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# Which Related Party Transactions Should Be Subject to Ex Ante Review? Evidence from Germany

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**ABSTRACT**

The amended EU shareholder rights directive introduces a comprehensive regime of ex ante review for potentially conflicted transactions between listed companies and their major shareholders, downstream entities, and managers. Such 'related party transactions'—if considered material—will have to be evaluated in advance by the board of directors, the shareholders meeting, or the stock market. The paper offers an empirical basis for implementation in Germany and other continental European jurisdictions that lack experience with an ex ante procedural approach to related party transactions. Besides documenting ownership in and shareholdings of German listed companies, we use hand-collected data based on IAS 24 reporting of related party transactions to estimate the number of companies affected by different materiality thresholds based on accounting assets, sales, market capitalisation, and other financials. The main recommendations derived from the analysis are to use more than one single quantitative criterion, to adopt a more generous standard for transactions with downstream entities, and to abstain from imposing a specialised threshold for transactions with managers.

KEYWORDS
related party transactions, shareholder rights directive, Germany

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# Which Related Party Transactions Should Be Subject to Ex Ante Review? Evidence from Germany[‡]

The amended EU shareholder rights directive introduces a comprehensive regime of ex ante review for potentially conflicted transactions between listed companies and their major shareholders, downstream entities, and managers. Such 'related party transactions'—if considered material—will have to be evaluated in advance by the board of directors, the shareholders meeting, or the stock market. The paper offers an empirical basis for implementation in Germany and other continental European jurisdictions that lack experience with an ex ante procedural approach to related party transactions. Besides documenting ownership in and shareholdings of German listed companies, we use hand-collected data based on IAS 24 reporting of related party transactions to estimate the number of companies affected by different materiality thresholds based on accounting assets, sales, market capitalisation, and other financials. The main recommendations derived from the analysis are to use more than one single quantitative criterion, to adopt a more generous standard for transactions with downstream entities, and to abstain from imposing a specialised threshold for transactions with managers.

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‡ Part of the following empirical analysis is to be found in a separate article by the authors in German, entitled 'Geschäfte mit nahestehenen Personen aus empirischer Sicht', forthcoming in Zeitschrift für Wirtschaftsrecht (ZIP).

## I. Introduction

In recent years, related party transactions (RPTs) have moved into the focus of investors' and regulators' attention around the world.[1] After extensive consultations and debates, the European Union (EU) adopted the amendment directive (EU) 2017/828 to the shareholder rights directive 2007/36/EC on 17th May 2017. Art. 9c of the amended Shareholder Rights Directive (SRD) introduces a new regime of ex ante review for RPTs of listed companies incorporated in the European Economic Area (EEA). The rules require companies to publicly announce 'material' RPTs in advance and to provide information about their fairness. In addition to the announcement, the shareholders meeting, board of directors, or both need to evaluate and approve material RPTs ahead of time and subject to procedural safeguards against the presumed conflict of interest.

The EU rules have been inspired by the listing rules of the United Kingdom (UK).[2] A comprehensive regime of ex ante checks on conflicted transactions is unknown in most continental European jurisdictions—with Italian listing rules on RPTs as a notable exception.[3] Germany, for one, has long pursued a very different strategy of both enabling and policing the influence of controlling shareholders. To this end, a distinct body of law, the 'law of corporate groups' (*Konzernrecht*), relies on an audited 'dependency report' to monitor the company's dealings with the dominant shareholder as well as on stringent liability rules for the controller and for directors.[4] Capital maintenance rules provide

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1 See OECD, *Related Party Transactions and Minority Shareholder Rights*, 2012.

2 Cf. Luca Enriques, 'Related Party Transactions: Policy Options and Real-World Challenges (with a Critique of the European Commission Proposal)' (2015) 16 European Business Organisation Law Review 1, 2–3(treating the UK listing rules as a precursor of the SRD regime); Marcello Bianchi, Luca Enriques and Mateja Milic, 'Enforcing Rules on Related Party Transactions in Italy: One Securities Regulator's Challenge' in Luca Enriques and Tobias H. Tröger (eds.), *The Law and Finance of Related Party Transactions* (Cambridge University Press, forthcoming), at n. 18 (likewise for the Italian RPT rules). For the UK's RPT regime and its genesis, see Paul Davies, 'Related Party Transactions: The UK Model' in Luca Enriques and Tobias H. Tröger (eds.), *The Law and Finance of Related Party Transactions* (Cambridge University Press, forthcoming).

3 See Bianchi, Enriques and Milic (n. 2) (describing the content and development of the Italian RPT regulation); for the operation of the rules in a high-profile transaction, see Alessandrio Pomelli, 'Related-Party Transactions and the Intricacies of Ex Post Judicial Review: The Parmalat/Lactalis Case' (2016) European Company and Financial Law Review 73; for an empirical investigation of the effects of a reform in 2010, see Fabrizio Bava and Melchiorre Gromis di Trana, 'Disclosure on Related Party Transactions: Evidence from Italian Listed Companies' (2016) 6 Accounting Economics and Law 119.

4 The effectiveness of the rules is a matter of debate, see, e.g., Tobias H. Tröger, 'Germany's Reluctance to Regulate Related Party Transactions' in Luca Enriques and Tobias H. Tröger (eds.), The Law and Finance of Related Party Transactions (Cambridge University Press, forthcoming), text accompanying n. 74 ff. For general overviews of German group law, see Katja Langenbucher, 'Do We Need a Law

another comparatively restrictive constraint on expropriation by shareholders. The new European rules have to fit into the existing frameworks of national company laws. Even more difficult than the conceptual challenge is attuning the regime to the realities of different ownership patterns.[5] An ex ante RPT review presumably affects far more transactions in countries with concentrated ownership than in the US or the UK with more dispersed ownership structures. What works well in an environment with few controlled companies could throw a spanner in the works of an economy characterised by many listed subsidiaries or listed firms with close business ties to their shareholders.

A key choice in this regard is the scope of ex ante RPT review. The Commission's original draft of the amending directive contained a minimum standard for 'materiality' as a trigger for the disclosure and approval requirements;[6] whereas the adopted bill leaves it to the member states to devise a quantitative threshold and tailor it to local conditions. It also contains manifold choices to exempt transactions from the scope of RPT review. The directive also charges national rule-makers with stipulating the competent company organ—the shareholders meeting or the board—and the procedure for RPT approval as well as the information to be provided in the course of announcing RPTs, potentially including a fairness opinion by an independent third party, the board, or an appropriate committee of the board. Leaving many important parameters of the new RPT rules to the discretion of the member states has advantages and drawbacks. While the far-reaching delegations limit the degree of harmonisation and the success in strengthening European capital markets against local vested interests, they also enable member states to take into account the respective national company laws and corporate governance systems as well as the particularities of their national economies. Member states have to transpose the amended directive into national law by 10th of June 2019.

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of Corporate Groups?' in Holger Fleischer, Hideki Kanda, Kon Sik Kim, and Peter O. Mülbert (eds.), German and Asian Perspectives on Company Law, (Mohr Siebeck 2016), 353, 359 ff.; Alexander Scheuch, 'Konzernrecht: An Overview of the German Regulation of Corporate Groups and Resulting Liability Issues' (2016) 13 European Company Law 191; Tobias H. Tröger, 'Corporate Groups' in Holger Fleischer, Jesper Lau Hansen, and Wolf-Georg Ringe (eds.), German and Nordic Perspectives on Company Law and Capital Markets Law (Mohr Siebeck 2015), 157, 162 ff.

5 For the high ownership concentration in Germany, see Wolf-Georg Ringe, 'Changing Law and Ownership Patterns in Germany: Corporate Governance and the Erosion of Deutschland AG' (2015) 63 American Journal of Comparative Law 493. For a historical comparison to the UK, see Julian Franks, Colin Mayer, and Hannes F. Wagner, 'The origins of the German corporation–finance, ownership and control' (2006) 10 Review of Finance 537.

6 See EU Commission, Proposal for Amending Directive, COM(2014) 213 final, Art. 9c (disclosure at transaction value exceeding 1% of company assets, shareholder approval at 5% threshold).

In the following, we offer an empirical basis for the ongoing implementation in Germany and, to the extent their economies and stock markets resemble those of Germany, in other continental European jurisdictions. Our main contribution is to provide comprehensive data about the RPTs of German listed companies during 2017, relying on information about RPTs provided in annual reports following the international accounting standard IAS 24. Based on this hand-collected data, we produce reliable estimates of how many firms would have been affected by possible quantitative tests. As potential measures, we consider the amount of RPTs relative to balance sheet total, book value of assets, accounting equity, market capitalisation, sales, and profits. For these ratios, we provide an estimate band of the number of firms for which a given threshold would have triggered ex ante review at least once in 2017. The analysis demonstrates that, for instance, the original Commission's proposal of a 1%-of-assets threshold would have forced 17–33% of German listed companies to disclose one or more RPTs. We also examine the simultaneous use of different tests, such as one based on assets and another on sales. Contemplating the distribution of RPTs across firms introduces a novel reason for applying more than one single test: Multiple thresholds offer an opportunity to reduce the number of firms that are close to meeting the relevant threshold. This could contribute to curbing costly activities to avoid ex ante review.

In addition to the estimated frequency of RPT reviews, we make a case for distinguishing between 'insider' RPTs with controlling or influential shareholders or managers and 'downstream' RPTs with entities in which the company itself holds a stake. We argue that downstream RPTs—with subsidiaries, associates, and joint ventures—matter for accounting transparency but entail little or no risk of tunnelling. We believe that the EU legislator was mistaken to even include such transactions in the SRD. We recommend member states to use all available choices in the directive to alleviate the burden on companies from subjecting innocuous downstream dealings to ex ante review. Lastly, while we focus on large RPTs with major shareholders we offer a glance at the incidence and magnitude of companies' dealings with managers. As expected, these RPTs turn out to be far less relevant and, in our view, do not warrant special attention in the form of a distinct test.

Needless to say, ours is not the first empirical study on RPTs. Analyses of tunnelling and minority exploitation through RPTs, but also of their potential benefits have paved the way for the policy debate and the recent regulatory advances, including the SRD. The value effects of RPTs have been investigated for developed and even more so for developing economies.[7] Some very influential studies have taken a broader perspective by considering private benefits of control generally and comparing their average sizes across countries.[8] Important as these findings are to justify regulatory efforts at policing RPTs, they afford little support in designing remedies and implementing suitable legal rules.[9] The present paper aims at the much more modest goal of providing hands-on guidance to the current legislative endeavour. As a by-product, our study makes available descriptive data on the structure of German listed companies, their subsidiaries and other shareholdings, and on their RPTs.[10]

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7 For an overview, see OECD, *Related Party Transactions and Minority Shareholder Rights*, 2012, 40 et seq. Notable single studies include Michael Ryngaert and Shawn Thomas, 'Not All Related Party Transactions (RPTs) Are the Same: Ex Ante Versus Ex Post RPTs', (2012) 50 Journal of Accounting Research 845 (USA); Mark Kohlbeck and Brian W. Mayhew, 'Valuation of firms that disclose related party transactions' (2010) 29 Journal of Accounting and Public Policy 115 (USA); Lisa Flor, *Geschäfte mit nahestehenden Unternehmen und Personen nach IAS 24* (Dissertation 2016) (Germany); Yaron Amzalek and Ronen Barak, 'Ownership Concentration and the Value Effect of Related Party Transactions (RPTs)' (2013) 9 Journal of Modern Accounting and Auditing 239(Israel); Jordan Siegel and Prithwiraj Choudhury, 'A Reexamination of Tunneling and Business Groups: New Data and New Methods', (2012) 25 Review of Financial Studies 1763 (India); Raymond M. K. Wong, Jeong-Bon Kim, and Agnes W. Y. Lo 'Are Related-Party Sales Value-Adding or Value-Destroying? Evidence from China' (2015) 26 Journal of International Financial Management and Accounting 1 (China); Raymon Fisman and Yongxiang Wang, 'Trading Favors within Chinese Business Groups' (2010) 100 American Economic Review Papers and Proceedings 429 (China); La Rafael La Porta, Florencio Lopez-de-Silanes, and Guillermo Zamarripa, 'Related Lending' (2003) 118 Quarterly Journal of Economics 231 (Mexico). For a comparative analysis, see Jay Dahya, Orlin Dimitrov, and John J. McConnell, 'Dominant shareholders, corporate boards, and corporate value: A cross-country analysis' (2008) 87 *Journal of Financial Economics* 73. For the use of RPTs for earnings management, see the references in n. 26 below.

8 Tatiana Nenova, 'The value of corporate voting rights and control: A cross-country analysis' (2003) 68 Journal of Financial Economics 325 (based on shares with different voting rights from 661 companies in 18 countries as of 1997); Alexander Dyck and Luigi Zingales, 'Private Benefits of Control: An International Comparison' (2004) 59 Journal of Finance 537 (based on 393 transactions over blockholdings in 39 countries 1990–2000).

9 For evidence on the consequences of a specific legal reform, see Bernard S. Black, Woochan Kim, Hasung Jang, and Kyung Suh Park, 'How Corporate Governance Affects Firm Value: Evidence on Channels from Korea' (2015) 51 Journal of Banking and Finance 131 (indicating that a legal change strengthening board independence increased the market value of firms with high tunnelling risk and mitigated the adverse effects of RPTs on firm value).

10 See also Christoph Van der Elst, 'The Duties of Significant Shareholders in Transactions with the Company' in Hanne S. Birkmose (ed.), *Shareholders' Duties* (Wolters Kluwer 2017), 199, 209–217 (overview of RPT data for companies in the Stoxx Europe Small 200 Companies index based on IAS 24); Bava and Gromis di Trana (n. 3) (observing changes in RPT disclosure from the introduction of a quantitative materiality test in the Italian RPT regime). For other existing studies on IAS 24 reporting of German companies, but without collecting transaction volumes, see Karlheinz Küting and Christoph Seel, 'Die Berichterstattung über Beziehungen zu related parties' (2008) Zeitschrift für internationale und kapitalmarktorientierte Rechnungslegung 227; Christian Engelen and Christian Drefahl, 'Berichterstattung und Determinanten der Geschäfte mit nahe stehenden Personen nach IAS 24' (2013) Zeitschrift für internationale und kapitalmarktorientierte Rechnungslegung 460; Flor (n. 7).

The paper is structured as follows: We start by outlining the key policy issues facing national legislators when they set about demarcating the scope of ex ante review of RPTs within the new SRD framework (section II.). Section III. introduces the data used and section IV. contains our empirical results, including an estimate of the frequency of RPT reviews as a function of different materiality tests. Section V. suggests policy recommendations based on our findings. Section VI. concludes.

## II. The Scope of Ex Ante Review Under the SRD

This section sets the stage by explaining the main decisions that national legislators have to take in implementing the RPT rules. We start by raising the most fundamental question of which RPTs should be subjected to ex ante review, and by outlining the main considerations that should guide the selection of 'material' transactions for ex ante review (subsection 1.). We then turn to the possible structures and legislative techniques of defining 'material' RPTs (subsection 2.). The remaining two segments are devoted to special kinds of RPTs: transactions with 'downstream' entities (subsection 3.) and dealings with the company's managers (subsection 4.).

