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Steering capital: the growing private authority of index providers in the age of passive asset management

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ABSTRACT

Since the global financial crisis, there is a massive shift of assets towards index funds. Rather than picking stocks, index funds replicate stock indices such as the S&P 500. But where do these indices actually come from? This paper analyzes the politico-economic role of index providers, a small group of highly profitable firms including MSCI, S&P DJI, and FTSE Russell, and develops a research agenda from an IPE perspective. We argue that these index providers have become actors that exercise growing private authority as they steer investments through the indices they create and maintain. While technical expertise is a precondition, their brand is the primary source of index provider authority, which is entrenched through network externalities. Rather than a purely technical exercise, constructing indices is inherently political. Which companies or countries are included into an index or excluded (i.e. receive investment in- or outflows) is based on criteria defined by index providers, thereby setting standards for corporate governance and investor access. Hence, in this new age of passive asset management index providers are becoming gatekeepers that exert de facto regulatory power and thus may have important effects on corporate governance and the economic policies of countries.

KEYWORDS

private authority; index providers; stock market indices; passive asset management; index funds; capital flows

Introduction

The period after the global financial crisis has been characterized as the 'age of asset management' (Haldane, 2014) as banks bore the brunt of new international regulation and asset managers consequently emerged as more important than ever before. However, it is not asset management in general that is burgeoning in this new post-crisis era. Actively managed funds where (highly paid) managers pick stocks with the aim of 'beating' the market are declining, while 'passive' investing

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is growing rapidly. Through index mutual funds and exchange traded funds (ETFs), both of which carry extremely low fees for investors, passive asset managers replicate established stock market indices such as the S&P 500, the FTSE 100 or the MSCI World. This fundamental shift in investor behavior towards passive strategies has pronounced implications for corporate governance, corporate power, and market competition (Azar, Schmalz & Tecu, 2018; Braun, 2016; Elhauge, 2016; Fichtner, Heemskerk & Garcia-Bernardo, 2017; Haberly, MacDonald-Korth, Urban & Wojcik, 2019; Jahnke, 2019b). We add to this growing literature by showing how the rise of passive investing has put index providers into a new position of private authority in global capital markets. Today, index providers' decisions have a significant impact on global investment flows and corporate governance standards. We therefore develop a research agenda on this new role of index providers from an international political economy (IPE) perspective.

Index mutual funds have been available since the late 1970s and the first ETFs have been launched in the early 1990s. However, investors shunned them for a long time. But after the global financial crisis growth of index funds has accelerated massively. From 2006 to 2018 almost US$3,200 billion have flown out of actively managed equity funds globally, while over US$3,100 billion have flown into index equity funds (Sushko & Turner, 2018; Henderson, 2019). This constitutes an unprecedented money mass-migration from active to passive funds, which is rational as most actively managed funds are unable to beat broad market indices over longer time periods but charge high fees. In mid-2019, the assets of US equity index funds have surpassed active funds (Gittelsohn, 2019). Hence, we have entered the age of passive asset management. One crucial, yet largely unstudied element of this new era is that index funds effectively delegate their investment decisions to index providers. Index providers are the firms that create and maintain the indices on which passive funds rely and to which asset managers have to pay fees if they use them.

Similar to passive asset management, which is dominated by the 'Big Three' of BlackRock, Vanguard, and State Street (Fichtner et al., 2017), the global index provider industry is very concentrated. Just three firms, MSCI, S&P Dow Jones Indices (DJI) and FTSE Russell, hold a combined market share of almost 80% (Burton-Taylor, 2018). While global index revenues totaled a record US$2.7 billion in 2017, their profit margins that stand out as exceptionally high. MSCI reports an operating margin of over 60% for its index segment in 2018 (MSCI, 2019). This suggests that index providers operate in an oligopolistic industry, which has high barriers to competition. Figure 1 shows the growth of index providers in the dawning age of passive investing. Both MSCI and FTSE (excluding Russell) doubled their revenues from 2006 to 2010. From 2010 to 2017 FTSE and S&P DJI increased their revenues by over 150%. Hence, during the last decade the big index providers have had much higher growth than most other financial companies, especially banks.

Wigglesworth (2019b) emphasizes that 'financial indices are arguably the most under-appreciated force shaping global markets'. Remarkably, however, as Rauterberg and Verstein (2013, p. 105) note, scholars 'have largely ignored the indispensable role indices play in markets' – notwithstanding some important work by finance and law scholars (Rauterberg & Verstein, 2013; Robertson, 2019a, 2019b). We aim to fill this void through a first analysis of index providers from an IPE perspective. We argue that index providers today occupy a position of growing private authority, with decision-making and standard-setting capabilities that are

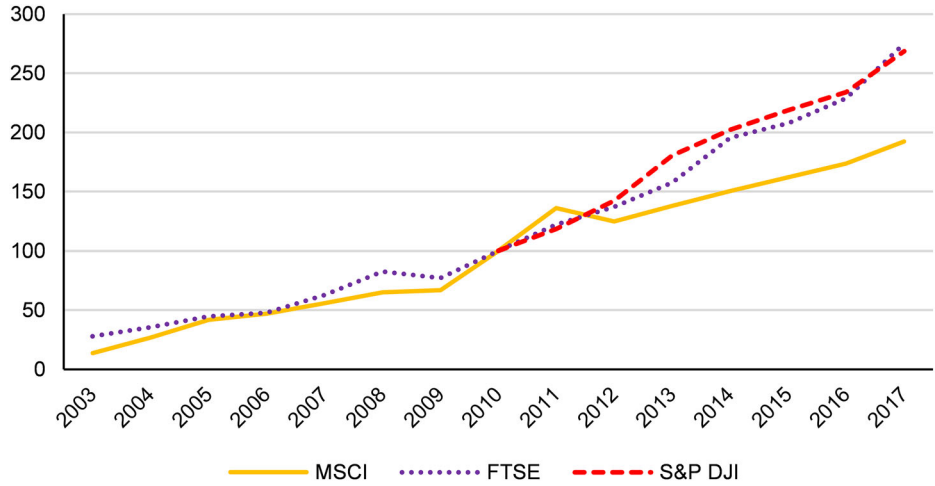

Figure 1. Revenues of the three big index providers (2010 = 100).
Source: Orbis and annual reports.

consequential in the global political economy. In the past, their indices primarily served informational purposes. An index such as the S&P 500 or the Nikkei was primarily a numerical representation of a particular stock market. Indices served as benchmarks against which analysts could gauge the performance of stocks. While the decisions of index providers had some impact on actively managed funds, the rise of passive investing transformed their role in a significant way. Today, they de facto steer capital with their indices as inclusions of firms or countries to an index can lead to inflows of billions of US$ while exclusions can cause large quasi-automatic outflows. Constructing indices is therefore not a purely technical exercise. Index providers have significant discretion in devising their methodologies. Robertson (2019b), for instance, finds that the methodology of the pivotal S&P 500 index was changed at least eight times between 2015 and 2018. Underlying their seemingly technical exercise are decisional discretion and normative assumptions about 'good' corporate governance and 'free' markets. Index providers therefore play a role as standard-setters: their notions on what constitutes good corporate governance at the level of the firm and a favorable investment environment at the level of (national) markets helps or hinders firms and countries in attracting capital, essentially deciding what is investment-worthy in global financial markets. This combination of standard-setting and legitimate decision-making power means that index providers have gained a position of private authority in capital markets with profound politico-economic consequences.

