %	24 %	21 %	9 %
New York	441	14 %	2 %	16 %	11 %
Shanghai	411	13 %	5 %	13 %	12 %
San Francisco	269	8 %	13 %	10 %	5 %
Hong Kong	250	8 %	3 %	8 %	8 %
Tokyo	248	8 %	4 %	3 %	17 %
Seoul	245	8 %	6 %	6 %	10 %
London	131	4 %	1 %	4 %	5 %
Beijing	81	3 %	3 %	2 %	3 %
Kuala Lumpur	70	2 %	4 %	2 %	2 %

Source: Authors analysis based on Bloomberg and Refinitiv data. For definitions refer to note in Table 1.

652, as of June 2021). Taiwan's semiconductor industry is anchored around Taiwan Semiconductor Manufacturing Co (TSMC), the world's largest foundry and one of Asia's biggest companies, by market capitalization (Yeung 2022). In theory, this size and global scope should improve its transparency and reduce the need for geographic proximity when assessing the various factors influencing its future trends. And yet, of the analysts covering the firm at the 12 largest international brokers, eight are based in Taipei, three in Hong Kong, and one in Sydney. This suggests the continued benefits of proximity when covering very large companies.

5 The local foundations of financial information and knowledge

The above examples provide evidence that the specialized knowledge involved in sell-side equity research, with its focus on financial forecasting, often remains territorially dependent and geographically bounded. Toronto and Taipei are the primary financial centers within their economies, but the presence of sub-national financial centers of Calgary, Houston, and San Francisco, which despite the absence of a stock exchanges function as information and knowledge bridges between industrial clusters in their local economies and finance, highlights the way in which specialized financial knowledge is frequently embedded very much in the local and may require proximity to be accessed, created, and distributed. In this section, we interpret the findings of the preceding quantitative analysis, and discuss the local foundations of financial information and knowledge in sell-side equity research, based on the personal experience of one of the authors in the industry and qualitative, interview-based material.

This concentration of specialized sector knowledge appears to reflect the ongoing benefits of geographic proximity when collecting, and interpreting, the necessary information for financial forecasting, which, in equity research represents the creation of new knowledge. This is despite evidence that regulatory changes and technological developments may have significantly reduced the potential for beneficial selective disclosure of material information by firms (Bernile et al. 2019). But for research analysts, the continued advantages of proximity can be seen to be essentially two-fold. The first is a superior understanding of industry dynamics and their evolution resulting from preferential informational access to determining factors such as demand and pricing insights from suppliers and distribution channels, competitor positioning and behavior, and new product developments. The second is quicker access to new information than more remote peers with the subsequent benefit of greater relevance to clients.

The financial performance of any firm is a function of multiple factors, including revenues (determined, in turn, by competition, products offered, prices, end-user demand etc.), operating costs (including salaries, property and other infrastructure costs, production inputs and commodities), and capital expenditures, especially those required to support revenue growth, and upgrade and maintain existing production infrastructures. In addition, there are other less quantifiable aspects of a company's outlook which may influence its future performance, including technological developments, government policies, and management capabilities. The relative importance of these factors will vary across sectors depending on their operational scale (e.g.,

global versus local) and earnings drivers (e.g., globally sourced inputs versus highly localized demand).

Access to this information is facilitated by proximity to information sources, including broader networks within which companies operate. This relates to the mosaic theory of financial research: the idea that no market participant has access to the full relevant knowledge set, but a proprietary thesis on the future financial performance, or value, of an asset can be constructed through the accumulation of small fragments of non-material information, both public and non-public (Koch et al. 2013). These knowledge sets are, however, highly fragmented and context specific. They are frequently dispersed across many individual sources and often have no value without integration with other knowledge (Heinemann 2014). They are also frequently non-codified, or more accurately, non-codifiable, given the costs of codification are often considered excessive when compared to the perceived value of the knowledge, at least when assessed in isolation. They are often acquired, therefore, through dynamic reciprocal interactions, highly personal relationships and face-to-face communication, with the value of any new information extracted only realized when combined with other relevant knowledge.