### 1. How Often (and When) Should the RPT Regime Apply?

The pivotal and most intricate policy consideration is which RPTs call for closer scrutiny through the disclosure and approval requirements. The question hinges on so many factors that it cannot be answered with much confidence or precision. Given its importance, it is nonetheless useful to propose an analytical framework of the main determinants. The optimal scope of disclosure and approval duties depends on the costs and benefits of ex ante review. More specifically, only those RPTs should be subject to review for which the benefits of public disclosure or an approval procedure outweigh the costs of these control mechanisms.

#### *a) Benefits of Ex Ante Review*

As regards the benefits of ex ante review, increasing returns to scale are a plausible assumption: It is often not more difficult to detect unfairness in the terms of a sizeable transaction as compared to a small one, but the benefits from correcting unfairness likely increase with transaction volume. Besides size, the value of ex ante review depends on the effectiveness of the directive's ex ante review in detecting and preventing unfair transactions, relative to alternative safeguards. For certain fundamental transactions, such as capital increases or mergers, national law already requires shareholder approval and affords specific safeguards for minority shareholders. To avoid duplication of these tailor-made rules, Art. 9c para. 6 lit. b SRD empowers member states to exclude such transactions from RPT review. Another case in point is director remuneration where the SRD itself has established a distinct regime in Art. 9a and 9b.[11] Depending on one's view of the 'law of the corporate group' in Germany, it could also be argued that ex post accountability from the audited dependency report and the liability of the parent and of individual managers builds a line of defence that reduces the additional benefit gained from ex ante review.[12] While the directive contains no explicit recognition of such rules, they could justify a more lenient materiality standard that reduces the scope of ex ante review.

*b) Costs of Ex Ante Review*

Turning to the cost side, the first pillar of ex ante review is exposing the transaction to the scrutiny of the stock market and of stakeholders. Listed companies must publicly announce a material RPT at the latest at the time of conclusion. The announcement can be made via press release, the company's website, or in its designated gazette. Arguably, RPT announcements should be made using the same channels as the disclosure of inside information under Art. 17 Market Abuse Regulation, as is already the rule in the UK, Italy, and the US. Besides appropriate publication, the direct, out-of-pocket costs of disclosure consist mostly in the expenses for compiling information and ensuring its accuracy. In this respect, Art. 9c para. 3 SRD suggests—but leaves it to the discretion of the member states—to complement the public announcement with a report evaluating the fairness of the transaction and explaining the assumptions and methods used in this assessment. The 'fairness opinion' can be delivered by an independent third party such as an auditor, the (supervisory) board, or a board committee with a majority of independent directors.[13]

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11 See also Art. 9c para. 6 lit. d, e SRD (allowing exceptions for transactions of banks based on supervisory measures to preserve financial stability and for transactions that are offered on equal terms to all shareholders).

12 See n. 4 and accompanying text.

13 In its original proposal, the Commission estimated the cost of a fairness opinion by an independent auditor at Euro 2,500–5,000, assuming that an experienced auditor would need 5–10 hours to assess the transaction. This has been criticised as being far too optimistic, see Jochen Vetter, 'Regelungsbedarf für Related Party Transactions' (2015) 179 Zeitschrift für das Gesamte

Perhaps weightier than the direct costs of disclosure are the opportunity costs of public attention: Individual investors and stakeholders can process only a limited amount of information. Even scarcer is the ability of stakeholders to coordinate on a shared assessment in order to respond forcefully to an unfair transaction.[14] The market's scarce capacity should be allocated to its most valuable use. To this end, the statutory materiality test can serve as a first filter. Disclosing too many transactions causes an opportunity cost by consuming valuable investor and stakeholder attention. This provides a rationale for considering not only the magnitude of RPTs but also the frequency of disclosure. Even if unfair RPTs were pervasive, it could be optimal to focus on the most egregious ones.

Regarding approval, the second pillar of ex ante review, the costs depend primarily on the design of the procedure. Member states can refer RPT approval to the shareholders meeting, the (supervisory) board, or both.[15] They need to provide for procedures to 'prevent the related party from taking advantage of its position'. The SRD refrains, however, from excluding the votes of directors nominated by the related party or to prescribe a majority-of-minority vote in the shareholders meeting.[16] Having a shareholders meeting decide on an intended transaction is evidently more burdensome than approval by the board. It follows that board review should be more readily invoked than involvement of the shareholders. Either way, the direct costs of approval consist not only of convening, preparing, and holding the respective meeting but also of compiling and providing information to directors or shareholders. To avoid any risk of personal liability, the board will often also consult external experts to assess the transaction. Having to seek prior consent therefore complicates and delays any given transaction. As in the case of involving the public through disclosure, the decision-making capacity of the board and, more markedly, of shareholder meetings is limited. Disregarding this constraint causes opportunity costs by diverting attention from worthier matters. Forcing agents

Handelsrecht 273, 311 (tallying the cost of an expert opinion on the fairness of a merger at Euro 250,000 and more).

14 Allowing shareholders, creditors, and others to challenge the transaction, including through legal action, is the stated purpose of disclosure, see recital 44 sentence 3 SRD.

15 See Art. 9c para. 4 SRD.

16 In the latter case, Art. 9c para. 4 sub-para. 4 SRD engages in much hand waving about 'appropriate safeguards which apply before or during the voting process to protect the interests of the company and of the shareholders […] by preventing the related party from approving the transaction despite the opposing opinion of the majority of the shareholders who are not a related party or despite the opposing opinion of the majority of the independent directors.'

with high decision-making costs—namely the shareholders meeting—to evaluate relatively insignificant transactions also risks a perfunctory and error-prone review.

## 2. Defining 'Material Transactions'

Balancing the costs and benefits of ex ante review is at the heart of delineating 'materiality' of RPTs, a responsibility that Art. 9c para. 1 SRD confers on the member states. The directive instructs them to consider the 'influence that the information about the transaction may have on the economic decisions of shareholders' and 'the risk that the transaction creates for the company and its shareholders'. As to the term 'transaction', it seems appropriate, although not required by the directive, to rely on IAS 24.9 characterising an RPT as 'a transfer of resources, services or obligations between [… the company] and a related party, regardless of whether a price is charged.' This would imply that the new regime extends to non-contractual value transfers, such as by choosing not to compete with the related party in a given market. Materiality of the transaction needs to be defined through one or more quantitative ratios 'based on the impact of the transaction on the financial position, revenues, assets, capitalisation, including equity, or turnover of the company'. The definition can also consider 'the nature of transaction and the position of the related party.'[17]

A quantitative materiality test under the SRD will generally contain three elements: a numerator and a denominator which, as a ratio, constitute the relevant measure, and a critical value as threshold of 'materiality' based on the measure. First, the numerator will likely consist of the transaction value (however determined). The directive requires the ratio to reflect the 'impact' of the transaction on the company's economic condition. This precludes unqualified recognition of the stated consideration as transaction value, for instance an undervalued sales price; it goes without saying that the parties will invariably insist the price to be fair. We only mention in passing that the SRD presumably permits but does not require valuing a loan or a lease based on the principal amount or the leased object. To us, it seems more reasonable—and in conformity with IAS 24—to rely on appropriate consideration as the relevant value, that is, the fair amount of interest or rental payments.

17 Art. 9c para. 1 sub-para. 2 SRD.

Art. 9c para. 8 SRD requires aggregation of transactions with the same related party over a 12-month period if they have not already been subject to ex ante review. The materiality test can thus be met by the sum of multiple transaction values. As the aggregation rule applies to transactions with the same related party, defining the scope of such a party is crucial. Specifically, if the term 'related party' treated a group as a single actor, the scope of aggregation would be much expanded. Art. 2 lit. h SRD defines 'related party' by reference to IAS 24.9. While IAS 24.9(b)(i) characterises entities belonging to the same group as related parties, suggesting an entity-based view of the term 'party', IAS 24.10 emphasises the general substance-over-form approach of the international standards. The issue is of lesser concern for the original purpose of IAS 24, but it gains importance in the context of the SRD's quantitative materiality test. Treating the group as a single party follows economic logic and precludes evading RPT review by dividing value transfers over several affiliated entities. On the flip side, the aggregation rule already imposes a considerable administrative burden on companies as all transactions with related parties must be observed and recorded. Having to track the group affiliation of all business partners would increase compliance costs further. This together with the regulatory technique of IAS 24.9 and the directive's own entity-based approach favour a narrow reading of 'related party' and the aggregation rule.[18]

The aggregation rule can weigh heavily on corporate groups, with the listed company both as subsidiary and as parent.[19] Where group members deal extensively with one another, aggregation can lead to a chain of disclosures and approval decisions regarding the same or very similar transactions. There is little benefit from such an exercise in redundancy; also, assessing the fairness of specialised transactions could be particularly difficult for shareholders. Accordingly, Art. 9c para. 5 SRD exempts transactions 'in the ordinary course of business and concluded on normal market terms.' As a substitute for the standard RPT review, the board is required to establish an unspecified 'internal procedure' to 'periodically assess' whether the transactions are in fact of an 'ordinary' nature and—more importantly—-conform to 'normal market terms.'

The second component of a materiality test is the ratio's denominator. In this respect, one can advance various *a priori* reasons for choosing a particular reference value. For

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18 For the entity view adopted by the directive with respect to the listed company, see II.3. below.

19 As to the latter case, the directive provides some relief that we discuss in II.3.a) below.

instance, an equity, share capital, market capitalisation, or profits denominator links materiality to the effect of the transaction on shareholders whose engagement is crucially needed to police tunnelling. By contrast, a materiality test based on total assets or turnover relates to the condition of the overall firm, allocating limited governance resources to their most relevant use. These and other reference values are in fact being used to determine materiality of RPTs in various jurisdictions, such as the UK, Hongkong, or Italy. Accordingly, Art. 9c para. 1 SRD mentions the 'financial position, revenues, assets, capitalisation, including equity, or turnover'. Arguably, no compelling case can be made for any single one denominator. This raises the possibility of using several alternative ratios, an option highlighted by the directive ('one or more quantitative ratios') and adopted in several jurisdictions.

The third piece of a materiality test consists of a threshold value triggering RPT review. In its 2014 draft, the European Commission proposed two different thresholds based on a total assets ratio. It provided for ex ante disclosure of RPTs exceeding 1% of company assets and for shareholder approval of those exceeding 5%. After this specific test failed to be included in the SRD, it is now the responsibility of the member states to set one or various thresholds. Different thresholds can apply to the approval and disclosure requirements. The directive explicitly permits to 'take into account the nature of [the] transaction and the position of the related party', thereby allowing further variation.

The level of the threshold(s) determines how often ex ante review will take place. The relevant trade-off has been described above: Setting too low thresholds causes information overload and burdens companies, boards, and shareholders. Excessively high thresholds, on the other hand, would undermine the SRD's intent of curbing abusive RPTs. Ultimately, the SRD admits fundamentally different conceptions of RPT review. The UK Listing Rules, which arguably served as a model for the SRD, expose even minor transactions—at 0.25% of at least one of several ratios—to public scrutiny.[20] If applied in a group setting, this would amount to continuing reporting obligations for intra-group transactions.[21] The opposite model is to treat only very few highly significant transactions as 'material.' The natural corollary would be a much more thorough and incisive type of review.

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20 See the so-called class tests of UK Listing Rules Chapter 10 Annex 1.

21 But see the following subsection II.3. on 'downstream' intra-group dealings.

### 3. Insider and Downstream Transactions

Corporate groups epitomise the departure of form from substance: In spite of multiple legal entities, the group constitutes in many respects a single economic organisation. This classic dichotomy raises a fundamental question for the design of an RPT regime, namely whether transactions should be evaluated at the level of the group or of its component entities. In terms of legal technique, the SRD embraces an entity approach: A listed company's transactions are only those of the company itself, not of its subsidiaries or other affiliates.[22] The reluctance to adopt a more substantive view may seem surprising for a set of rules that seek to control conflicted transactions and should mirror the underlying economic interests. Perhaps the drafters of the SRD were anxious not to become entangled in the abundant diversity of relationships between legal entities, ranging from tightly controlled groups to strategic shareholdings and significant but purely financial investments. Be this as it may, even an entity approach has to address the realities of the corporate group and looser types of associations. One key issue is whether the company's dealings with 'downstream' entities—which the company owns in whole or in part—merit the heightened attention given to RPTs (subsection a). The second task is to acknowledge the company's indirect ownership in the assets of downstream entities. Transactions by those entities with related parties are economic substitutes for transactions concluded by the company itself (subsection b).

#### *a) Downstream Transactions*

The law of RPTs is meant to prevent tunnelling by company insiders—managers and major shareholders. Seen from this angle, it is less than obvious why transactions should come under RPT review solely because the counterparty is partly *owned* by the company. IAS 24.9(b)(i), (ii) nonetheless classifies such 'downstream' entities as related parties, subjecting them to the RPT rules not just of IAS 24 but also of the SRD.[23] As a result, the company's dealings with its subsidiaries, associates, and joint ventures qualify as RPTs.[24] The inclusion of downstream entities is puzzling because a net value transfer is

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22 Art. 9c SRD generally refers to the 'company', and Art. 9c para. 7 SRD makes it plain that transactions by a subsidiary are not the company's.

23 See Art. 2(h) SRD.

24 IAS 24.19(c), (d), (e) explicitly mentions these three types of downstream entities. IAS 28.3 defines an 'associate' as 'an entity over which the investor has significant influence.' Significant influence is presumed upon holding voting power of 20% or more, IAS 28.5.

evidently less harmful to the company and its shareholders if the company is a (co-)owner of the receiving party. It is also hard to see how a manager should benefit from siphoning wealth to a downstream entity. Unlike a major shareholder, a subsidiary, associate, or joint venture of the company has neither the power nor the independent will to threaten the manager's position. There is no apparent conflict of interest on the part of the company. The UK Listing Rules, accordingly, only cover company insiders and their associates, not downstream entities, as 'related parties'.[25] Another reason to suspect a legislative glitch is that RPT disclosure under IAS 24 has an additional purpose beyond policing conflicts of interest: Off-balance-sheet entities controlled or influenced by the company can be vehicles for fudging the books, as numerous accounting scandals have painfully established.[26] Disclosing transactions with such entities arguably serves to detect and prevent accounting manipulation, not tunnelling.

Including downstream transactions in the RPT regime of the SRD is hard to justify. While a powerful shareholder or other insider might hold a stake in the downstream entity and benefit indirectly from the transaction, the same could be true if the entity were a stranger to the company, instead of being a subsidiary, associate, or joint venture. An insider's involvement in the entity should be analysed under the general criteria, namely whether the entity is a subsidiary, associate, or joint venture of the respective insider.[27] A more plausible reason for covering downstream entities is that value transferred to such a party no longer belongs to the company but still remains within the reach of its management, which could direct the subsidiary, associate, or joint venture to pass it on to an insider. Treating downstream entities as related parties, in this view, responds to the fact that the entity-focused RPT rules have a narrower scope than the economic organisation.