Two anecdotal examples illustrate how the ongoing shift from active to passive investing has positioned index providers as crucial actors in capital markets. In 2018, the Anglo-Dutch company Unilever abandoned its planned shift to one single headquarter in the Netherlands after an investor revolt. As a simplification of the governance and share structure, one headquarter was believed to be in the interest of shareholders. But Unilever's management did not fully appreciate the increased importance of indices. Leaving Britain would have meant exiting the FTSE 100 because of its index methodology. Investors opposed this as they would have been forced to sell the stock, index funds because they directly track the FTSE 100 and

active funds because they are benchmarked against this key British index (Wood, 2018). Thus, in the age of passive investing membership in a benchmark index takes strategic precedence over other shareholder interests. A second example illustrates how index providers have become relevant actors in the global political economy. In 2015, the finance minister of Peru hurriedly travelled to New York because of rumors that MSCI might downgrade the country from its flagship 'emerging markets' stock index to 'frontier' status (Alloway, Burger, & Evans, 2017). Eventually Peru managed to escape this fate by changing financial market regulations and engaging in 'roadshows with institutional investors to identify what were the necessary measures to strengthen liquidity and implement them' (Doll, 2019). Today index providers have become important counterparts for states.

In what follows we develop the argument that index providers increasingly are to equity markets what credit rating agencies are to bond markets, crucial 'coordination service firms' that exercise private authority and effectively set standards for the behavior of other firms and even countries (see Cutler, Haufler, & Porter, 1999; Nölke & Perry, 2007). Their new authority was not delegated from the public sphere, but gradually emerged as part of a transformation of the index provider industry – from primarily supplying information about markets to becoming private authorities that are able to set standards on corporate governance and steer international capital flows. Take for example FTSE Russell, S&P DJI and MSCI's emerging market indices; the index providers' recent decision to include countries such as China and Saudi Arabia to their indices is expected to result in a 'seismic shift' of over US$120 billion in active and passive fund flows by 2020 (Robertson & Lam, 2019).

We analyze this development and what it means for the international political economy using secondary literature, financial news and index methodologies, as well as 13 expert interviews with index providers, exchanges and asset managers conducted between July 2017 and September 2019 which we use for background information and direct quotes.[1] Section one reviews the existing literature on private authority in order to conceptualize the role of indices and index providers in global finance. Section two and three discuss the changing role of index providers from information providers to authoritative actors in the age of passive asset management. Sections four and five discuss the implications of this transformation by examining the standard-setting role that index providers perform for the corporate governance of listed firms as well as for states through steering capital flows. The final section concludes by developing a research agenda on index providers.

Indices, index providers, and private authority

In essence, indices are numerical tools that enable the comparative evaluation of groups of assets over time. The purpose of indices is to display the performance of a specific economic entity such as a nation's stock market (S&P 500) or the rate at which banks offer to lend to each other (LIBOR) in one single number that is relatively easy to understand and comparable over time. As such they consist of a series of corresponding dates and numbers, evaluations based on a series of assets (e.g. stock prices) with specific weightings, whose sequence depicts the performance of the evaluated assets (Robertson, 2019a). Thereby, indices demarcate the

boundaries of what these entities are: the 500 companies that the S&P 500 evaluates are (perceived as being) synonymous with the US stock market.

Political economy research on such financial market indices is limited and mostly focused on LIBOR, often dubbed 'the world's most important number', which attracted a lot of attention after it became clear that banks had colluded to manipulate it (Stenfors & Lindo, 2018). Others have focused on the emergence of the ABX index in subprime-mortgage markets (MacKenzie, 2012) or the creation of index-based financial derivatives (Millo, 2007). Some scholars have focused on emerging market bond indices (Blustein, 2006; Hardie, 2006; Santiso, 2003). Blustein (2006) emphasized how index calculations can create 'perverse' incentives as index weightings are determined by existing levels of debt. Santiso (2003) outlined the importance of indices in emerging market investing, emphasizing how indices act as 'prisms' through which fund managers view the investible world.

In contrast to a focus on the impact of bond indices on emerging markets, we focus on index providers as actors who create indices for stock markets. Financial market indices are important measures for economic activity and have become a constant feature of our depiction of and thinking about the economy (Fioramonti, 2014). As Rauterberg and Verstein (2013, p. 115) note:

> [There] is a myth of objectivity, which characterizes indices as near-Platonic mathematical constructs that exist largely outside of human intervention and creativity. […] According to this view, indices are either themselves objective facts or else factual statements about the world. For example, that the S&P 500 is above 1000 is an observable, objective truth and one that does not rely on human judgment or interpretation.

But financial market indices are far from objective. The 'veneer of numerical representation' (Broome & Quirk, 2015a, p. 829) conceals the normative values and assumptions underlying their calculation. They represent 'deliberate decisions' made by index providers as every index is a managed portfolio whose composition is decided by the respective index provider (Robertson, 2019a). Thus, while these simplified numerical representations might seem objective and technical, they are actually based on complex and (often contested) normative values. Moreover, processes of index production are inherently subjective activities, '[as] human discretion and value judgement are essential ingredients in even the most "objective" indices' (Rauterberg & Verstein, 2013, p. 101). As Büthe & Mattli (2011, p. 11) stress, standard-setting is always political.

The political underpinnings of numerical tools such as indices, indicators and benchmarks have received growing attention (Broome & Quirk, 2015a, 2015b; Cooley & Snyder, 2015). This emerging literature underscores how indices and indicators have a governing effect on those that are being evaluated, incentivizing the individuals, companies or states that are being assessed to comply with the norms underlying those numerical representations, as better performance has positive ideational and material effects, enabling a form of 'governance from a distance' (Broome & Quirk, 2015a). The most prominent example of such numerical evaluation measures in global finance are credit rating agencies which can shift the asset allocation of billions of US$ by up- or downgrading firms and countries (Campbell-Verduyn, 2017; Lake, 2010; Sinclair, 2005). Similarly, by deciding what to include into/exclude from an index and how to calculate these, index providers make assessments about the investment-worthiness of firms and countries and can thereby move investment flows. We argue that index providers play an important role in equity markets as

they increasingly define 'the norms of what's considered acceptable in international finance' (Alloway et al., 2017). Arguably, in this new age of passive asset management index providers are to equity markets what credit rating agencies are to bond markets – critical gatekeepers that exert de facto regulatory power.