Nearly all businesses, even those operating at the global scale, are anchored locally. Many of the Canadian mining companies, for example, operate globally disparate assets, often in remote locations, each with their own characteristics. Each project must be individually modelled to forecast earnings and derive estimated valuations, which can then be aggregated to the firm level. This is a complex task and requires a high level of sector expertise, as well as frequent access to the firm being covered and other industry specialists. A Toronto based metals & mining sector analyst, for example, highlighted that his companies had projects in locations as diverse as Chile, Mali, and Papua New Guinea, and that he had only been able to visit those in Canada and the US due to budget constraints. As such, he was highly dependent on the ability to access the headquarters of his covered firms to answer his questions within often compressed timelines. This, he recognized, was easier when there was a personal connection accessed in-person rather than virtually. This access was enabled by being in Toronto given 41 % of its metals & mining research coverage is on companies headquartered within 100 km of the city. As he noted, it is much easier for him to arrange physical meetings with his firms, and other industry contacts, than his peers in New York.

Finance, however, is dynamic and any specific fragment of financial knowledge often has a short lifetime. As such, the same analyst also highlighted the importance of timely access to new information. This, he argued, reflected a shift in client behavior over the last decade with many investors, especially those in hedge funds, now placing greater emphasis on the timeliness and relevance of new information, no matter how marginal. This, he believed, favored Toronto as a coverage location when compared to New York. In contrast, one London based metals & mining analyst noted, "I cover some of the Canadian miners, but I don't really cover them. I am always at a disadvantage versus those [analysts] over there. They are always more relevant to clients than me on those names." A Toronto-based head of equities working for an American bank mirrored this view with his observation that, "those suit-case warriors flying in from New York like to pretend they know what is going on, but they can't compete with those of us on the ground … the more present you are then the more mindshare you have."

Such local information flows are considered particularly important in fast-moving and complex sectors, even those globally orientated. This includes the technology sector given its highly complex supply chains and technological dependencies. But like many other sectors, analyst access to the associated information networks was frequently cited as critical to securing an information advantage over more remote peers and improving forecasting accuracy.

As one Taipei-based analyst covering TSMC put it, "it is not about TSMC but more about the supporting supply chain. I spend most of my time with its suppliers. They tell me more than [TSMC] will ever tell me." In contrast, one of the HK-based analysts covering TSMC noted that he struggled to compete on corporate specifics given lack of "on-the-ground industry contacts" even though he travelled to Taipei at least four times every year. He noted that his lack of connectivity with the Taiwanese industrial complex made it difficult for him to access needed information remotely. This impacted his understanding of industry dynamics and his ability to time the various industry cycles, which reduced his value to clients. A more extreme example was another HK-based analyst who worked at a mainland Chinese broker. This meant that his access to information networks in Taiwan was severely impaired given political perceptions and as such, he was dependent on public corporate disclosures and third-party data providers. This placed him at a disadvantage with clients who "frequently knew more than him" about specific companies and industry dynamics.

The importance of access to local knowledge networks across the relevant industry supply chains was repeated in the US. A New York-based director of research, for example, noted that nearly all his analysts covering the semiconductor and software industries had asked to be based in San Francisco, rather than New York, and he had agreed

to their relocation as he could see the "higher potential client impact" in terms of the research product as well as corporate access. Similarly, a semiconductor analyst based in San Francisco believed that his superior connectivity with the west-coast technology centers gave him a substantial advantage over his east-coast peers. In particular, he argued that he had a better understanding of the context and circumstances in which his covered companies were operating within when compared to more remote analysts.

It is recognized that the importance of proximity to local information sources varies across the different industries. The primary driver of earnings and valuations for oil & gas producers and refiners, for example, are oil prices, which are set at the global scale. At the same time, the industry's buyer-base is highly fragmented. But even in such a globally orientated industry, there is a benefit for analysts to be close to corporate headquarters, as reflected in the clustering of related specialized expertise in Calgary and Houston.