This weak rationale is even less convincing for subsidiaries as the SRD extends the RPT disclosure duty, but not the approval requirement, to transactions of subsidiaries with related parties of the parent. Applying RPT on a group-wide scope, if only in part, justifies

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25 See Listing Rule 11.1.4. Likewise, in the US related-persons disclosure under SEC Regulation S-K Item 404 (17 CFR § 229.404) does not apply to downstream parties, see Instructions to Item 404(a).

26 A particularly notorious example is the Enron case, see only George G. Benston and Al L. Hartgraves, 'Enron: What happened and what we can learn from it' (2002) 21 Journal of Accounting and Public Policy 105. For more rigorous evidence about the use of RPTs in earnings management, see Mark Kohlbeck and Brian W. Mayhem, 'Are Related Party Transactions Red Flags?' (2017) 34 Contemporary Accounting Research 900; Pier Luigi Marchini, Tatiana Mazza, and Alice Medioli, 'The impact of related party transactions on earnings management: some insights from the Italian context' (2018) 22 Journal of Management and Governance 981.

27 See IAS 24.9(b)(i), (ii).

far-reaching exceptions for transactions of the company with its subsidiaries: Art. 9c para. 6 lit. a SRD permits member states to exclude downstream transactions with a subsidiary if, alternatively, the subsidiary is wholly owned by the company, no other related party has an 'interest' in the subsidiary, or the company law of the subsidiary provides for 'adequate protection'.[28] The third variant requires a complicated and error-prone assessment of the degree of legal protection in the subsidiary. But the first two options already offer broad leeway. They effectively permit member states to exempt all intra-group transactions below the level of the company with the sole exception that no related party outside the company's group—notably a major shareholder of the company—can hold an 'interest' in the respective subsidiary.[29] Even with such an interest, the ordinary-course-of-business exemption in Art. 9c para. 5 SRD can provide much relief. Besides the full exclusion of certain downstream transactions, Art. 9c para. 1 sub-para. 1 SRD explicitly calls on member states to consider the 'position' of the related party, thereby authorising a more generous materiality standard for downstream transactions. This could be especially relevant for downstream entities other than subsidiaries, that is, associates and joint ventures.

*b) Insider Transactions by Downstream Entities*

Apart from favouring downstream transactions, any sensible attempt at regulating RPTs needs to acknowledge the fact that significant portions of listed companies' wealth reside in separate entities owned by the company. It is therefore imperative to expand the duty to disclose material transactions to those entered by a subsidiary with a related party of the company, as Art. 9c para. 7 SRD provides. It is all but obvious why the group-wide dimension of RPT review is confined to disclosure and fails to encompass board or shareholder approval. It may have seemed incongruous to grant the parent veto power over a transaction concluded by the subsidiary, a separate legal entity and itself not governed by the SRD. In any event, given that Art. 9c para. 7 SRD establishes a group-wide regime of RPT review, the quantitative materiality test likewise should apply at the

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28 The original proposal by the Commission had contained only the first option, see Art. 9c(4) in COM(2014) 213 final. The second option has been added by the European Parliament, which sought to also cover joint ventures, see Art. 9c(4) first indent in C7-0147/2014, OJ C 265, 11/8/2017, 177. The last exception seems to have been inserted by the Council.

29 This would require an evaluation of the respective foreign legal system, which is likely to be difficult. If this evaluation were carried out by the legislator, it would effectively have to comprise all company laws.

group level. As a consequence, transactions of different subsidiaries as well as the company itself need to be aggregated. The aggregation rule in Art. 9c para. 8 SRD should be read to this effect, although its wording is not entirely clear.

### 4. Non-Remuneration Transactions with Managers

Directors and other managers are the epitome of company insiders and as such are a natural object of RPT regulation. IAS 24.9 accordingly covers the 'key management personnel' of the company as a type of related party and defines them as 'those persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise)'. The most important value transfer from the company to its managers will usually consist of the compensation paid for their service of participating in the company's 'planning, directing and controlling'. But the governance of managerial remuneration has broader and more important goals than simply preventing self-enrichment. Both IAS 24 and the SRD, therefore, contain separate rules for the determination and disclosure of remuneration.[30] While we leave this special regime aside, managers can also enter into transactions with the company other than those intended to compensate and incentivise them.

As individuals offering their personal labour to the company, managers typically have fewer resources at their disposal than major shareholders. In consequence, the volume of non-remuneration transactions with managers tends to be smaller. Quantitative thresholds geared to major shareholders or other firms may well miss transactions that are rather sizeable for an individual manager. At the same time, such transactions can be of particular concern to investors and the general public, not least because they could be used to sidestep the stricter remuneration rules. This raises the question whether the materiality standard should be differentiated to better account for non-compensation RPTs with managers. As mentioned before, Art. 9c para. 1 SRD encourages member states to consider the 'nature of the transaction and the position of the relate party' in devising their quantitative materiality tests. One could, for instance, take inspiration from

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30 See IAS 24.17 and Artt. 9a, 9b SRD. The directive then permits member states to exclude remuneration items from the regular RPT regime, see Art. 9c para. 6 lit. c SRD. By contrast, IAS 24.18 sentence 2 requires them to be included in the general RPT reporting provided, of course, that they are 'necessary for users to understand the potential effect of the relationship on the financial statements'.

the US related party disclosure rules and subject manager RPTs exceeding Euro 100,000 to review.[31] Therefore, special attention will be paid in the following to non-compensation dealings with managers to determine whether they warrant a distinct trigger.

## III. Data

We first describe the construction of our dataset before highlighting its limitations.

### 1. Data Sources

To arrive at a comprehensive sample of German listed companies in 2017, we start from two official registers maintained by the German financial supervisory agency BaFin:[32] The 'enforcement list' contains issuers with Germany as their 'home member state'.[33] After eliminating foreign companies and non-equity issuers we are left with 477 companies as of July 2017. We combine this collection with 453 companies from the BaFin's database of major shareholdings as of December 2017. It consists of listed companies for which a shareholding above 3% of voting rights has been reported.[34] Combining the two sources gives us 490 corporations. To stamp out firms that have delisted in the second half of 2017 as well as stale entries in the holdings database, we only keep corporations that show in Bureau van Dijk's Dafne (the German version of Orbis) or Bankfocus databases or that we can otherwise confirm to be listed by year end 2017. We further eliminate companies that we know have delisted, become insolvent, or are in liquidation. From the remaining 405 companies, we cannot locate financial reports for the fiscal year 2017 for another 21 firms. Dropping these observations gives us the final sample of 384 companies.

The most important part of data collection consisted of gathering and coding certain aspects of RPTs. Although German law requires any public company (*Aktiengesellschaft*)—listed or not—to itemise all transactions with a controlling firm in a 'dependency report',

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31 Cf. SEC Regulation S-K Item 404(a) (17 CFR § 229.404(a)) (setting a 120,000-Dollar threshold for transactions with managers but also with shareholders with voting rights of more than 5%).

32 Federal Financial Services Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht*, BaFin).

33 Cf. Art. 2(1)(i) Transparency Directive 2004/109/EC. The list is kept to assess a levy used to fund the BaFin's activities in enforcing accounting rules, see § 17d(1) Financial Services Supervision Act (*Finanzdienstleistungsaufsichtsgesetz*, FinDAG).

34 See Art. 9–15 Transparency Directive 2004/109/EC and their national transposition in §§ 33–47 Securities Trading Act (*Wertpapierhandelsgesetz*, WpHG).

these reports are not disclosed to the public. Information can be obtained, however, from the annual statements pursuant to the International Financial Reporting Standards and, specifically, according to International Accounting Standard 24 (IAS 24). Where the company is the head of a group, we rely on the consolidated annual report if available. We collect the 'amount of the transactions' (not the outstanding balances and commitments[35]) for six of the seven categories of related parties that have to be reported separately, leaving out 'key management personnel' for which we create a separate and more detailed dataset.[36] Unfortunately, it often proved impossible to assign RPT amounts to one of these categories leading to an additional class of 'unspecified' transactions.[37] Within each category, we sum up amounts for goods or services provided (as seller) and received (as purchaser). We also gather the largest total amount of transactions with a single related party if that information is given. In addition to the RPT data, ownership information is taken from the BaFin's major shareholding data. We obtain key financials, namely balance sheet total, book assets (the sum of fixed and current assets), and book equity from Dafne and Bankfocus.[38] Sales (net turnover and other operating income) and profits come from Orbis, market capitalisation and index membership mainly from Deutsche Börse.[39]

Table 1 provides summary statistics of the key financials and two RPT variables. *RPT max* is the highest RPT total in the seven counterparty categories (including 'unspecified'). 281 of our 384 sample companies report RPT amounts. Of the 103 remaining companies, 75 companies make a general statement that no (material) RPTs have occurred and another 12 companies mention certain RPTs but declare them immaterial; this leaves 16 companies with no statement on the existence or magnitude of RPT. Table 1 contains the same statistics for the four main indices of Deutsche Börse's DAX family, namely the heavyweight DAX30, the medium and small segments MDAX and SDAX and the

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35 For the distinction between 'amounts' and 'balances', see IAS 24.18.

36 The remaining categories in IAS 24.19 are: parent, entities with joint control or joint significant influence, subsidiaries, associates, joint ventures, and other related parties. For the separate data on manager RPTs, see text accompanying n. 55 et seq. below.

37 We use only information from the financial report, not from external sources, to classify related parties.

38 Missing values were complemented manually from companies' annual reports.

39 We rely on the data file 'DBAG Equity All' as of 29 December 2017 available at https://www.dax-indices.com/composition. Market capitalisation had to be calculated based on separate variables for common and preferred stock and adjusting the capitalisation reported for free float shares by the respective percentage.

technology companies index TecDAX. That the sample contains less than 50 index companies for the MDAX and SDAX, and less than 30 companies for the TecDAX, is due to the fact that Deutsche Börse admits certain foreign companies to its indices.[40]

[40] See Deutsche Börse, Guide to the Equity Indices of Deutsche Börse AG, Version 9.2.3, 2018, available at https://www.dax-indices.com/resources (last visited 14 January 2019), p. 21 (allowing foreign companies with a registered office or headquarter in Germany or, for EU/EFTA based companies, with 'their focus of trading volume' on Deutsche Börse's Xetra).

| | N | Mean | St.Dev. | Min | Max | Median |
|---|---|---|---|---|---|---|
| Total sample | | | | | | |
| balance sheet total | 384 | 16,036 | 96,499 | 0 | 1,474,732 | 357 |
| equity | 384 | 2,954 | 10,147 | -5 | 109,077 | 167 |
| market cap. | 362 | 5,267 | 14,903 | 1 | 119,595 | 458 |
| sales | 369 | 5,815 | 20,085 | 0 | 240,054 | 290 |
| profit | 347 | 336 | 1,225 | -656 | 10,538 | 13 |
| RPT max | 281 | 464 | 2,386 | 0 | 24361 | 4 |
| RPT largest party | 184 | 93 | 465 | 0 | 5475 | 1 |
| DAX | | | | | | |
| balance sheet total | 30 | 171,017 | 308,438 | 6,569 | 1,474,732 | 47,815 |
| equity | 30 | 26,747 | 25,168 | 1,252 | 109,077 | 16,171 |
| market cap. | 30 | 43,562 | 31,190 | 6,769 | 119,595 | 34,884 |
| sales | 29 | 48,382 | 51,100 | 2,921 | 240,054 | 36,781 |
| profit | 25 | 3,411 | 3,067 | -649 | 10,538 | 2,411 |
| RPT max | 23 | 2,330 | 4,148 | 1 | 15,027 | 359 |
| RPT largest party | 9 | 770 | 1773 | 1 | 5,475 | 130 |
| MDAX | | | | | | |
| balance sheet total | 46 | 11,165 | 13,955 | 926 | 61,197 | 6,311 |
| equity | 46 | 3,223 | 2,815 | 394 | 11,751 | 2,482 |
| market cap. | 46 | 6,316 | 4,098 | 1,755 | 17,897 | 5,635 |
| sales | 45 | 9,912 | 14,982 | 0 | 73,211 | 3,810 |
| profit | 40 | 368 | 449 | -656 | 2,009 | 228 |
| RPT max | 38 | 1,143 | 3,681 | 0 | 20,430 | 97 |
| RPT largest party | 18 | 236 | 511 | 0 | 2,212 | 80 |
| SDAX | | | | | | |
| balance sheet total | 46 | 3,648 | 10,550 | 125 | 72,018 | 1,635 |
| equity | 46 | 982 | 1,118 | 83 | 6,058 | 638 |
| market cap. | 45 | 1,788 | 1,531 | 404 | 6,197 | 1,079 |
| sales | 45 | 1,427 | 1,848 | 5 | 10,052 | 942 |
| profit | 43 | 53 | 87 | -345 | 284 | 55 |
| RPT max | 42 | 48 | 109 | 0 | 502 | 10 |
| RPT largest party | 23 | 54 | 123 | 0 | 502 | 10 |
| TecDAX | | | | | | |
| balance sheet total | 26 | 2,153 | 3,039 | 112 | 14,100 | 1,021 |
| equity | 26 | 1,136 | 1,774 | 79 | 8,297 | 490 |
| market cap. | 26 | 3,623 | 3,912 | 276 | 12,529 | 2,085 |
| sales | 26 | 1,527 | 1,759 | 11 | 7,296 | 903 |
| profit | 26 | 88 | 185 | -381 | 650 | 36 |
| RPT max | 20 | 48 | 89 | 0 | 289 | 4 |
| RPT largest party | 14 | 24 | 51 | 0 | 173 | 1 |

*Table 1: Summary statistics for five key financials and two RPT variables in the dataset. Amounts are in million Euros.* RPT max *is the highest reported total* RPT *amount in any one of the seven related party categories.* RPT largest party *is the largest total* RPT *amount for any single related party.*

## 2. Limitations

Our RPT data and the resulting predictions of the effect of different materiality tests are subject to a number of limitations. Evidently, the data covers only German companies in 2017 and cannot account for possible time trends in RPT activity. Additional caveats attach to differences between IAS 24 reporting, our data source, and the RPT regime envisaged by the SRD. The most important is that our data are from consolidated reports reflecting a group perspective as opposed to the SRD's single entity view. This need not cause a disparity with regard to the *related party*. Whether the counterparty is seen as a single entity or as a group hinges on the interpretation of IAS 24.9. We lean towards an entity-based reading of the standard.[41] In any event, as our data reflects reporting under IAS 24, it takes the same view as the SRD, which defines 'related party' by reference to IAS 24.9.

Discrepancies arise, however, with respect to the *company itself*. Consolidated financial reports eliminate dealings between group entities that fall within the scope of consolidation.[42] As a consequence, the data omit transactions between the listed company and its subsidiaries as well as among subsidiaries even though they come under Art. 9c paras. 1, 7 SRD (unless member states except them under Art. 9c para. 6 lit. a SRD). In relation to outsiders, consolidated reporting treats the group as a unitary actor and fails to separate transactions of the company from those of its subsidiaries. This not only prevents us from discerning when an RPT would have been subject to approval by the shareholders or the board—a requirement that Art. 9c paras. 4, 7 SRD limits to transactions of the company itself. It also could lead us to overestimate the incidence of ex ante review, depending on the construction of the aggregation clause in Art. 9c para. 8 SRD. While the provision likely applies to the disclosure of RPTs by subsidiaries under Art. 9c para. 7 SRD, it is less straightforward whether aggregation should take place for the entire group or separately for each entity.[43] In the latter case we could spot too many RPTs as 'material' because we cannot conduct a separate aggregation for the company and its subsidiaries.