For these numerical representations to be able to exert governing effects the actors producing them must enjoy a certain degree of authority. We follow Cutler et al. (1999, p. 5, 13) who define actors with private authority as 'when an [non-governmental] individual or organization has decision-making power over a particular issue area and is regarded as exercising that power legitimately' and who 'develop and enforce binding obligations […] often for [an] industry as a whole'. A useful distinction is between actors that are 'in authority' such as state officials or private actors who receive delegated authority and those that are 'an authority': a position derived from their positioning as experts within a given social structure (Lincoln, 1994; Sinclair, 2005). Index providers, we argue, are 'an authority' and their relevant social structure is the international investment community. In IPE a literature has developed on the emergence of authority beyond the public realm (Cutler et al., 1999; Hall & Biersteker, 2002; Kahler & Lake, 2003; see Büthe 2004, 2010 for overviews). This literature has analyzed the interplay between public and private authorities as well as the emergence of private authority through the retreat of the state, which provided a space for private actors such as firms to exercise authority (Cutler et al., 1999).[2] We are particularly interested in the growing private authority that index providers now have in the investment community, and furthermore how they have grown into such a position of private authority. This leaves aside other – obviously relevant – questions such as the public regulation of index providers. We come back to these issues in our concluding research agenda. In what follows we seek to establish the source(s) of their legitimacy and authority. As Lake (2010) notes, private authority is inherently relational, produced and reproduced through ongoing interactions between the authority and non-authorities, where the formers' decisions are considered as legitimate by the latter (see also Büthe, 2010). Rather than coercion or self-interest, legitimacy is a 'normative belief by an actor that a rule or institution ought to be obeyed' and is based on how the authority is 'perceived' by non-authoritarian actors (Hurd, 1999, p. 381).

We see three conditions for index provider authority. First of all, technical expertise to construct an index is a necessary – but not sufficient – condition for their authority. As one interviewee noted, 'everyone needs quality, […] the calculations need to be correct' (Interview 9). However, mere expertise is not enough. Only because companies create an index does not mean that this numerical evaluation is authoritative or that they become 'an authority'. While there are many index providers, only the decisions of three index providers really move markets: MSCI, FTSE Russell and S&P DJI. This is because of the second condition; crucial for index provider authority is their brand recognition, or more specifically the trust that the international investment community puts in their brands. As Cohen (1998, p. 145) notes, 'authority is socially constructed' and is ultimately based on trust, which in turn is based on reputation (see Aykens, 2005) – and this reputation is embodied by each of the three big index providers' brands. Like the brand of one of the large credit rating agencies, 'all it has is an intangible reputation for good judgment' (Sinclair, 2019, p. 11). It is their brand why investors follow the major index providers' decisions, and which makes these so consequential. As

several interviewees noted, the big three index providers are 'brand managers' (Interviews 9-10), and: 'at the end of the day, those products are homogeneous and exchangeable. It's like water, there are small differences why Evian is more expensive […]. Those are minimal differences, but the price tags are very different! […] MSCI is famous for being expensive – not because they have better data or indices, but because they are the brand that is most used in the world […] Brand is everything!' (Interview 7). Another interviewee adds, 'the brands matter: it's like drinking Coca-Cola, you could drink Dr. Pepper or Pepsi-Cola, but [investors] prefer Coca-Cola' (Interview 10). While intellectual property rights do not apply to index methodologies, index provider 'brand names' are protected (Interviews 9, 11). Like rating agencies, their brands give the large index providers 'a hold on collective thinking' (Sinclair, 2019, p. 11) that other index providers do not enjoy.

A third condition that underpins index provider authority lies in a set of network externalities that reinforce the authority of the major index providers. As first movers they have in effect 'captured' different national (e.g. S&P 500 or FTSE 100) and regional (Euro Stoxx 50) market segments with their indices (Interviews 10, 12). There is no need for dozens of numerical representations of an economic entity, because liquidity tends to concentrate in only a few products (Interview 11). Moreover, investors have created performance track records with these established benchmarks, which makes it difficult to switch to new ones (Blustein, 2006). The global coverage or 'index families', of major index providers allow investors to compare market developments globally (Interview 7, 9); and large futures markets were built on their benchmarks that increase liquidity and provide risk management tools for these indices (Interview 11-12). These network externalities entrench the authority that leading index providers derive from their brands. With these three conditions in place, index providers have become private authorities in financial markets.

Notably, authority is not static but dynamic (Campbell-Verduyn, 2017), as specific (historical) circumstances shape the relationship in which certain actors can gain authority over others (Lincoln, 1994). Sinclair (2005) highlights that the authority of rating agencies developed within and was enabled by changing socio-economic structures, i.e. the growth of capital markets and the decline of banks as allocators of credit, which created a demand for rating agencies' services for the functioning of the then disintermediated structure of finance. Therefore, 'authority is best understood as an effect of these circumstances, rather than as an entity or a characteristic of an actor or institution' and 'its existence is therefore not functional, […] but always contingent on time, place, and circumstance' (Sinclair 2005, p. 64). In the following sections we substantiate how the authority of index providers has shifted from minimal and relatively insignificant to sizable and consequential. Historically, they were primarily providers of information. But with the ongoing shift towards passive asset management, index providers became de facto market authorities because their brands – i.e. their indices – became central building blocks for the functioning of index funds. As a result, their decision-making capabilities on index composition have direct effects on steering capital flows.

The naissance of the index provider industry

Initially, index providers were part of the financial media complex. While their expertise was already developing, they were no authorities in capital markets but

part of the machinery that provided information for investors – indices were 'a news item' (Interview 12). They were helpful but arguably not essential for investment decisions. Indices were published in newspapers to provide investors with information about the American post-civil war railroad boom. Charles Dow who in 1896 developed the Dow Jones Industrial Average, the world's first financial market index, also created The Wall Street Journal. Similarly, the Financial Times created indices for the London stock market since 1935 and the Japanese Nikkei newspaper for the Tokyo market since 1949. The predecessor of the S&P 500 was created by the Standard Statistics Company (now Standard & Poor's) in 1923. Standard & Poor's was acquired by publisher McGraw-Hill in 1966, underscoring the strong links of the index business with (financial) media.

Next to newspapers, exchanges entered the index business, which seemed only natural as it was their data that was used to calculate indices. While some exchanges such as Nasdaq (in 1985) created their own indices, most other successful indices were created in collaboration with newspapers. FTSE started as a joint venture between the Financial Times (F-T) and the London Stock Exchange (S-E) in 1995, Stoxx began as a joint venture between Dow Jones & Company, Deutsche Börse and the Swiss Stock Exchange in 1997, and CME Group Index Services was a joint venture between CME and Dow Jones. Russell started creating indices in 1984 as benchmarks to evaluate the performance of fund managers, and Capital International began creating indices for non-US equity markets, which were licensed by Morgan Stanley in 1986 under the name Morgan Stanley Capital International (MSCI) Indices. In 1998, MSCI was established as a joint venture between Morgan Stanley and Capital International.

Originally, indices were calculated daily or weekly and published in newspapers to inform about market movements. This process was accelerated with the advent of modern information technology that led to the digitization of markets and index providers started calculating indices in real time. Indices were soon displayed on stock exchanges' trading floors, daily news reporting was conducted in front of these charts, and indices became synonymous with 'the market'. With the shift in global finance from banks to capital markets indices became more relevant as information tools tracking the development of financial markets (Campbell-Verduyn, 2017). First, this led to the emergence of a few indices as recognized benchmarks by those index providers that had positioned themselves to 'provide the right concept at the right time for the market' (Interview 10). Second, investors wanted to compare performance between markets in a transparent and trustworthy manner. This gave rise to globally comparable indices for instance by MSCI, which 'investors really like because you can separate the globe into individual, comparable pieces' (Interview 7). Further, in the 1980s exchanges such as CME and LIFFE started launching index futures and options, gradually increasing their importance as reference prices for underlying assets (Millo, 2007).