Such benefits include the ability to access specialized information spontaneously in response to changing circumstances and needs. The Toronto-based metals & mining analyst referenced above, for example, cited the benefit of being able to access senior contacts quickly in response to client requests and to collect complex information. He specifically referenced, for example, the benefit of being able to meet executives in person to better understand the details of new investments in proven and probable reserves, including the extent to which there was competition for those reserves. This ability to access complex information from senior informed sources in an unstructured and spontaneous format was, he believed, facilitated by the strength of his relationships with the management of his covered companies. These, in turn, were the result of numerous physical interactions which had, over many years, created many high-trust friendships with his more important information sources.

In contrast, one of the HK-based analysts covering TSMC and other Taiwanese companies noted that he found it very difficult to form strong relationships with the management of his covered companies because of the physical separation. This meant that, despite his best efforts, he believed that he was not "taken seriously" by his covered corporates, which impacted his ability to access them. He noted that, "relationships and name recognition are critically important when collecting information" and that he did not have the strength of headquarter relationships with his covered corporates that those in Taipei had. This complicated his efforts to source new information either for himself or for his clients. As he noted, this information deficit meant that he was not the analyst to explain changes in order books and company-specific margin trends. He instead positioned himself as the analyst who understood "global" trends, for example, the impact of new technologies. But even then, he recognized that his lack of strong relationships with his corporates meant that he was not always at the forefront of understand technological changes or evolving industry dynamics.

Both these examples highlight the compounding benefits of proximity, no matter how marginal, to primary information sources, even for the most globally orientated of industries. The need to access information quickly on a spontaneous and unstructured basis, either for forecasting purposes or in response to client requests, is facilitated by strong relationships with informed contacts, which are frequently embedded with the headquarters of firms. These, in turn, are enabled by physical proximity. And while the benefits may appear marginal to external observers, they are sufficient to compound over time and favor those with an advantage in terms of informational access.

Finally, a recurring theme highlighted by analysts was that the collection of new information and knowledge is an individual process based on personal networks and relationships. As outlined in Bratton and Wójcik (2022), the collection and transfer of primary information within equity research is enabled by high-trust and highly personal relationships, often grounded in unstructured, informal, reciprocal, and face-to-face interactions. Such relationships benefit from cultural similarities. At the same time, institutional considerations are important. In particular, the information exchange associated with such interactions typically provides both parties, and their employers, with some degree of benefit, whether direct or indirect, or immediate versus delayed. This process is enabled by a common understanding, interest, or expertise in the same issue which facilitates the rapid transfer of complex information within relatively compressed interactions.

But even when new information has been collected, its relevance and importance to the existing knowledge set must be assessed. This relates to the continued importance of individual expertise in terms of the interpretative and analytical skills required in the forecasting and valuation process. This is not simply about identifying and accessing new sources of needed information but also the ability to assess the value, relevance, and significance of new information, i.e., its context, especially in relation to the existing knowledge set. This is the "so what" question that all market participants will ask in response to any new information with the answer to this question determining subsequent actions and outcomes. As such, those

better able to accurately assess the "so what" and optimize subsequent reactions, at least more frequently than other market participants, should over time outperform their peers (or as one New York-based director of research sardonically commented, "you don't need to be right all the time, just more right than your competitors").

To summarize, the specialized research capabilities of the five centers highlighted above reflect the characteristics of knowledge production in finance. First, the need for preferential access to local information and knowledge networks. Second, the need for timely access to new information. And third, the importance of context in the subsequent interpretation process. When considered in the aggregate, all these characteristics stress the continued importance of tacit knowledge within finance, place individual expertise at the center of the various knowledge creation and modification processes, and highlight the continued importance of local relations and networks in knowledge production and dissemination.