41 See text accompanying n. 18 above.

42 IAS 24.4 sentence 2.

43 See II.3.b) above.

Another potential restriction results from the fact that IAS 24.18 requires providing quantitative information only 'about those transactions […] necessary for users to understand the potential effect of the relationship on the financial statements.' We consider this a minor limitation: when a transaction or series of transactions is sufficiently large to trigger ex ante review under any reasonable materiality test within Art. 9c para. 1 SRD, it should also be seen as relevant for the users of financial statements. Unless companies apply an excessively high threshold under IAS 24.18, our data should cover all relevant RPTs.

Lastly, IAS 24 makes no exception for transactions 'in the ordinary course of business and concluded on normal market terms', as does Art. 9c para. 5 SRD. It follows that our data may contain transactions that this provision would exclude from the SRD's purview.

## IV. Empirical Findings

We start by reporting certain basic statistics about ownership and control of German listed companies as well as their own holdings in 'downstream' entities in subsection 1. Subsection 2 presents our main data on the volume and distribution of RPT transactions. It also looks deeper into the special cases of RPTs with downstream entities and with managers. Subsection 3 uses the data to analyse the effect of different materiality tests.

### 1. Ownership and Holdings of German Listed Companies

#### *a) Ownership*

Our first contribution is to present updated data on the ownership concentration of German listed companies from the official database of BaFin, arguably the most reliable data source. Figure 1 depicts the distribution of voting rights of the single largest ultimate shareholder in the 384 listed companies in our sample. Almost 40% of companies traded in German regulated markets have a direct or indirect majority shareholder. Slightly more than half of these controlling owners are natural persons (dashed line). A whopping 73% of listed firms have at least one ultimate shareholder who—at 20% of voting rights—is presumed to possess 'significant influence' and in that capacity is considered a related party; for 41% of companies this shareholder is a natural person.

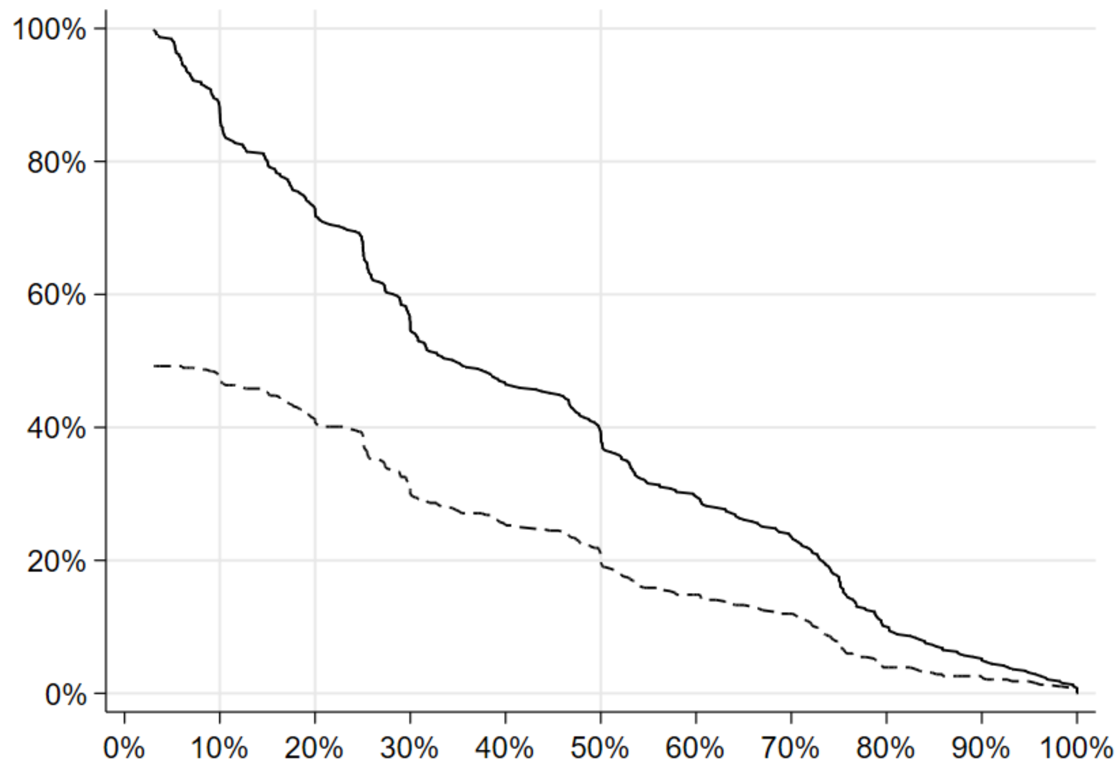


*Figure 1: Reverse cumulative distribution of the largest shareholding in German listed companies. The straight line shows the percentage of companies (vertical axis) with a largest shareholder directly or indirectly holding at least as many voting rights as shown on the horizontal axis. The dashed line represents the corresponding percentage for largest shareholders that are natural persons.*

The data reinforce the perception of Germany as a highly concentrated stock market.[44] However, there is considerable variety, as looking at Deutsche Börse's main indices in Figure 2 demonstrates: Of the leading thirty companies in the DAX, only three have a majority shareholder and ten have at least one shareholder with more than 20% of voting rights. In fact, weighted by market capitalisation only about 12% of the German stock market has a greater-than-20% shareholder. The small-caps SDAX and especially the technology index TecDAX are characterised by a larger share of natural persons as controlling or influential shareholders.

44 Cf. n. 5 above.

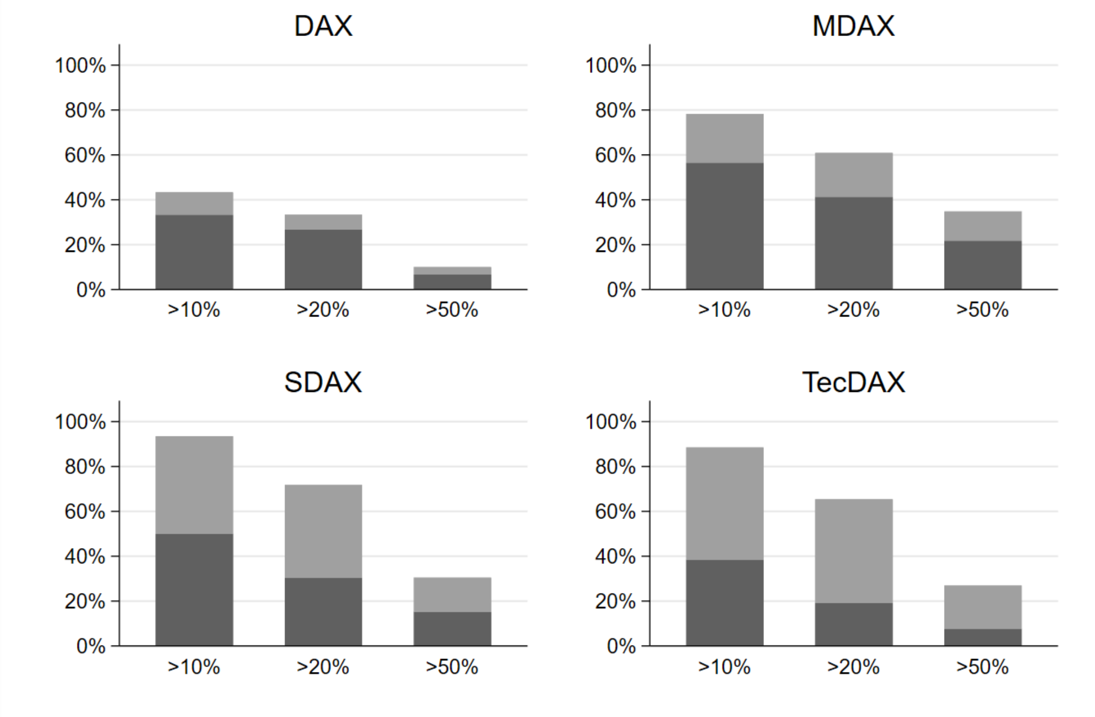


*Figure 2: Percentage of German listed companies from four major indices with the largest shareholder having voting rights in excess of 10%, 20%, and 50%. Dark bars represent legal entities, light bars natural persons as ultimate shareholders.*

A well-known peculiarity of German company law is the 'contractual group' (*Vertragskonzern*), which provides an explicit legal framework for legitimising a parent's control over a subsidiary. Nearly all contractual groups are based on a 'domination agreement' (enabling the parent to instruct the subsidiary's management), a 'profit transfer agreement' (entitling the parent to the subsidiary's accounting profit), or a combination of the two. To determine how many German listed companies have surrendered themselves to the contractual domination of another company, we hand-coded the occurrences of three relevant keywords in the annual reports of companies with a greater-than-60% shareholder.[45] Our search yields 15 companies—roughly 4% of the sample—that figure as subsidiaries in a contractual group at year end of 2017. As Table 2 shows, five of them boast a market capitalisation of more than one billion Euro. The German

45 We searched for 'Beherrschungs' (a fragment of the German word for domination agreement), 'Gewinnabf' (a fragment of 'profit transfer'), and 'Ergebnisabf' (a fragment of a different expression for 'profit transfer'). Because of the corporate governance statement required by Art. 20 para. 1 Accounting Directive 2013/34/EU and the financial implications of a profit transfer agreement we feel confident that any existing domination or profit transfer agreements are mentioned in annual reports. Such agreements require ratification by a 75% majority of the company's shareholders meeting.

implementation draft bill proposes to exempt RPTs covered under a domination or profit transfer agreement from ex ante review.

| Company (listed firm) | Index | Mark. cap. (mill. Euro) | Agreement type | Agreement year | Agreement other party | RPT max/ balance tot. |
|---|---|---|---|---|---|---|
| AUDI AG | | 31,197 | dom. & profit | 1971 | Volkswagen AG | .38 |
| MAN SE | | 13,874 | dom. & profit | 2013 | Volkswagen Truck & Bus GmbH | .10 |
| GSW Immobilien AG | | 5,163 | dom. | 2014 | Deutsche Wohnen SE | .00 |
| DMG MORI AG | SDAX | 3,556 | dom. & profit | 2016 | DMG MORI GmbH | .18 |
| Gelsenwasser AG | | 3,123 | profit | | Wasser und Gas Westfalen GmbH | .15 |
| MEDION AG | | 776 | dom. & profit | 2012 | Lenovo Germany Holding GmbH | .23 |
| ALBA SE | | 679 | dom. & profit | 2011 | ALBA Group KG | .37 |
| Verallia Deutschland AG | | 550 | dom. & profit | 2016 | Horizon Holdings Germany GmbH | .03 |
| WCM Beteiligungs- und Grundbesitz AG | | 505 | dom. | 2018 | TLG Immobilien AG | |
| EUWAX AG | | 458 | dom. & profit | 2008 | Boerse Stuttgart GmbH | .08 |
| MeVis Medical Solutions AG | | 72 | dom. & profit | 2015 | Varex Imaging Deutschland AG | .03 |
| Vereinigte Filzfabriken AG | | 22 | dom. & profit | 1990 | Wirth Fulda GmbH | 1.32 |
| Mainova AG | | 22 | profit | 2001 | Stadtwerke Frankfurt am Main Holding GmbH | .15 |
| BBI Bürgerliches Brau-haus Immobilien AG | | | profit | 2008 | VIB Vermögen AG | |
| Diebold Nixdorf AG | SDAX | | dom. & profit | 2017 | Diebold Nixdorf Holding Germany Inc. & Co. KGaA | .08 |

*Table 2: Listed companies as subsidiaries in a contractual group. The 'RPT max/balance tot.' column contains the highest amount of RPTs from one category of counterparties divided by the balance sheet total.*

### *b) Group Structure*

Certain parties are 'related' to the listed company by virtue of the company's shareholding in them. To obtain a sense of these 'downstream' related parties, we use the Orbis database of Bureau van Dijk. While Orbis excludes bank and insurance companies and certain small firms, it aims at being comprehensive for other entities. Coverage of large firms seems significantly broader than for small firms.[46] Importantly for present purposes, Orbis contains data on an entity's direct and indirect owners making it a source of information about the structure of corporate groups. For our sample, Orbis contains at least one shareholding for 345 of our 384 companies. The ownership data may not be complete but it seems the best available source.[47] Figure 3 renders the size distribution of direct and indirect shareholdings except for a single large outlier, Allianz SE.[48] The charts show a striking regularity: The listed companies in the sample (without Allianz SE) have a mean (median[49]) number of 84 (23) shareholdings in other entities documented in Orbis. Most of these holdings, namely a mean number of 61 (median 15) shareholdings, fall in the highest size bracket 90–100%. Of these, 57 (14) equal exactly 100% so that the company fully owns the respective entity. The 40–50% category shows another elevated mean (median) number of 7 (1) holdings, 5 (1) of them at exactly 50%.

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46 Samuel Pinto Ribeiro, Stefano Menghinello and Koen De Backer, The OECD ORBIS Database: Responding to the Need for Firm-Level Micro-Data in the OECD, OECD Statistics Working Papers 2010/01, para. 32–35, p. 20, table 5 (for 2006 and France, 18% of firms with 1–9 employees were found covered as compared to 84% of firms with more than 250 employees; for Germany, the respective ratios were 20% and 79%).

47 Verification of ownership data for a random sample of German private companies based on shareholder records in commercial registries inspires some confidence in the data, see Walter Bayer and Thomas Hoffmann, *Gesellschafterstrukturen deutscher GmbH*, GmbHRundschau 2014, 13, n. 6 (four deviations in the number of shareholders in a sample of 1,000 private companies).

48 We consider Allianz SE an outlier because it introduces a striking peak in holdings of the smallest 0–10% size class: The mean number of these holdings is 10.3 with and 2.8 without Allianz. This large effect is due to the holdings of funds managed by Allianz Global Investor, Allianz SE's asset management arm. We do not know why Orbis contains Allianz SE in spite of its being an insurer.

49 The median observation is the listed company for which one half of the sample has higher values and one half has lower values.