In the era of active investing indices were 'helpful' but not 'essential' to the functioning of financial markets. A few index providers enjoyed considerable brand recognition, some indices were synonymous to the markets they aimed to represent, and index futures enabled risk management for those markets. Moreover, many actively managed funds used them as baselines to compare their performance. Therefore, indices had at least some influence on asset managers as any

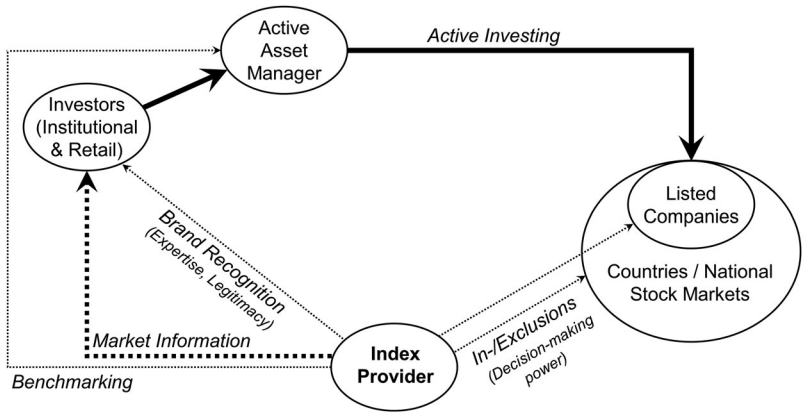

Figure 2. The role of index providers before the shift to passive investing.
Note: Dotted lines represent non-monetary relations; solid lines constitute monetary flows.
Source: Own illustration.

deviation from the relevant index could be conceived as a kind of risk management metric.[3] However, indices only loosely anchored the asset allocation as most fund managers had the discretion to choose both the *degree* of replicating the index as well as the *time period* for doing so. As one interviewee noted, back then 'the propagated characteristic of active management was to be different from the index […] to beat the index' (Interview 9). Hence, the decision-making power of index providers over the composition of their indices had relatively limited impact as it intermediated capital flows very indirectly. Thus, at that time, the main function of indices was to provide market information (see Figure 2); their exact composition was not yet crucial to investors, listed companies or countries. This changed fundamentally with the rise of passive investing in the mid-2000s. Index providers began to influence capital flows in an *immediate* and *comprehensive* way. Being a central component of the index funds ecosystem conferred them – gradually and only as a side-effect of their business model – a position of growing private authority in financial markets.

From supplying information to exerting authority

The financial crisis triggered two reinforcing trends that transformed index providers from merely supplying information to exerting authority.[4] First, the global index industry concentrated. MSCI was listed to become an independent entity, while Russell was acquired by LSE in 2014 which merged it with FTSE whose remaining stake LSE had acquired from publisher Pearson in 2011, forming FTSE Russell. And S&P DJI was created in 2012 through the merger of DJI and S&P Indices, owned by S&P Global (73%) and CME Group (27%). In addition, these top three index providers acquired various smaller index, data and analytics companies, consolidating their leading industry position (Interview 11). By 2017, S&P DJI, MSCI and FTSE Russell each accounted for about 26% of global index industry revenues. Together with Stoxx and Nasdaq which both hold a 5% share, they have a market share of almost 90% (Burton-Taylor, 2018). This market

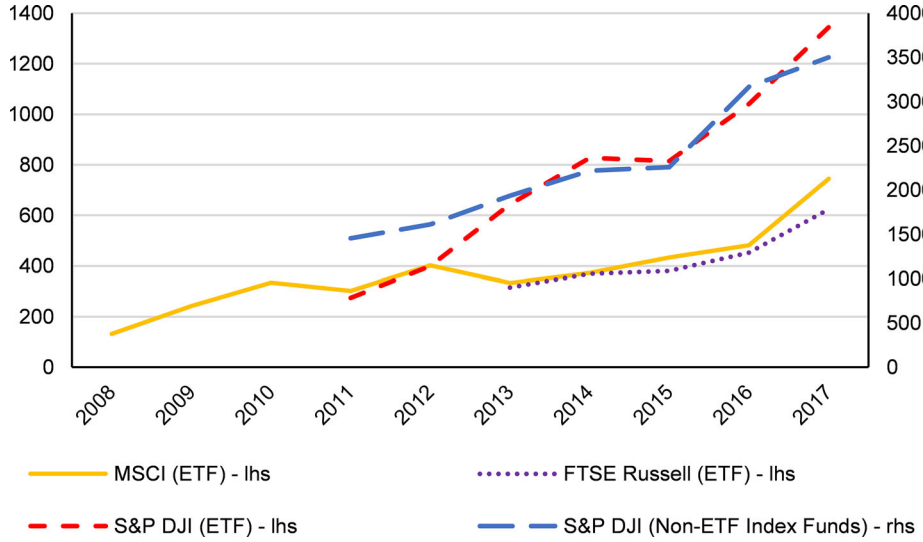

Figure 3. Passive funds tracking the three big index providers (bn US$).
Source: Company websites and annual reports.

concentration arguably led to a growing power position of the few index providers that had historically positioned themselves in financial markets.

The second and more consequential trend was the money mass-migration towards passive investments, which significantly increased the nascent authority of index providers as evermore funds directly tracked their indices. Whereas in the past indices only loosely anchored fund holdings around a baseline, now they had an instant, 'mechanic' effect on the holdings of passive funds, 'steering' capital flows. Increasingly, investments were not actively managed by fund managers but passively invested into index mutual funds and ETFs (Braun, 2016; Fichtner et al., 2017; Haberly et al., 2019; Jahnke, 2019b). This makes sense as the vast majority of actively managed funds have not been able to beat benchmark indices over longer periods of time, while charging substantially higher fees than index funds (SPIVA, 2019). In order to track the performance of 'the market', passively managed funds replicate stock market indices such as the S&P 500 or the MSCI World. Rather than trying to generate 'alpha' and outperform the market by picking stocks, these passively managed funds aim to generate 'beta', simply replicating the performance of specific stock markets while minimizing fees. Figure 3 shows the development of assets indexed to indices from the big three index providers, both for ETFs (scale left hand side) and non-ETF index funds (scale right hand side). ETFs indexed to MSCI indices increased more than fivefold between 2008 and 2017, from US$132 billion to US$744 billion. Similarly, ETF assets tracking FTSE Russell indices doubled from 2013 to 2017. From 2011 to 2017 assets indexed to S&P DJI indices quintupled from US$274 billion to US$1,344 billion, while non-ETF assets (mainly Vanguard US index mutual funds) increased from US$1,456 billion to a staggering US$3,500 billion. Notably, passive investing is further advanced in equities than in bonds as equities are much more standardized and liquid. However, in recent years passive investment is also pouring into bonds and in mid-2019 fixed-income ETFs have reached US$1 trillion (Loder, 2019).

Table 1. Relationship between index providers and types of investors.