6 Conclusions and implications

We set out to examine the role of tacit knowledge and the need for proximity in shaping the geography of the sell-side equity research, as one of the most knowledge intensive parts of the financial sector, which forecasts the value of firms, and as such has major significance for the whole economy. We addressed this question by using a unique combination of professional experience, a purpose-built quantitative dataset on analysts' coverage, and extensive expert interview material.

Our analysis, focused on three highly globalized sectors (metals & mining, oil & gas, and semiconductors), shows the leading positions of Toronto, Calgary & Houston, and Taipei & San Francisco, respectively, as sell-side equity research centers. As such, in an original contribution to financial and economic geography, we are able to show that sell-side equity research, is not the world of New York's and London's pre-eminence. We argue that the geography we uncover reflects the continued significance of specialized and localized tacit knowledge, which is crucial to sell-side equity analysts for three inter-related reasons: the need for preferential access to local information and knowledge networks in the forecasting process; importance of individual interpretative and analytical expertise; and the growing pressure for rapid analysis and response to new information. In short, equity analysts have to 'be there', at the sources of industry-specific information and knowledge.

Our findings do not dispute that technology has impacted the knowledge production process in finance. Codified knowledge is now a substantially larger subset of the total knowledge set while other informational frictions have been significantly lowered (e.g., translation capabilities have reduced linguistic frictions, video conference technologies have allowed improved inter-personal connectivity, and new large language models allow for large text-based datasets to be analyzed at speed). But many institutions have used these advances to achieve cost efficiencies and productivity enhancements through a reduction in the number of personnel involved in knowledge production and dissemination. This has often resulted in a smaller pool of tacit knowledge and correspondingly, an increase in the premium accorded to specialized individual expertise.

Furthermore, the increased ubiquity of codified information has increased the value ascribed to certain forms of tacit knowledge, for example, interpretative and analytical skills (the "so what?" capability). If all market participants, for example, have access to the same codified information, then individuals able to integrate the new information into their existing proprietary knowledge set and react optimally, consistently quicker than their peers, will be considered more valuable. This will, over time, increase the premium placed on tacit and local knowledge, especially as any knowledge advantage will compound rapidly given the high frequency nature of finance.

In a contribution to economic geography at large, our results show a closer relationship between the 'old-fashioned' industrial geography and financial geography than many might expect. We would not however interpret these results as a 'triumph' of 'real economy' over finance. Instead, Calgary, Houston, San Francisco, Toronto and Taipei should be seen as financial centers serving particular functions in the global production and financial network (Grote et al. 2024). One implication, and potential direction for future research, is the question of mutual causality. The concentration of equity analysts focused on metals & mining in Toronto is determined by the presence of metals & mining corporate headquarters in the city, but the former can also reinforce the latter. Another avenue for future research, related to the methodological limitation of our analysis, would be to conduct more interviews with analysts and other professionals in the cities concerned. Among other things, this could help elucidate the underlying processes through which proximity affects the practices and outcomes of sell-side equity analysts. At present, our evidence shows that tacit knowledge and being there are important for sell-side equity analysis in the selected sectors, and suggests some reasons why, but much more research is needed to answer the how question.

An empirical improvement would be a dynamic analysis, studying the geography of equity research industry over time. On a more conceptual front, one could examine the role of factors additional to tacit knowledge, e.g. analysts' reputation, in shaping this geography. From a theoretical perspective, equity analysts could be studied in relation to and as part of the local industry-based professional communities or even whole regional innovation systems (Asheim and Isaksen 2002; Bathelt and Cantwell 2025). A labor market perspective on equity research, in turn, would help to uncover the geographical and professional backgrounds of analysts, including questions on whether some of them come from the industry or join it later in their careers. The context of growing geopolitical, geoeconomic and technological uncertainty (including unknown impacts of artificial intelligence) feeds demand for equity research and financial forecasting in general, even though at the same time it lowers the average accuracy of such forecasts. As such, equity research, albeit a small part of the financial sectors, remains a critical one to watch by both financial and economic geographers.

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