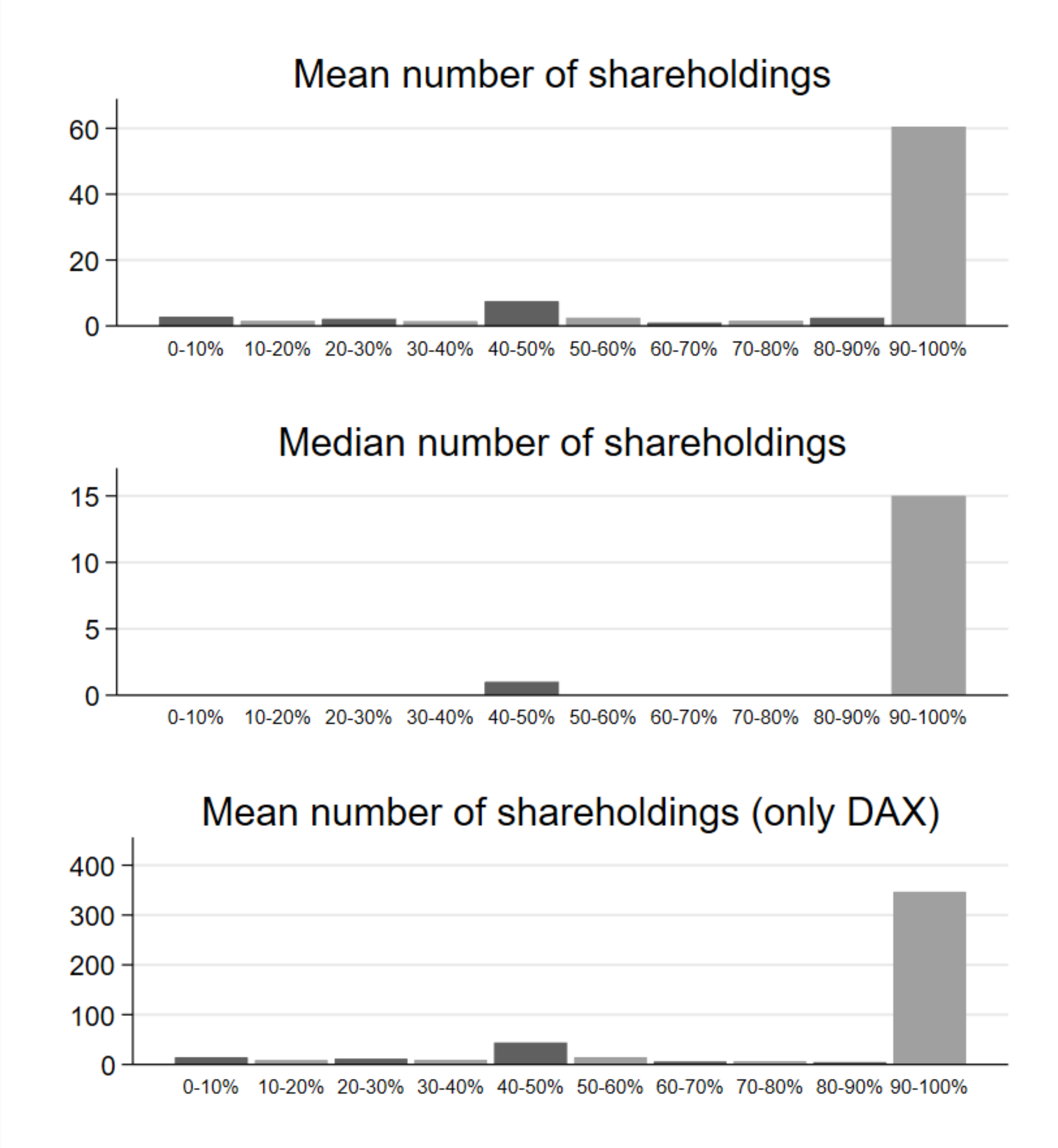


*Figure 3: Mean and median number of direct and indirect shareholdings by listed companies in other entities. Each of the brackets contains its upper bound; e.g., the '10–20%' bars show all shareholdings >10% and ≤20%.*

Overall, the Orbis data confirm the widely held view that corporate groups are mostly composed of fully owned subsidiaries. A far smaller but still distinguishable group of shareholdings are likely joint ventures with equal stakes of two business partners. Besides these two distinctive settings, for roughly one quarter of downstream entities shareholding sizes spread more or less evenly from 0% to 100%.[50]

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50 Of the mean total of 84 holdings, 57 represent full ownership and another 5 represent 50% stakes. The remaining 22 other holdings amount to about 26% of the total.

Based on the Orbis data, Table 3 collates within-sample cross-holdings exceeding 20%, that is, listed companies with a stake of 20% or more in another listed company.

| Listed firm as shareholder | Listed firm as company | Index | Holding | Agreement | RPT max/ balance tot. |
|---|---|---|---|---|---|
| Volkswagen AG | Audi AG | | 99.6 | dom. & profit, 1971 | .38 |
| Adler Real Estate AG | Westgrund AG | | 94.9 | | |
| VIB Vermögen AG | BBI Bürgerliches Brauhaus Immobilien AG | | 94.9 | profit, 2008 | |
| Deutsche Wohnen SE | GSW Immobilien AG | | 93.9 | dom., 2014 | .00 |
| TLG Immobilien AG | WCM Beteiligungs- und Grundbesitz AG | | 91.0 | | |
| RWE AG | innogy SE | MDAX | 82.3 | | .44 |
| Deutsche Balaton AG | Heidelberger Beteiligungsholding AG | | 79.6 | | |
| Demire Deutsche Mittelstand Real Estate AG | Fair Value REIT-AG | | 77.7 | | .00 |
| Hornbach Holding AG & CO. KGaA | Hornbach Baumarkt AG | | 76.4 | | .04 |
| Volkswagen AG | Renk AG | | 76.0 | | .04 |
| MAN SE | Renk AG | | 76.0 | | .04 |
| Volkswagen AG | MAN SE | | 75.7 | dom. & profit, 2013 | .10 |
| Aurelius Equity Opportunities SE & Co. KGaA | HanseYachts AG | | 75.1 | | .01 |
| United Internet AG | Drillisch AG | TecDAX | 73.3 | | .04 |
| Südzucker AG | CropEnergies AG | | 69.2 | | .24 |
| Paragon AG | Voltabox AG | | 60.0 | | .03 |
| Porsche Automobil Holding SE | Volkswagen AG | DAX | 52.2 | | .04 |
| Deutsche Balaton AG | Marenave Schiffahrts AG | | 52.2 | | |
| Sixt SE | Sixt Leasing SE | | 41.9 | | .01 |
| MBB SE | Aumann AG | | 38.0 | | .01 |
| Rocket Internet SE | HelloFresh SE | | 36.0 | | .00 |
| Münchener Rückversicherungs-Gesellschaft AG | MEDICLIN AG | | 35.0 | | .25 |
| Fresenius SE & Co. KGaA | Fresenius Medical Care AG & Co. KGaA | DAX | 30.6 | | .02 |
| Volkswagen AG | Bertrandt AG | SDAX | 29.1 | | .44 |
| EnBW Energie Baden-Württemberg AG | MVV Energie AG | | 28.8 | | .15 |
| United Internet AG | Tele Columbus AG | SDAX | 25.1 | | .00 |
| Effecten-Spiegel AG | infas Holding AG | | 20.4 | | |

*Table 3: Shareholdings greater than 20% by listed companies in other listed companies. The 'RPT max/balance tot.' column contains the highest amount of RPTs from one category of counterparties divided by the balance sheet total.*

## 2. Related Party Transactions of German Listed Companies

Based on the hand-collected data of RPTs, Figure 4 provides a first glance at the seven categories of counterparties. 281 of the 384 sample companies report explicit RPT amounts for at least one type of counterparty. The upper bar chart of Figure 4 shows the frequency of such statements.

In Figure 4, 'associate' counterparties stand out among the three categories of downstream entities 'subsidiary', 'associates', and 'joint venture'.[51] This by no means implies that intra-group dealings with subsidiaries are infrequent. Because our data source are consolidated reports, it lacks most RPTs within the respective group.[52] It is nonetheless remarkable that there are one hundred transactions with associates—essentially entities with a shareholding of the reporting company between 20% and 50%. The medium and bottom tiers of Figure 4 underscores this. The middle pane depicts the mean sum of RPT amounts in a given category relative to the company's balance sheet total *if RPTs occur* (i.e., if an amount is reported). Dealings with associates, if stated, amount to 3% of the companies' balance sheet, which is in the same order of magnitude as RPTs with the 'parent' or 'other' categories. Because of the frequency of associate RPTs, they also seem to be relevant in the aggregate: The bottom bar chart shows mean RPT amounts if one treats a non-report (missing value) as evidence of the absence of RPTs in the respective category (i.e., zero observations). In this view, associates are more important than parents as RPT counterparties.

51 See II.3.a) for the notion of 'downstream' entities.

52 See IAS 24.4.

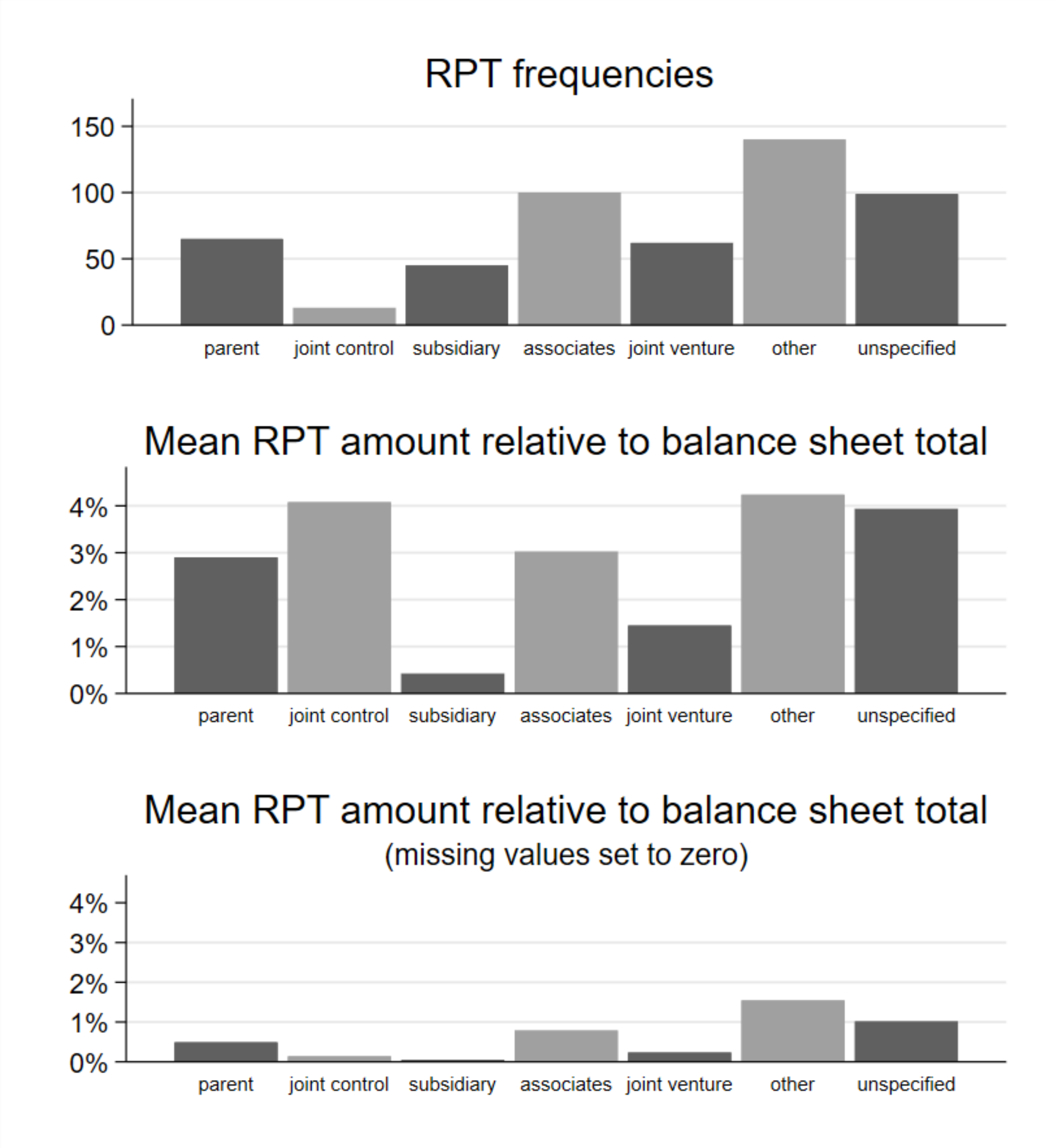


*Figure 4: Frequency of RPT transactions (top), their mean amounts as a percentage of balance sheet total conditional on a reported RPT amount (middle) and with missing RPT amounts treated as zero (bottom).*

Downstream transactions account for two fifth of reported RPT volume. If they differ from other, 'insider' RPTs in the risk of tunnelling towards major shareholders, one would expect to observe a relationship between insider RPTs, but not downstream transactions, and the degree of shareholder influence. Figure 5 supports this conjecture. The spots represent sums of reported RPTs for insider (left) and downstream (right) transactions as a share of the company's balance sheet total. The horizontal axis represents the size of the largest shareholding. Comparing the two plots conveys the visual impression that RPT amounts tend to rise with the main shareholder's stake for insider, but not for downstream, transactions.

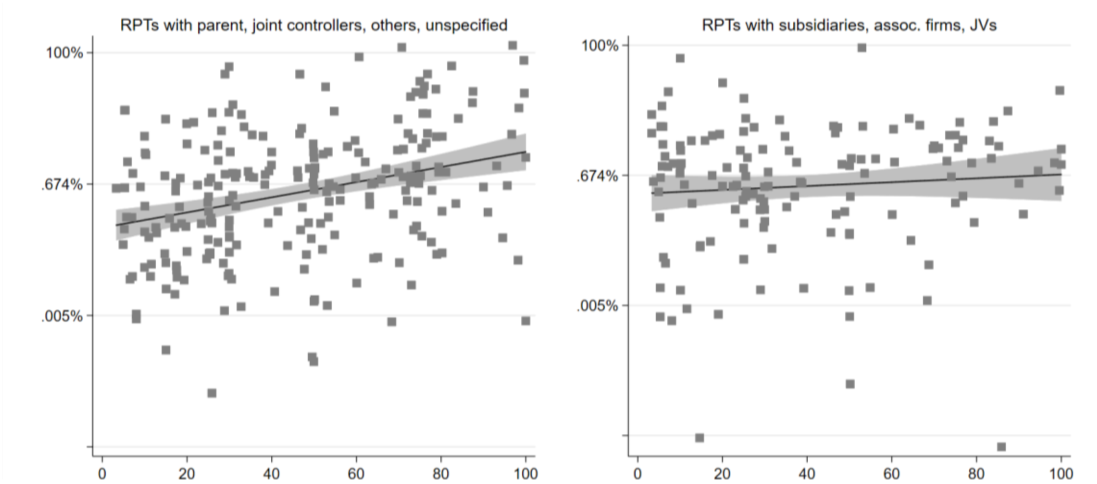


*Figure 5: Scatter plot of reported RPT amounts aggregated over insider (left) and downstream (right) counterparty categories. RPT amounts are relative to the company's balance sheet total and on a logarithmic scale.*[53] *The horizontal axis represents the size of the largest individual shareholding in the company. The line depicts predicted values from a linear regression with the gray area showing the 95% confidence interval.*

The multivariate regressions in Table 4 point in the same direction. The first two columns contain parameter estimates for 'probit' models to predict whether a company discloses at least one RPT amount in the insider (column (1)) or downstream (column (2)) categories. The models include a number of control variables but we only report the two variables of interest, size of the *largest shareholding* and the existence of a *domination or profit transfer agreement*. *Largest shareholding* indeed seems to increase significantly the probability of insider but not downstream RPTs. If insider RPTs occur, their aggregate amounts are significantly larger with a *domination or profit transfer agreement*, as column (3) demonstrates. The effect of *largest shareholding* is also positive and barely misses the 5% significance level (p-value: .053). By contrast, both variables of interest are completely insignificant for downstream RPTs in column (4).