Type of investor	Hedge funds, sovereign wealth funds, others	Actively managed mutual funds	Closet index funds	ETFs and index mutual funds
Degree of index replication	Very low to medium	Medium to high	Almost full	Full
Time period of following index	Discretionary	Medium	Medium to immediate	Immediate

By investing in an index, passive investors delegate decision-making about where to invest to index providers. Index investing thus represents a form of 'delegated management' and every discretionary decision by index providers has a 'flow through effect on the investor's portfolio' (Robertson, 2019a, p. 843). As Howard Marks of Oaktree Capital stated: 'somebody is making very active decisions about which stocks will be in each "passive" product. […] the people who create the indices are deciding which stocks will be invested in' (Alloway et al., 2017). Index providers steer these giant passive investment capital flows. But index providers have a steering effect over active managed funds as well. Established and well-known indices are increasingly used as direct benchmarks by actively managed funds which measure their performance against these indices, and which thus are crucial as investment baselines. Benchmarking against indices has reached enormous proportions: US$14.8 trillion, US$16 trillion and US$8.9 trillion of assets (equities and bonds) was benchmarked against the indices of MSCI, FTSE Russell and S&P DJI in 2017/18, respectively. This is up from US$7 trillion (MSCI), US$7.1 trillion (S&P DJI) and US$7.1 trillion (FTSE & Russell) in 2013. Moreover, there is a substantial proportion of equity funds that officially are actively managed funds (and therefore charge higher fees than index funds) but actually do not deviate much from their benchmark indices. This is referred to as 'closet indexing' or 'index hugging', and it is estimated that in the EU between 5-15% of all equity funds could fall into this category (ESMA, 2016). Therefore, the rise of passive management also increases the authority of index providers vis-à-vis active management because by steering evermore passive capital index decisions now mechanically move ever larger parts of the markets, creating a 'pull effect' that actively managed funds need to follow (Interview 9). This means that not only passive funds shift their investment according to reclassifications by index providers, but also active funds that are benchmarked against established indices.

The degree to which types of institutional investors delegate their investment decisions to index providers varies. Table 1 shows this variation across two different dimensions: the *degree* of index replication and the *time period* for doing so. Hedge funds and sovereign wealth funds (SWFs) generally have low degrees of replicating indices (one exception is the Norwegian SWF, which almost invests like a global ESG[5] index fund) and are fully discretionary to follow any index modification. Many actively managed mutual funds replicate their benchmark indices to a certain degree, and some will likely follow if the index constituents change. In other words, for them the index acts as a loose anchor from which they will not totally deviate but which they will also not fully and immediately follow. Closet index funds are shown for the sake of completeness; they approximate passive funds but charge higher fees. Finally, ETFs and index mutual funds fully replicate the tracked index and generally do so immediately.[6] This absolute reproduction of

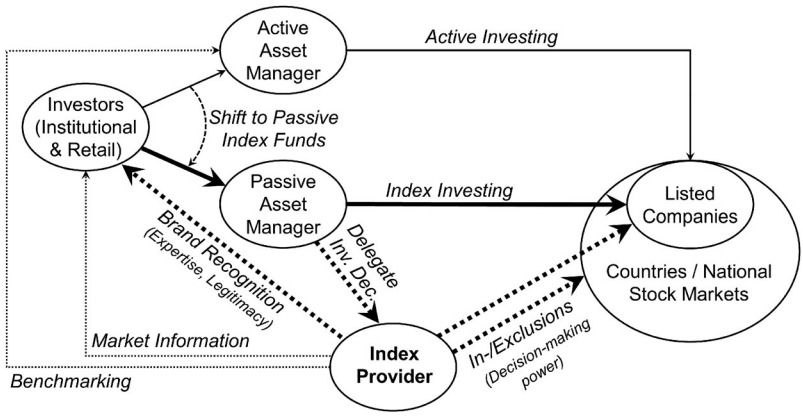

Figure 4. The role of index providers after the shift to passive investing.
Note: Dotted lines represent non-monetary relations; solid lines constitute monetary flows.
Source: Own illustration.

the asset allocation as decided by index providers – what we call *steering capital* – is the crucial difference to actively managed mutual funds. And, we argue, this is a qualitatively new development that necessitates research on the kind of authority that index providers wield.

In sum, with the ongoing shift from active to passive investing, index providers have become a vital component of the overall index funds ecosystem. From their previous role as information providers for capital markets they have become central cornerstones of passive asset management and thereby gained a position of private authority. Figure 4 illustrates the central role of index providers in the age of passive investing. The starting point for the transition towards private authority of index providers is that they own key indices such as the FTSE 100 or the MSCI Emerging Markets Index, which are well-known brands to investors. These brands are the basis of their authority. When investors buy index funds via passive asset managers they effectively delegate their investment decision to them. Through subsequent in- or exclusions of companies or countries index providers are effectively steering capital. Or, in the words of Authers (2018): 'Indices no longer merely measure markets. They move them.' This role as critical gatekeepers that decide the criteria for index membership confers MSCI, S&P DJI and FTSE Russell with growing private authority as they set the standards that firms and states have to follow if they seek inclusion in key indices.

So far, we underscored the de facto delegation of investment decisions to index providers. However, it is obvious that index providers have limited degrees of freedom when it comes to index creation. Ultimately, their indices need to be considered by the investment community as valid and legitimate constructs. First and foremost, index providers are in the business of licensing their indices. They sell their brand to investors, and their brand gives legitimacy to investments. As one interviewee noted, 'they help customers to generate assets through [their] brands' (Interview 9). While previously index providers simply created a few widely tracked benchmarks, they are doing much more today; as Ken O'Keefe of FTSE Russell noted: 'We sit down with ETF providers. They're looking for something that is

going to better meet the needs for financial advisors, and they're turning to us for help in designing that' (Chen, 2019). This also explains the proliferation of indices of which there are now far more than stocks, as many new indices exist to essentially 'repackage active investment strategies' (Bloomberg, 2017).[7] Far from simply providing information on 'the market', index providers now offer a variety of customized branded products, by either tweaking existing benchmarks or repackaging proprietary trading strategies into indices which enable the functioning of (passive) asset management capitalism (Interviews 8-12). Hence, index providers naturally emphasize their focus on clients. In the words of Henry Fernandez, CEO of MSCI: 'We are trying to marry the needs of suppliers of capital and the consumers of capital. If we don't do that well then it will become very apparent very quickly' (Wigglesworth, 2019a). Index providers therefore regularly consult with asset managers about changes in their indices (Interviews 9-13). However, it is clear who takes the final decision: 'Index providers want to have the last word, in order to preserve their independence' (Moreolo, 2018). Index providers are thus basically paid by passive asset managers for making decisions about which companies and states are investment-worthy. And the more investments are passively allocated, the more consequential their decision-making power that they have through the calculation of their indices.

The relationship between index providers and asset managers is intriguing. On the one hand, asset managers depend on the large index providers to create their products that are attractive to investors. On the other hand, they have an interest to reduce the fees they have to pay for using indices. In theory, there are two ways for competition to emerge in the index industry: through new index providers and through self-indexing by asset managers. However, both have so far not been able to break the oligopolistic market structure. New index providers, such as the German firm Solactive, are often small firms that do not have the crucial 'market recognition' (Interview 5). They do not have the big index providers' brands and historic legacy, so they have to compete on price (Interview 9). Either they come up with an idea that established index providers have not come up with yet, 'then at some point [the big index providers] will make an offer that you cannot refuse', or they 'do what the big index providers do not want to do' (Interview 11), i.e. offer 'unbranded' low-cost solutions. Second, asset managers that might have brand recognition (e.g. BlackRock's iShares) are plagued by potential conflicts of interest that would make others question the quality of their index decisions – compromising the necessary condition of index provider authority that they need trust in their expertise to create indices.