53 The uneven percentage values on the vertical axis are due to depicting log amounts: $e^{-10} \approx 0{,}005\%$, $e^{-5} \approx 0{,}674\%$, and $e^{0} = 100\%$.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | parent, joint control, other, unspecified (Probit) | subsidiary, associate, joint venture (Probit) | parent, joint control, other, unspecified (Poisson) | subsidiary, associate, joint venture (Poisson) |
| largest shareholding | 0.0136*** (0.000) | -0.00209 (0.503) | 0.0131 (0.053) | 0.000517 (0.957) |
| domination or profit transfer agreement | 0.255 (0.578) | 0.660 (0.083) | 1.158* (0.024) | -0.00792 (0.993) |
| Observations | 328 | 328 | 209 | 137 |
| Pseudo $R^2$ | 0.084 | 0.122 | 0.144 | 0.074 |

*Table 4: Regression results for insider versus downstream RPTs. Columns (1) and (2) present coefficient estimates of a probit model. The dependent variable is whether at least one amount is reported for insider RPTs (with a parent, joint controller, other, or unspecified counterparty) or downstream RPTs (with a subsidiary, associate, or joint venture). Columns (3) and (4) show coefficient estimates from a Poisson regression with the total amount of insider and downstream RPTs as dependent variables.[54] Unreported control variables are an indicator of whether the shareholder is a natural person, balance sheet total, book equity, market capitalisation, indicators for four stock indices, and the number of shareholdings by the company in the 40–50% and in the 90–100% size class. p-values in parentheses are based on robust standard errors.*

This can serve as no more than exploratory evidence. It only suggests that other-than-downstream RPTs are 'somehow related' to the largest shareholder while downstream RPTs are not. The analysis has nothing to say about whether larger shareholders actually use insider RPTs to extract wealth. Yet at the very least, there is first, indicative support for the notion that downstream RPTs differ with regard to large shareholders, arguably the most dangerous class of company insiders.

Another type of related parties that—for reasons given earlier—could warrant special attention are managers.[55] We reviewed annual reports for transactions with 'key management personnel', excluding remuneration and limiting our search to aggregate amounts for all relevant persons above Euro 100,000. Transactions with companies

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54 For the use of a Poisson regression, see J. M. S. Santos Silva and Silvana Tenreyro, *The Log of Gravity*, The Review of Economics and Statistics, 88 (2006), 641, 645 and much simpler William Gould, https://blog.stata.com/2011/08/22/use-poisson-rather-than-regress-tell-a-friend/ (last accessed 3 January 2019).

55 See II.4. above.

controlled or jointly controlled by a manager were included.[56] Of the 34 companies disclosing such transactions, 15 had dealt only with managers who were at the same time direct or indirect shareholders with control or significant influence. As expected, these transactions tend to exceed those with managers that are not significant shareholders.[57] Table 5 shows the remaining 21 companies. The incidence and amounts of transactions do not give casue for concern, especially in light of the fact that volumes often relate to several managers. Presumably, it should come as no surprise that a stock market with high ownership concentration experiences little managerial self-dealing.

56 Cf. IAS 24.9(b)(vi).

57 The two main examples are transactions between BMW AG and businesses related to the two main shareholders (more than Euro 37 million) and between Ströer SE & Co. KGaA and its dominant shareholder (more than Euro 36 million).

| Listed company | Related party | Value (mill. Euro) |
|---|---|---|
| A.S. Création Tapeten AG | Chairman supervisory board | 1.17 |
| ADLER Real Estate AG | Company controlled by director of supervisory board | 1.5 |
| artnet AG | Related party of/companies controlled by directors of management and supervisory board | 0.58 |
| Borussia Dortmund GmbH & Co. KGaA | Directors of supervisory board and other managers | 0.34 |
| CompuGroup Medical SE | Director of supervisory board | 0.14 |
| Eckert & Ziegler Strahlen- und Medizintechnik AG | Companies controlled by CEO | 0.83 |
| elumeo SE | Company controlled by CEO | 0.2 |
| Encavis AG | Company attributable to director of supervisory board | 0.12 |
| INDUS Holding AG | a. Family of board members and shareholders | a. 0.1 |
| | b. Managers of subsidiaries | b. 4.4 |
| Joh. Friedrich Behrens AG | Chairman of supervisory board | 0.17 |
| MLP SE | Directors of management and supervisory board and parties related to them | 1.3 |
| Müller - die lila Logistik AG | Directors of supervisory and management board and other managers | 1.58 |
| NORDWEST Handel AG | Directors of supervisory board and companies attributable to them | 0.12 |
| Nucletron Electronic AG | Directors of supervisory and management board and their family members | 0.84 |
| SAP SE | Companies controlled by directors of supervisory board | 11.0 |
| Schaltbau Holding AG | Law firm attributable to director of management board, director of supervisory board | 0.83 |
| Sixt SE | Company with shareholding of director of supervisory board | 0.40 |
| SNP Schneider-Neureither & Partner SE | Managing director and companies attributable to him | 0.44 |
| Staramba SE | Unspecified managers | 3.74 |
| technotrans AG | Law firm attributable to director of supervisory board | 0.12 |
| Uzin Utz AG | Key management personnel | 0.13 |

*Table 5: Companies reporting transactions with 'key management personnel' that are not at the same time shareholders with control or significant influence.*

## 3. Frequency of Material RPTs Under Different Tests

Our data allow us to assess the number of German companies that would have met a given materiality test based on their reported RPTs in 2017. As candidate denominator values, we consider balance sheet total, assets, equity, market capitalisation, sales, and profits. We first consider tests with a single ratio and threshold (subsection a) and then move on to combinations of alternative ratios and thresholds (subsection b).

*a) Single Ratio*

Using the data to predict how often a quantitative test will mark an RPT (or series of RPTs) as 'material' faces several difficulties. The first is coping with missing values. As mentioned earlier, whenever a plausible quantitative test were to identify an RPT as 'material' we believe that the company would also have to report it under IAS 24.18 because it would be needed for understanding the 'potential effect of the relationship on the financial statements.'[58] Based on this reasoning, we treat missing RPT values in a given category as zero. Percentages in the following threshold analysis therefore refer to the full sample for which we have the relevant denominator.

Harder to address is the fact that RPT amounts in our data are aggregated over counterparties within each category and over fiscal years. We only observe the sum of reportable RPTs for all parents, joint controllers, etc. and for the fiscal year. Aggregation of transactions with the same party over one year is in line with Art. 9c para. 8 SRD, which ties materiality to aggregated amounts over this period. In this respect, the only information missing in the data is whether a given materiality test is triggered repeatedly during the same year (because, say, the company is a regular supplier of a related party and the sum of deliveries meets the threshold more than once).[59] Somewhat more problematic is that the RPT sum for any single category can reflect transactions with more than one counterparty. We can address this concern by collecting the largest sum of RPTs that the financial report attributes to a single counterparty (*RPT largest party*). Although not obligatory under IAS 24, 184 companies in the sample provide the relevant information. When *RPT largest party* exceeds the relevant threshold, one can be certain that a material RPT has occurred and ex ante review would have been triggered. At the same time, because disclosing the largest amount of single-party RPTs is not mandatory, it seems very likely that more companies have sizeable RPTs with identical counterparties. To establish an upper limit for the largest single-party RPT, we define *RPT max* as the maximum RPT amount reported across the seven categories of counterparties.

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58 See III.2. above.

59 The distributions of summed RPT amounts still allow some inferences about how many companies will meet the materiality limit twice, thrice, or more often, see n. 60, 64.

In conclusion, the following analysis estimates the fraction of companies that would have met a certain materiality test *at least once* during the reporting period. We provide a band of estimates: *RPT largest party* represents the lower bound, that is, the *minimum* number of listed firms that would have had RPTs subjected to ex ante review. *RPT max* indicates the *maximum* number of such companies.[60] Figure 6 depicts the results.[61] The six different charts refer—from left to right and top to bottom—to ratios based on balance sheet total, assets, equity, market capitalisation, sales, and profits. Each graph depicts the percentage share of companies (vertical axis) that meets the percentage thresholds on the horizontal axis. The solid line represents *RPT max*, the dashed line *RPT largest party*. As mentioned before, missing (unreported) values are treated as zero for both variables. The percentages thus relate to all companies for which we have the respective financial data.[62] For firms with negative equity (2 observations) and profits (56 observations), we assume the equity or profits test has no application, so that no amount of RPTs is marked as material for the respective company.

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60 As the estimates always relate to the number of companies with *at least one* instance of material RPTs, there is no direct evidence about how many companies would have needed to undergo multiple RPT reviews. There are, however, hints at the order of magnitude, see n. 64. Note also the frequency of companies with reported counterparty categories: 103 (27%) companies report no RPT amounts, 131 (34%) report amounts for one category, 89 (23%) for two, 38 (10%) for three, 14 (4%) for four, and 9 (2%) for five. It follows that 39% of all companies risk crossing the materiality threshold in more than the single category reflected in *RPT max*, keeping in mind that the other RPT amounts are by definition smaller than *RPT max*.

61 Strictly speaking, Figure 6 contains an inverse cumulative relative frequency distribution of companies crossing the relevant threshold. The proper representation would be a plot of 384 single observations as dots. Drawing a continuous line through the data points is meant to insinuate an underlying probability distribution.

62 Sample size is 384 for balance total, assets, and equity. For market capitalisation, sales, and profits it is 362, 369, and 291, respectively.

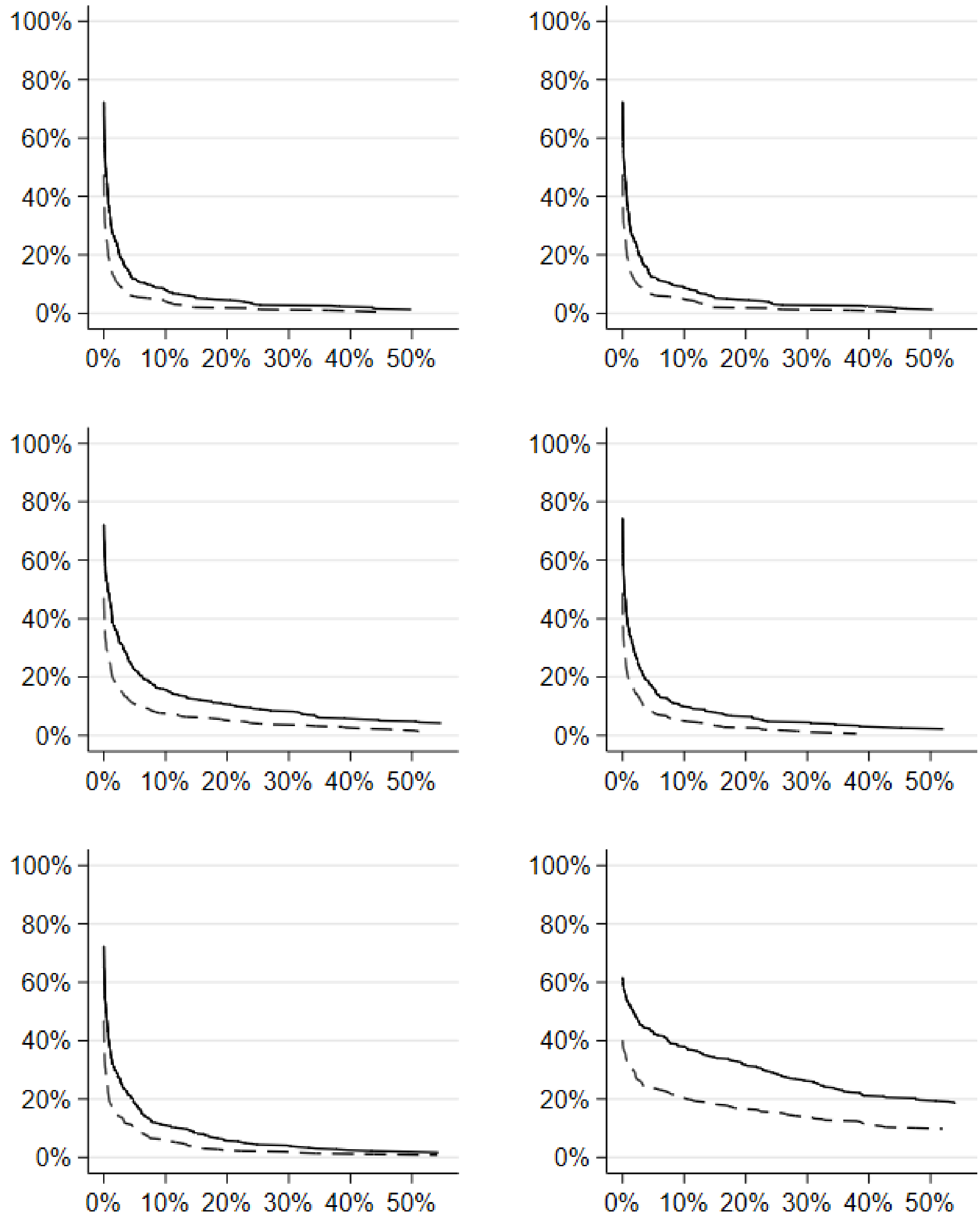


*Figure 6: Percentage of companies (vertical axis) that trigger a given threshold (horizontal axis). The six charts represent ratios based on balance sheet total (top left), assets (top right), equity (middle row left), market capitalisation (middle row right), sales (bottom left), and profits (bottom right). Solid lines represent percentages based on* RPT max*, dashed lines on* RPT largest party.

The shares based on *RPT largest party* are, as expected, much lower than those from *RPT max*. Yet if it is reported for a given company, *RPT largest party* almost always exactly or very closely matches *RPT max*. Combined with the fact that companies are compelled to report RPT amounts for counterparty categories (from which *RPT max* is obtained) while providing the information for *RPT largest party* is voluntary, we believe that the true value is closer to the solid line.

Figure 7 takes a closer look at the results from Figure 6, focusing on a plausible range of thresholds. The interpretation of the charts is that for a threshold value on the horizontal axis the two graphs signify the upper and lower estimation bounds of the percentage of sample companies that would have been subject to ex ante RPT review at least once in 2017. For example, the 2.5% threshold contemplated by the current German draft implementation relates to aggregate transaction volume with a given counterparty relative to the company's book assets. The upper right pane of Figure 7 shows that between 10% and 20% of German listed companies would have hit this limit in 2017 and, as a result, would have triggered ex ante review. As expected, the curves closely resemble those for the balance sheet total ratio in the upper left graph of Figure 7.[63] Only the equity and market capitalisation ratios lead to notably different results for a given threshold. For instance, applying the 2.5% cut-off would have affected between 16–31% of Germany companies based on an equity ratio and around 13–24% based on a market capitalisation ratio. The Commission's 2014 proposal to mandate disclosure of RPTs exceeding 1% of assets and approval at 5% of assets would have forced around 17–33% of German companies to announce RPTs and roughly 7–12% to seek prior approval (judging from the top right graph of Figure 7).