It is further difficult for challenger indices to gain benchmark status as network externalities entrench the authority of the big index providers. Investors have existing track records with established benchmarks and huge derivative markets use these benchmarks as underlyings, which enables risk management and increases liquidity. As discussed, liquidity is often concentrated in a few benchmarks (Interview 10). Furthermore, the major index providers have accumulated a lot of data and acquired related businesses (e.g. MSCI's acquisitions of Barra and RiskMetrics), that makes it very difficult and costly to switch (Interviews 9-11). All of that creates a 'virtuous circle' for the big index providers that thus benefit from 'a historical legacy for providing the right concept at the right time for the market' (Interview 10). Therefore, while some competition in the index industry exists,

'catching up organically is impossible' (Interview 11) and newcomers do not have 'the brand, the history and the assets attached to that' (Interview 9) – the conditions which provide the established index providers with the authority to move markets.

Consequently, the large index providers have become private authorities that move markets. This movement of markets works in two related but different ways. First, index providers have an increased authority as standard-setters in corporate governance. Even when they adhere to minimal standards for firm inclusion into their indices, their influence is considerable. This kind of standard-setting authority is especially pronounced in the developed markets of Europe and North America. Second, their decision-making power is even more consequential when we consider emerging markets. Index providers not only decide to include particular firms, they also make decisions on in- and exclusions of entire markets, steering capital with important politico-economic implications for states.

Setting standards: promoting 'good' corporate governance?

In the age of passive investing, indices – and therefore index providers – are becoming more important for listed firms and their corporate governance. In recent years, investors, companies and the press have begun to notice the large influence that index providers have with defining their methodologies. But while many indices are strictly rule-based and thus only influence companies indirectly, some indices – including the S&P 500, the world's most-tracked index – have committees that make discretionary, less rule-based decisions (Robertson, 2019b). In 2008, the committee decided to leave the troubled insurance giant AIG in the S&P 500 even though it violated the requirement that member companies need a public float of at least 50% after AIG's bail-out by the US Treasury, because of fear that 'dropping AIG would have sent the markets tumbling yet again' (Blitzer, 2014). Then, in 2019, the decades-old rule of a 50% minimum public float was scrapped with the effect that T-Mobile US, 63% owned by Deutsche Telekom, joined the S&P 500 (Bary, 2019); presumably the aim was to increase the representativity of the index (Interview 9). So, while the majority of inclusions is rather mechanical and influence is indirect, it is not uncommon that index decisions target individual firms to set a 'precedence' on a particular issue that then gets incorporated into existing methodologies (Interviews 9-10). One such example is Snap Inc., which wanted to publicly offer shares without any voting rights. After protest by institutional investors the big three index providers initiated a consultation process and eventually announced that at least 5% voting rights have to be offered to public shareholders for a company to qualify for index membership (Hall, Kaplan & Polk, 2017). In addition, S&P DJI and FTSE Russell decided that they will exclude firms that have multiple types of shares with disparate voting rights. FTSE Russell (2017, p. 6) used relatively strong words in its voting rights consultation: 'The proposal set out here effectively draws a principled line in the sand.' However, the low value of 5% shows that the index provider pursues a cautious approach. Moreover, the exclusion of companies that have very unequal classes of stock does not pertain to existing well-known index members such as Alphabet (i.e. Google), Berkshire Hathaway or Facebook (Jahnke, 2019a).

Another aspect that demonstrates the far-reaching yet hidden politico-economic consequences of index methodology is that members of the S&P 500 – the index that like no other epitomizes the American stock market – are allowed to be legally based outside the US in a few selected 'domiciles of convenience' (S&P DJI, 2019). These domiciles include jurisdictions that have been identified as 'sink' offshore financial centers (OFCs), such as Bermuda, the Cayman Islands and Jersey, which provide low or zero taxation and a high degree of secrecy as well as 'conduit' OFCs, such as Ireland and Switzerland (Garcia-Bernardo, Fichtner, Takes, & Heemskerk, 2017). Currently 20 members of the S&P 500 make use of this clause. Hence, in this way S&P DJI could in effect be enabling and legitimizing aggressive tax planning and potentially even tax evasion by multinational corporations.

There are also other ways in which index methodologies have subtle yet lasting effects on companies and the different political economies they are based in. For example, in 2000 MSCI, DJI and FTSE changed the calculation of their indices to weighting member companies based on their 'free float' rather than on their total market capitalization, which means excluding the shares of large strategic blockholders. This readjustment was estimated to have moved billions out of Japan and other Asian countries, while liberal market economies such as the UK received inflows (Santiso, 2003). This method, however, penalizes firms that have long-term blockholders, which could be companies in which the state holds significant ownership (France) or corporations in which founding families hold large blockholdings (Germany). It induces an incentive for listed companies to reduce long-term blockholders, thus facilitating institutional change in these political economies (see Deeg, 2009; Fichtner, 2015). Moreover, it has become standard practice for the majority of key global stock indices to use only the market capitalization of firms for calculating the weight of companies. Market capitalization primarily derives from the (future) profits of corporations. Even though that has changed somewhat in the last decades, profit maximization is still not the exclusive goal of corporations from countries such as France, Germany and Japan. Passive asset managers (e.g. BlackRock), even when quasi-permanently holding large ownership positions, are not excluded from the calculation, however.

How should we think about the influence that index providers now have in the area of corporate governance? The historical raison d'être of index providers was to provide accurate representations of stock markets (Interview 10). Therefore, among the top objectives of index providers is to maximize the representativity of their indices and to minimize turnover of index constituents. Mark Makepeace of FTSE Russell stated: 'We're not activists. We're setting the minimum standards that investors generally will accept, and our role is to build consensus amongst that investor community as to what that minimum standard should be' (Alloway et al., 2017). Hirst & Kastiel (2019, pp. 14-15) have characterized index providers as 'reluctant regulators' that, because of their business model, have a 'structural incentive to follow the preferences of investors', which leads them to prefer broad coverage of their indices – arguably this makes index exclusions a 'nuclear option, to be reserved for extreme situations'. The three big index providers are therefore best seen as consensus-building agents that aggregate their own interests with those of asset managers from developed economies, i.e. mainly from Anglo-American countries.

Whereas in the past indices primarily had an informational purpose, the rise of index investing has conferred a growing influence on index providers because of their central position in the index funds ecosystem. Index providers have become de facto private standard-setters over corporate governance. Currently, they seem to be 'reluctant regulators' that only do the minimum. In contrast to rating agencies which assess individual companies, the power of index providers over individual firms varies. Thus, more research about the scope and the limits of index provider authority with respect to individual companies is needed.

Steering capital: promoting 'free' and accessible markets?

Perhaps the most significant consequence of recent changes in the index provider industry from an IPE perspective is that they have become influential private actors vis-à-vis states, especially emerging economies. While indices are comprised of the stocks of individual companies, each of these companies is listed on an exchange, which is situated within a country that creates the rules and regulatory frameworks for its national stock market. These rules that states decide upon, however, do not necessarily match the preferences of index providers. A large literature exists on the role of (international) investors and their power versus states (e.g. Babic, Fichtner, & Heemskerk, 2017; Bortz & Kaltenbrunner, 2018). We argue that in the age of passive investing this power is partially transferred to index providers as they decide over capital inflows/outflows through inclusions/exclusions. This is especially relevant for emerging economies as financial markets are organized hierarchically and emerging countries bear the brunt of skittish investor behavior (Kaltenbrunner, 2018). The dynamics of this process are changing, however. Through index investing the active investment decision to enter or exit markets has been delegated to index providers and their seemingly 'technical' criteria; as one index provider noted 'we look at country classification just as a mechanical tool to access markets' (Interview 12). By reclassifying individual countries, index providers effectively redraw the borders of markets. Index providers set out the criteria that decide which countries are 'investment-worthy', thereby defining this very hierarchy.

For developing countries, on the other hand, being part of an index is important as international investors invest billions of US$ into their 'under-developed' stock markets, not only funding their domestically listed companies but also raising their international profile. Index inclusion is an accolade for countries as the inclusion signifies and establishes the international investment community's trust into their economy (Interview 12). As one interviewee (Interview 10) noted: 'Obviously for any economy the no.1 aspiration for a government is to create the economic conditions to attract foreign investments. […] So being included in a broad index is essential.' But as argued above, seemingly objective index calculation is based upon normative assumptions about the nature of markets, which should be freely accessible for international investors. By setting out these criteria, index providers shape the norms of global finance. Index providers decide whether to include countries into their indices and whether to classify them as 'frontier', 'emerging' or 'developed' markets.[8] By additionally putting countries on watchlists for such inclusions, exclusions or reclassifications, index providers create incentives for states to comply with their rules. As one interviewee put it: 'the big index providers, they are setting standards! […] Before, nobody paid attention, but now so much money follows them, […] they have a lot of political power!' (Interview 5).

While S&P DJI is the world's largest index provider by revenue, this is mainly due to the crucial S&P 500 index. In contrast, MSCI is the largest provider for emerging markets equity indices (Miyajima & Shim, 2014). In the words of the Financial Times, 'MSCI […] in effect controls the definition of which countries are "emerging markets"' (Authers, 2018).[9] Therefore, MSCI's criteria for inclusion/exclusion are crucial for emerging markets. MSCI's CEO even states that 'there's not a country that doesn't call as soon as a review is announced' (Wigglesworth, 2019a). These criteria are set out in MSCI's Market Classification Framework, comprising three elements: economic development; size and liquidity; and investor access. Economic development is not crucial as a criterion, neither are the size and liquidity requirements (only 2-5 companies need to meet minimum requirements). Investor access is the dealmaker/breaker for country classifications, and it is on this that most indexing decisions are based (Interview 13).

As MSCI (2018a, p. 2) states, the criterion of market accessibility 'aims to reflect international institutional investors' experience of investing in a given market', and its assessment is 'based on qualitative measures' that MSCI reviews for all markets at least once a year during its Global Market Accessibility Review. This provides MSCI with a great degree of discretion and 'ample space for subjective judgement on whether certain countries should be considered frontier or emerging markets' (Moreolo, 2018); the same applies for their weighting within indices. While index decisions about company inclusions are often more indirect and not targeted at individual companies, in the case of country reclassifications index providers take a much more proactive role (Interviews 9-10). As the following cases demonstrate, these decisions have enormous consequences for states and their national stock markets.

In June 2017, MSCI decided to (gradually) include China A-Shares into its MSCI Emerging Market indices which are tracked by funds worth US$1.8 trillion, followed by FTSE Russell in 2018. In early 2019, MSCI announced to quadruple the weight of Chinese A-shares to 20%. It is estimated that the inclusion will bring at least US$80 billion of passive and active investment into the Chinese market, an enormously prestigious decision for China that shows increased recognition from the international investment community; one expert (Interview 3) likened it to 'basically China's ascent into the Champions League'. Long-term foreign inflows into Chinese stocks are estimated at US$400 billion over the next decade (He, 2018). However, China's index inclusion was a quite contested, political process. Many observers suggested that Chinese regulators had to make concessions, with the main issue being guaranteed investor access to China's relatively closed market. As one interviewee noted, 'MSCI have actually accomplished quite a lot by the inclusion. It's amazing that it was an external, private organization that suddenly gets CSRC [China Securities Regulatory Commission] and government officials to bend and to agree to things that they would never would have agreed to in any other circumstances' (Interview 6). As another interviewee highlighted, MSCI has a quasi-regulatory function – 'even though MSCI is not a regulator, companies need to abide, to respect their rules' (Interview 4). Since the inclusion, MSCI for instance delisted several Chinese companies that suspended the trading of their shares as this violated market accessibility (Interview 13). Over the years, MSCI has been in close contact with the Chinese counterparts, advising regulators on how to regulate markets to meet inclusion requirements or informing Chinese companies about MSCI corporate governance standards (Interviews 4, 6, 13). Other observers,

however, voiced concerns that the inclusion was a result of pressure from the Chinese government and the promise of rising profits for MSCI through increased access to China (Bird, 2019). In any case, China's inclusion into MSCI indices was not a neutral technical exercise but a highly political process with a significant impact on the global allocation of financial assets that requires further investigation.

Few states have the power to contest index providers, with China and the US as possible exceptions to the rule. Most countries need to comply with their rules due to their integration into global financial circuits. India for instance came to be in a much tighter spot in a recent dispute with MSCI. In February 2018, three Indian stock exchanges terminated market data agreements with MSCI, meaning that they would no longer provide data for the creation of indices or derivative products that would be traded outside of India (BSE, NSE, & MSEI, 2018). This move came after increasing fears in India about losing control over capital markets as derivatives business moved to the Singapore Exchange (SGX) where Nifty index futures (the Indian equivalent of the S&P 500) are traded. However, MSCI (2018c) condemned the termination of the market data agreement as an 'unprecedented', 'anti-competitive' behavior because under its Market Classification Framework, 'anti-competitive measures restricting investors' access to derived stock exchange information receive a negative score in the Competitive Landscape category'; it further 'strongly suggested' that the Indian exchanges and regulator 'reconsider [their move] before it leads to any unnecessary disruptions in trading or a potential change in the market classification of the Indian market in the MSCI Indexes' (MSCI, 2018c). MSCI effectively threatened India with an exclusion, a subsequent loss of status and investment outflows. At the time of writing, SGX and NSE are cooperating to maintain international investor access by routing SGX trades through GIFT City, India's new international financial center (Coutinho, 2019). This case again highlights the inherently political nature of indexing and country classifications, and the power that index providers have over steering capital flows.

Korea, Brazil and Turkey are also on MSCI's 'watchlist' of countries that could be downgraded if they do not ease investor access (MSCI, 2018b; Tan & Robertson, 2018), highlighting the needs to comply with the rulebook drafted by index providers. In order to affect classifications, countries 'have homework to do' and 'boxes to tick' (Interview 9) – simply talking with index providers is not sufficient, 'they really need to make effective changes' (Interview 13). The index reclassification of emerging countries is expected to result in a 'seismic shift' of over US$120 billion in active and passive fund flows in 2019 alone (Robertson & Lam, 2019). Hence, in the age of passive investing the reclassification of countries into 'developed,' 'emerging,' and 'frontier' markets can lead to billions of rapid 'automatic' in- or outflows by funds that track the respective indices. With the move towards passive investing, the locus of agency between international investors and governments has therefore shifted. As this section argued, the actions and judgements of index providers can have important consequences for states.