63 In fact, under German accounting rules fixed and current assets encompass all assets and exclude only deferrals. Major discrepancies can arise when the firm is overindebted and the balance sheet total is determined by liabilities that exceed assets.

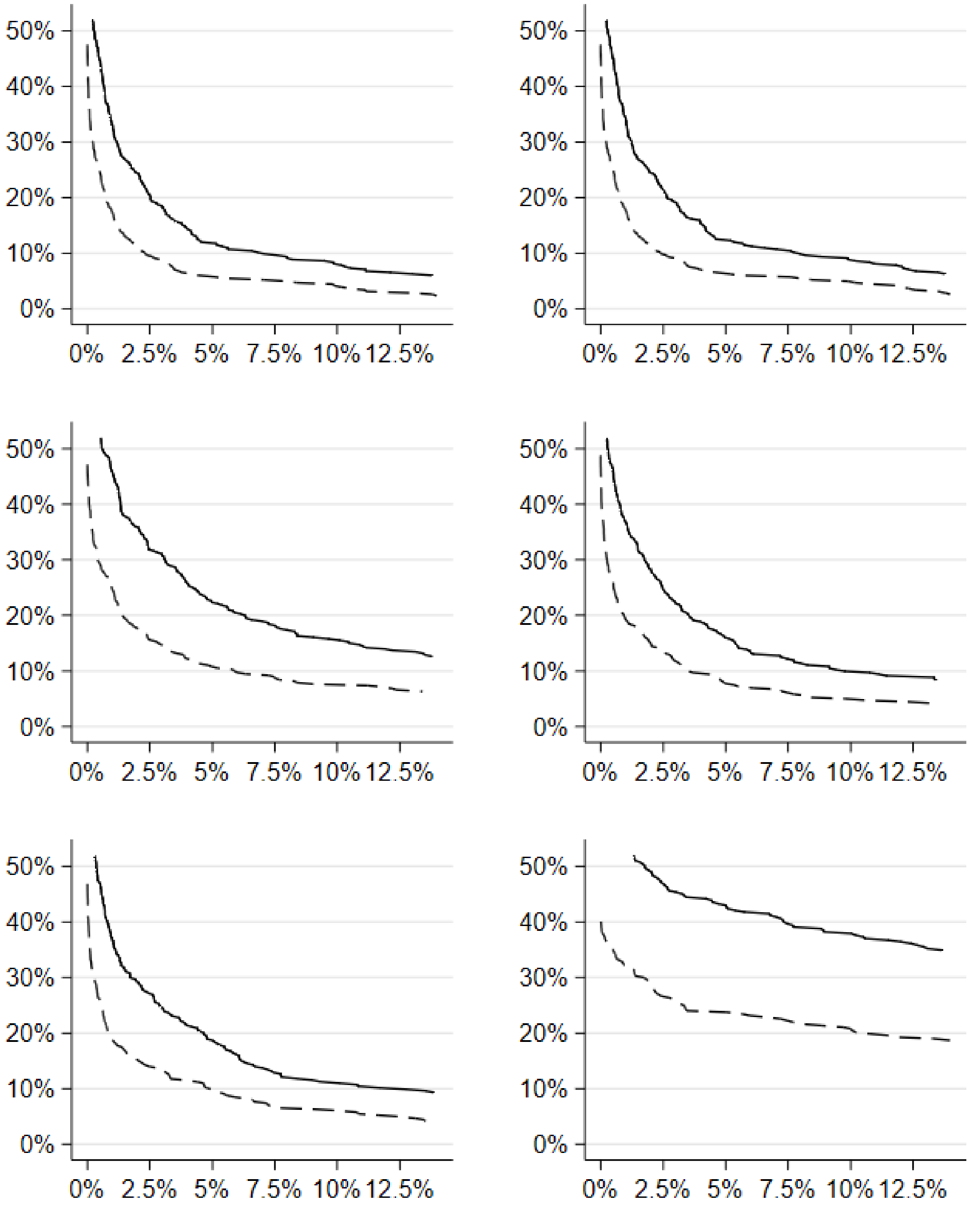


*Figure 7: Percentage of companies (vertical axis) that trigger a given threshold (horizontal axis). The six charts represent ratios based on balance sheet total (top left), assets (top right), equity (middle row left), market capitalisation (middle row right), sales (bottom left), and profits (bottom right). Solid lines represent percentages based on* RPT max*, dashed lines on* RPT largest party.

Figure 7 offers a glance at how often a given ratio and threshold will trigger the approval and disclosure requirements.[64] As discussed above, the optimal frequency—and more generally, the optimal materiality criterion—is a judgment call. By providing not only single estimates but their full distribution, the graphs in Figure 7 suggest an additional consideration in designing a materiality test: Beside the expected frequency of RPT review, the optimal standard can also depend on the *marginal* effect of a threshold change on the scope of affected firms; this corresponds to the slope of the curves in Figure 7. For instance, raising the Commission's proposed disclosure threshold from 1% to 1.5% would have reduced the share of affected firms from 17–35% to 13–27% while an increase from 5% to 5.5% would have had a negligible effect.[65] A large marginal effect—a steep slope of the curve—means that many companies are close to the threshold. If management is inclined to incur costs to avoid RPT disclosure or approval—such as by tinkering with the RPT amount—total societal losses from such activities should be larger if more companies are at the brink of hitting the threshold. Minimising costly attempts at eluding the RPT regime thus favours a threshold in the flatter regions of the curves in Figure 7. One way to accomplish this without reducing the rate of RPT reviews is to employ several ratios and to apply higher thresholds to each of them.

*b) Different Ratios*

Different quantitative criteria are only useful if they capture a different aspect of RPT materiality; an alternative test should identify a distinct set of companies and RPTs. We start exploring complementarities between the candidate financial figures by reporting correlation coefficients in Table 6. The correlation coefficient represents the degree to which two random variables are linearly dependent: A coefficient of 1 indicates that one variable is simply an (increasing) linear function of the other; a coefficient of 0 signifies no linear relation at all. The last column of Table 6 reports coefficients of determination (or $R^2$) of linear regressions of a row variable on other row variables except (those for which no $R^2$ is reported). The coefficient if determination is a measure of how much

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64 Figure 7 also gives a sense of how often review could be triggered if reported RPT volume reflects multiple transactions over the 12-month window of the aggregation clause in Art. 9c para. 8 SRD: Suppose a 2.5% threshold based on a balance-sheet-total ratio (top left graph). Looking at the percentage of companies affected by a hypothetical 5% threshold provides the maximum fraction of firms that can hit a 2.5%-limit twice.

65 Using the same percentage change would raise the cutoff from 5% to 7.5% and bring the share from around 7–12% down to 7–10%.

additional information a variable contains beyond a linear model based on the other, (predictor) variables.

| | balance sheet total | assets | equity | market cap. | sales | $R^2$ | $R^2$ |
|---|---|---|---|---|---|---|---|
| balance sheet | 1.00 | | | | | | |
| total | (384) | | | | | | |
| assets | 1.00 | 1.00 | | | | 0.97 | 0.23 |
| | (384) | (384) | | | | (328) | (348) |
| equity | 0.72 | 0.72 | 1.00 | | | 0.97 | |
| | (384) | (384) | (384) | | | (328) | |
| market cap. | 0.46 | 0.45 | 0.83 | 1.00 | | 0.82 | 0.59 |
| | (362) | (362) | (362) | (362) | | (328) | (348) |
| sales | 0.45 | 0.44 | 0.88 | 0.76 | 1.00 | 0.92 | 0.58 |
| | (369) | (369) | (369) | (348) | (369) | (328) | (348) |
| profit | 0.90 | 0.90 | 0.94 | 0.86 | 0.90 | 0.90 | |
| | (291) | (291) | (291) | (274) | (291) | (328) | |

*Table 6: Correlation coefficients of financials and coefficients of determination ($R^2$) from OLS regressions of the row financial variable as dependent variable on the other variables for which results are shown as predictors. The second value in each cell is the number of observations.*

The correlation coefficients suggest, firstly, using either only balance sheet total or only assets as the two are virtually interchangeable; we choose to drop balance sheet total. Secondly, profit is quite strongly related to all other measures, making it dispensable. Thirdly, equity and market capitalisation comove considerably but equity has a stronger relationship with assets. We thus eliminate equity. The correlations of determination for the three survivors—assets, market capitalisation, and sales—in the last column of Table 6 hint at a high degree of complementarity.

The following Figure 8 studies several versions of a combined materiality test with three ratios based on assets, market capitalisation, and sales. To simplify the presentation, we confine ourselves to results based on *RPT max*. As before, missing values of *RPT max* are treated as zero and the percentages refer to companies for which we have all relevant financial figures.[66] Each of the eight stacked bars represents a combination of thresholds relating to an assets, market capitalisation, and sales ratio. The numbers below the bars

66 This gives us 348 observations. Cf. n. 62 above.

indicate the percent thresholds applied to the three ratios. For instance, the second bar represents a test consisting of a 1% threshold for *RPT max* over assets, a 1.5% threshold for *RPT max* over market capitalisation, and a 1.5% threshold for *RPT max* over sales. The general lesson from Figure 8 is that the independent contribution of each of the ratios depends on the chosen thresholds.

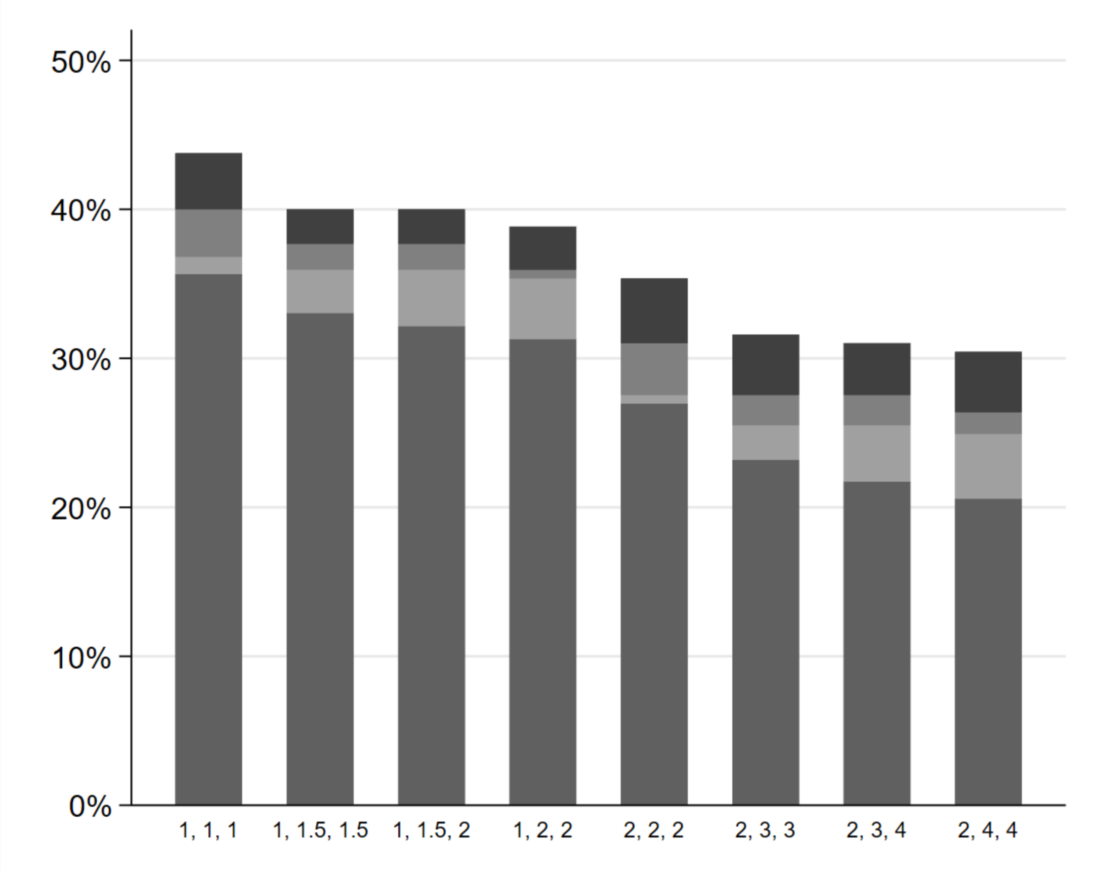


*Figure 8: Percentage of companies that trigger a given materiality test based on* RPT max. *The numbers below the bars indicate the percentage thresholds used on the assets, market capitalisation, and sales ratio. The bottom large portion of each bar depicts the percentage of companies that hit more than one of the three alternative thresholds. The further three portions signify the percentage of companies crossing only—from bottom to top—the assets (light gray), the market capitalisation (middle gray), and the sales (black) threshold.*

Assets and sales can be gleaned immediatedly from the company's annual financial statements. A market capitalisation ratio requires a little more legislative effort in defining measurement and can be slightly more difficult to calculate for companies. If national legislators wish to avoid this complication, Figure 9 conducts a similar analysis for a test based only on the two accounting numbers, assets and sales.[67]

67 This analysis is based on 369 observations. Cf. n. 62 above.

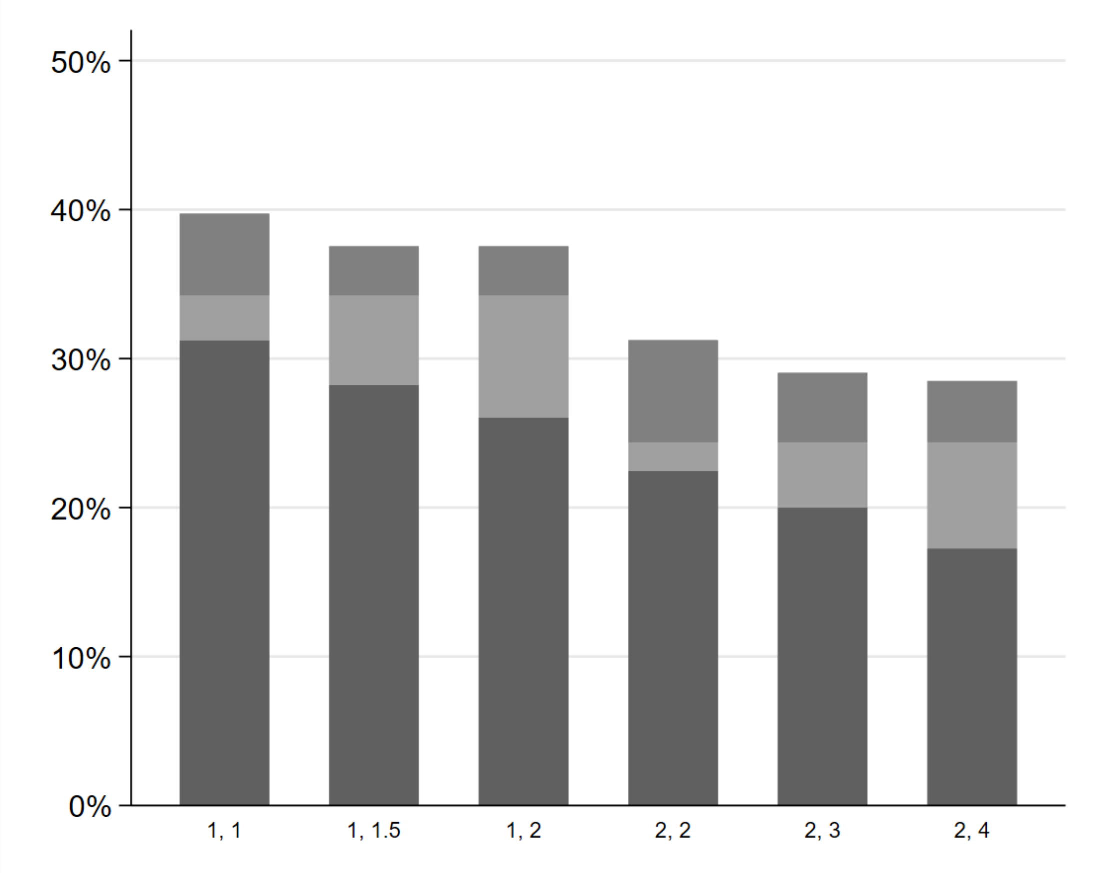


*Figure 9: Percentage of companies that trigger a given materiality test based on* RPT max. *The numbers below the bars indicate the percentage thresholds used on the assets and sales ratio. The bottom large portion of each bar depicts the percentage of companies that hit both alternative thresholds. The further two portions signify the percentage of companies crossing only the assets (light gray) and the sales (dark gray) threshold.*