Conclusion: a research agenda for index providers

This paper provides the first IPE analysis of index providers, highlighting their changing politico-economic role in the age of passive asset management. We argue

that with the shift towards passive investing, the three big index providers have become actors that exercise growing private authority in capital markets as they steer investments through the indices they create and maintain. Index providers define the criteria according to which companies or countries are included into an index. Thereby, they influence investment decisions and corporate governance norms as well as strategies of those companies and states (that seek to be) included into their indices. We argue that rather than technical expertise, the main source of authority are their powerful brands that are trusted by the international investment community and which are entrenched via network externalities. Given the continuous shift towards passive investment, the dominant position of the three big index providers will most likely persist in the coming years and merits further research. In the remainder of this conclusion we thus develop a research agenda from an IPE perspective.

We see three main research avenues: the first is index providers themselves, including their decision-making processes and their embeddedness in the index funds ecosystem. It would be essential to further open up the 'black box' of how the big three index providers make decisions, which includes the interaction with their most important client group and stakeholder – the investor community. We argue that to a certain extent index providers act as consensus-building agents for the asset management industry. But how exactly do they weigh the interests of different investors, especially those of the big three passive asset managers BlackRock, Vanguard, and State Street? To what extent do they reflect a minimum consensus of the asset management industry or rather go beyond such a consensus and initiate reforms? We have identified the powerful brands of the three large index providers as a major source of their authority. But further research is required how persistent these brands are, and how precisely competition works in this concentrated industry. Can we speak of a global oligopoly or is it rather a series of national/regional and segment quasi-monopolies as in most countries there are usually only one or two indices in which invested assets are concentrated and which, therefore, are most liquid. This also warrants a closer exploration of the financial infrastructures into which index providers are embedded such as market data, analytics and derivative markets and how they relate to the increasing infrastructural power of finance (see Bernards & Campbell-Verduyn, 2019; Braun, 2018). Next to stock markets, the role of index providers in bond markets should be studied. While the shift to passive investment is not as pronounced there yet, other mechanisms might be at play and a comparison to their role in stock markets might provide further insights about the sources of index authority across asset classes. A broad interview-based study would be well-suited to tackle these questions. In addition, a comprehensive survey of asset managers would be useful to study the brand and the legitimacy of the big index providers (see Büthe & Mattli, 2011). Such research would enable a more nuanced understanding of the growing private authority exerted by index providers, including its limits.

Furthermore, it would be instructive to systematically compare the three big index providers with the dominant rating agencies to identify more precisely similarities and differences in the sources of their authority, how they exercise it and influence global finance. Another field of study is the (emerging) regulation of indices and index providers. In the case of credit rating agencies, regulation only entrenched their roles as market authorities (Sinclair, 2005). Especially since the

LIBOR-scandal, indices have also become subject to regulation through the EU Benchmarking Regulation or the IOSCO Principles for Financial Benchmarks. This poses questions about how these regulations will affect the highly concentrated index industry and about the role of index providers in those regulatory processes.

The second area of research is the influence of index providers and their index methodologies on the corporate governance of listed corporations. As consensus-building agents for the (mainly Anglo-American) investor community, the big index providers seem likely to adhere to minimum standards as they seek their indices to have high representativity. Nonetheless, we think that their role as de facto standard-setters will receive increasing attention in coming years, by investors, regulators and the public. A necessary first step would be to systematically analyze how the methodologies of the big index providers have changed in recent decades. Such an analysis could potentially uncover a hierarchy between the three big index providers, for instance whether MSCI often acted as a first-mover concerning important changes in index methodology. Furthermore, an analysis of index methodologies should focus on how they influence corporate governance standards, including their potential enabling of tax avoidance by allowing member companies to be legally based in 'domiciles of convenience'. The role of index providers in relation to green finance and climate change is also a topic that needs to be investigated as their brand-recognition and standard-setting capacities extend into evaluative practices such as ESG (environmental, social and governance) criteria, a fast-growing business segment. As index providers increasingly define what is 'investment-worthy', they could arguably also play an important role in setting standards for the definition of as well as steering capital towards 'sustainable' investments.

The third avenue of research is how the private authority of three big index providers affects states, particularly emerging markets. This focus is especially relevant from an IPE perspective. We have identified investor access as the most important criterion in the methodology of emerging markets equity indices. Therefore, the impact of country (re-)classifications on financial market regulations should be analyzed more closely. Mixed methods approaches that combine quantitative analyses with interview-based case studies of individual countries should ascertain if there is a correlation between the financial openness of emerging markets and their position in index categories and/or watchlists. Such an approach could also offer important insights into the specific causal mechanisms at play and help to better understand the 'steering capital' effect of index authority in equity markets. Complementary research should be conducted on the role of growing bond indices for emerging markets, as they directly influence sovereign debt. Especially in the context of a comparative capitalisms framework it might be worthwhile investigating the impact that index providers have on countries' financial regulations, because it seems likely that index providers tend to spread standards from liberal market economies, where most of the investor community is based. One particular case that deserves close attention is the inclusion of China in key global equity and bond indices, as this will be the largest instance of steering capital in the foreseeable future. In this age of passive asset management, index providers 'have become finance's new kingmakers: arbiters of how investors should allocate their money', in the words of The Economist (2017). Recognizing their new role as private authorities is crucial to understanding the ongoing transformation of global finance.

List of interviews

1. Managing director of index provider in Hong Kong (6 July 2017).
2. Business development unit of exchange in London (11 October 2017).
3. FX trading desk of bank in Frankfurt (25 January 2018).
4. International department of exchange in Shanghai (26 April 2018).
5. Business development unit of index provider in Hong Kong (27 September 2018).
6. General manager of exchange in Hong Kong (27 September 2018).
7. Business development unit of exchange in Hong Kong; telephone (19 August 2019).
8. Former asset manager in New York; telephone (19 August 2019).
9. Head of research of index provider in Frankfurt (20 August 2019).
10. Senior managing director at index provider in Zurich; telephone (23 August 2019).
11. Strategy department of index provider in Frankfurt (29 August 2019).
12. Senior managing director at index provider in London (3 September 2019).
13. Research department at index provider in Shanghai (23 September 2019).

Notes

1. When several interviews confirmed statements or mentioned specific aspects, they are referenced without direct quotes, e.g. (Interviews 7-9).
2. Others have highlighted different dimensions of private authority, such as the moral authority of religious movements (Hall & Biersteker, 2002) or have distinguished private authority from technical authority (Porter, 2005).
3. We thank a reviewer for suggesting this point.
4. Interviews 7-11 and 13 confirmed the financial crisis as a tipping point.
5. ESG funds exclude firms because of environmental, social and governance criteria.
6. Index funds that track indices, which comprise illiquid constituents (i.e. bond ETFs) often use sampling strategies, whereas most equity index funds use full replication.
7. Importantly, while the number of indices has skyrocketed, they are created by the same small group of index providers.
8. Country classification schemes are relatively similar: MSCI and S&P DJI (Frontier; Emerging; Developed) and FTSE (Frontier; Secondary Emerging; Advanced Emerging; Developed) (FTSE, 2019; MSCI, 2018a; S&P DJI, 2018).
9. Also confirmed in Interviews 5, 8-10.

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