One can vary the materiality test not only along the denominator but also by differentiating thresholds. The indicative evidence about tunnelling risk insinuates distinguishing between more suspect insider transactions and less risky downstream ones. The top row of Figure 10 shows the frequencies of threshold violations for these two types of RPTs in relation to balance sheet total.[68] Based on our 2017 data, it allows one to predict how many companies would have been affected by different thresholds for the two classes of RPTs, say a strict 1% threshold for insider RPTs (capturing up to 20% of companies) and a more generous 4% limit for non-controller RPTs (reaching up to 5% of companies). As an aside, note that the two graphs do not add up to the earlier Figure 7 because some companies could meet the test for both controller and non-controller

[68] Specifically, the graphs are based on the maximum RPT amount in a single category from either the insider or downstream categories.

RPTs. To see this, an identical threshold of 2.5% for each of the two RPT categories would target somewhat more than the 20% indicated by Figure 7. If one worries—for the reasons discussed below—about setting a cut-off in a steep part of the curve where many companies are close to the threshold, one can also employ more than ratio, say assets and sales, for each of the two RPT types. While four tests may look complicated, using different denominators poses little additional difficulty.

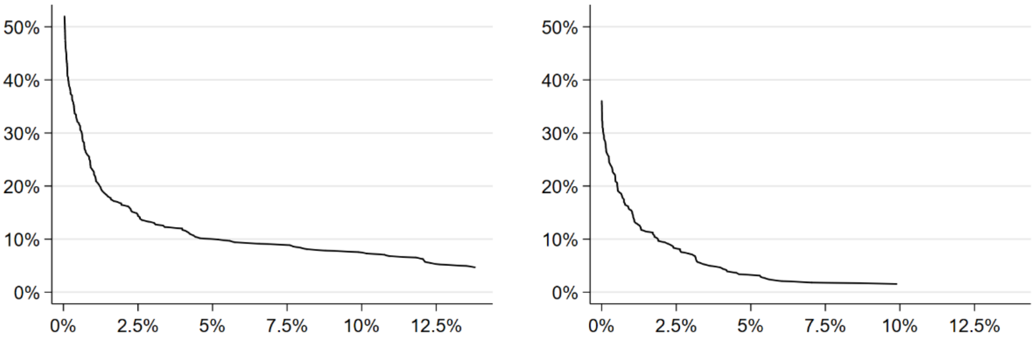


*Figure 10: The charts show the percentage of companies triggering a given threshold based on the maximum amount of insider RPTs (left) and downstream RPTs (right) divided by assets. 'Insider' RPTs are transactions with the parent, parties with joint control or significant influence, other related parties, and unspecified RPTs; 'downstream' RPTs are transactions with subsidiaries, associates, and joint ventures.*

## V. Discussion

The empirical evidence presented in the preceding section delivers stimuli for the unfolding debate about the national implementation of the SRD. Specifically, our analysis strengthens the case for relying on more than a single ratio and threshold (subsection 1). A second recommendation is that downstream transactions should receive preferential treatment (subsection 2). By contrast, the empirical results hardly justify a supplementary rules for transactions with managers (subsection 3).

### 1. Designing the Materiality Standard

One obvious takeaway from the German RPT data is an estimate of how many listed companies would be affected by specific quantitative thresholds. Based on the 2017 data, one can expect an assets ratio with a 2.5% threshold—as it is contemplated in the current German draft bill—to require up to 20% of listed companies to disclose an RPT at least once during the year;[69] board approval would be somewhat less frequent depending on whether the company itself or its subsidiaries enter into the transaction. The frequency of ex ante review matters because of limited time and attention of investors and directors, among other things. This concern carries particular weight for market review where RPT disclosures outside the regular reporting intervals can serve as a rallying cry for investors but lose their force when they occur at too many companies. Though one can easily disagree about the optimal incidence, the higher estimate bound of 33% of companies based on the Commission's original 1%-of-assets criterion, in the view of the authors, marks a reasonable number.

Besides the proper scope of companies coming under ex ante review, the evidence also casts light on the structure of a materiality test. A consideration in favour of using more than a single ratio and threshold is that materiality should not depend on arbitrary circumstances, such as the extent to which a firm's value is reflected in its balance sheet or the degree of leverage used in different industries. Different alternative tests arguably better approximate the underlying concept of what makes a transaction 'material' for a given firm. In other words, companies should be treated equally in the sense that random differences in accounting capital intensity and capital structure should not drive the application of the scheme. The analysis indicates that additional criteria based on sales and possibly market capitalisation tend to add firms with different characteristics, thereby reducing the idiosyncrasies of a purely assets-based test and promoting a more equal application of the RPT regime.

Visualising entire frequency distributions for different ratios adds yet another aspect: It matters not only how many companies meet the test but also how many are close to meeting it. The reason is that ex ante review of RPTs causes two types of costs: The first is transaction costs from the review itself, such as from drafting documents, providing assessments, consuming the time and attention of investors and directors, as well as delaying the transaction. If the RPT happens to be fair and beneficial to outside shareholders, saving these costs would be desirable. Therefore, even honest promoters of legitimate transactions have good reason to avoid the ex ante review.[70] The second cost arises privately to insiders engaged in tunnelling: If the review has the desired effect, these

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69 See the top right chart in Figure 7.

70 Costs not mentioned come from the threat of false positives, that is, even fair and beneficial RPTs could be blocked as a result of ex ante review.

insiders need to worry that their scheme is exposed and thwarted. They therefore have strong incentives to avoid ex ante review. The social and private costs of RPT review induce transaction designers to undercut the materiality test in order to avoid the disclosure and approval duties. The inclination will be more pronounced for unfair RPTs than for beneficial ones. A particularly vicious technique to evade review is to reduce the stated consideration paid to the company.[71] As a result, legitimate transactions will be trimmed down inefficiently and illegitimate ones will remain undeterred.

Minimising opportunities to evade RPT review therefore is an additional objective in devising a materiality test. A threshold is easier to side-step if the size of the transaction barely crosses the threshold as compared to a transaction that exceeds the limit by a large margin; one can rather chop 10% off a transaction than cutting it in half. One way to reduce avoidance opportunities, therefore, consists of drawing the line such that fewer companies find themselves close to the threshold. To pursue this approach, rulemakers need to know the distribution of RPTs, information that is contained in the data. One general insight is that the (cumulative) distribution—in the form we presented it above—is monotonically decreasing and convex.[72] The monotonicity is trivial but the convexity is not.[73] It implies that the 'density' of the distribution declines with RPT size; the lower the threshold, the more companies have RPTs close to the threshold. To see this, consider the hypothetical distribution in Figure 11 and take some arbitrary distance to the threshold—say, the lines with two-sided arrows—as measure of 'closeness'. The lower threshold A has more companies 'close' to it (marked by 'a') than the laxer threshold B. If closeness indicates an opportunity to undercut the materiality test, then threshold A induces more costly rule avoidance than threshold B.

71 In practice, if not in law, stated prices will determine the value ascribed to the transaction.

72 As mentioned in n. 61, the presentation in Figure 6, Figure 7, and Figure 10 shows an *inverse* cumulative distribution of companies *exceeding the threshold*. The common presentation would depict the relative frequency (or probability) on the horizontal axis. The values of a conventional cumulative distribution would represent companies with the stated *or a lower* RPT amount. While conventional cumulative distributions (and their inverse) are by construction monotonically increasing, ours is, likewise by construction, monotonically decreasing.

73 Convexity implies that going from left to write the curve is, figuratively speaking, turning left; the second derivative (if it exists) is positive. On the monotonicity of the distribution, see n. 72.

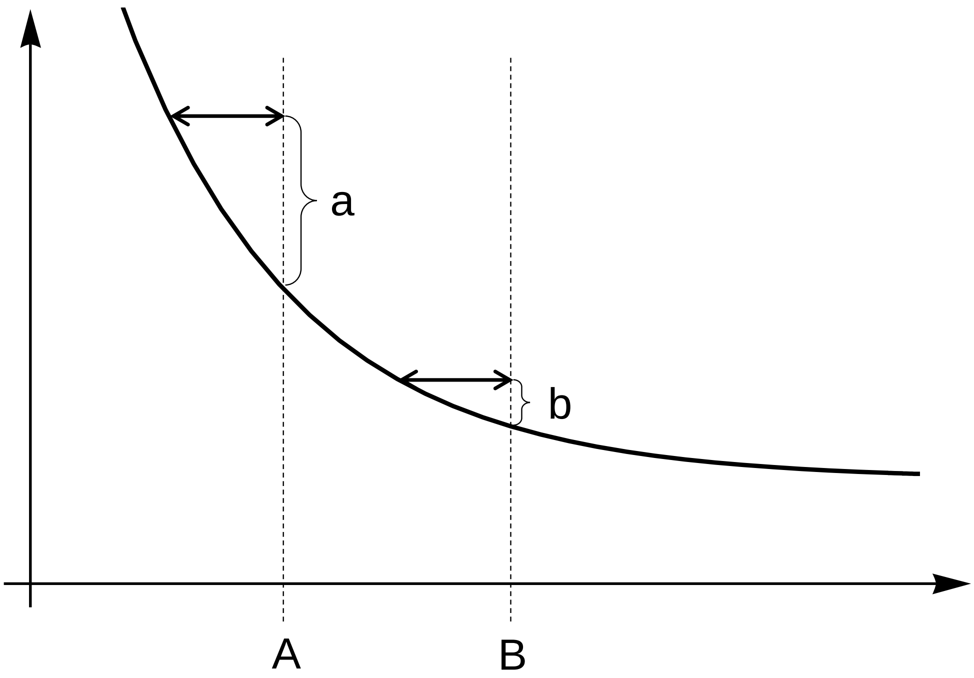


*Figure 11: Companies with RPT amounts 'close' to thresholds A and B.*

Of course, lifting the threshold captures fewer transactions. Leaving out relevant cases from ex ante review would be too high a price to pay for combatting avoidance activities. An elegant solution consists of employing different thresholds such as an additional sales or market capitalisation criterion: if a given transaction is close to one of them, it can still be far above the other. As a matter of course, such alternative tests have to use different measures that are less than perfectly correlated. Subject to this condition, they can in principle capture the same number of transactions while reducing the number of close cases: In Figure 11, if there were three thresholds B based on three uncorrelated metrics (all with distributions as shown in the chart) they would select more cases than a test based on a single threshold A, and yet the number of close cases would still be smaller (because a > 3b). Applied to the RPT materiality test, this approach translates into using more than one ratio and threshold to capture the same number of transactions.[74]

[74] To clarify: For each individual company, usually only one threshold and ratio will be relevant. The trick is that with multiple less than perfectly correlated ratios, when company X is close to one threshold there is a chance that it is far off the other, thereby reducing the total number of firms that are close to either of them.

Whether this is more than a theoretical possibility hinges on the probability distribution of the various candidate ratios, namely RPT amount relative to balance sheet total, assets, equity, market capitalisation, sales, and profits. Insofar as the distribution observed in the past predicts future frequency distributions, Table 6, Figure 8, and Figure 9 document the (lack of) correlation of suitably chosen ratios. If one takes the 1% threshold based on an assets ratio as a reference, it is straightforward to construct a combined test that selects a similar number of companies for ex ante review and at the same time could reduce the incidence of marginal transactions. Figure 9 reveals that, for instance, a 2% threshold applied to both an assets and a sales ratio would have selected only slightly fewer firms than a single 1%-of-assets test.

Using more than one ratio in exchange for higher thresholds on each of them yields yet another advantage: For companies with large values of *RPT max*—those in the lower right portion of the curve in Figure 11—, there is a risk that the relevant RPTs consist of many recurrent transactions over the year. This could trigger ex ante review repeatedly for the same counterparty and possibly for the same type of transaction. Higher thresholds significantly reduce the need for redundant disclosures and approval decisions.[75]

### 2. Relaxing the Regime for Downstream Transactions

The evidence from the Orbis database confirms the conventional wisdom that the business activities of listed companies are typically conducted in corporate groups rather than just by the company itself.[76] Unsurprising as it is, this finding underscores the importance of intra-group transactions with—and among—the company's subsidiaries. The rather small volume of subsidiary RPTs in Figure 4 is due to the fact that the data come from consolidated annual reports. Contrary to what the data insinuate, there is much reason to believe that intra-group transaction volume is very substantial. While parent companies typically hold full ownership in their subsidiaries, the evidence also uncovers a less than trivial number of subsidiaries that are not wholly owned: if one counts all holdings above 50% as subsidiaries, about one sixth of them have outside shareholders according to the Orbis data.[77]

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75 This presupposes that only the test with the lowest Euro threshold applies for any given company; in the example just given, the limit should be either 2% of assets or 2% of sales.

76 See IV.1.b) above.

77 Specifically, of the mean (median) number of 68 (16) subsidiaries with a holding greater than 50% documented in Orbis, 57 (14) are fully owned. As above, the statistics exclude Allianz SE.

The empirical exploration of the relationship between major shareholdings in the company and downstream transactions corroborates the theoretical argument that such transactions involve a much smaller, if any, risk of tunnelling. This suggests a more lenient approach towards downstream RPTs. An additional consideration specific to subsidiaries is that the RPT-Regime of the parent extends to their transactions through the disclosure duty in Art. 9c para. 7 SRD, mitigating the concern that they are utilised as a conduit for value transfers to powerful insiders. Overall, there is a strong case to exclude dealings between the company and its subsidiaries as well as among subsidiaries from ex ante review. Member states are well advised to exploit fully the option in Art. 9c para. 6 lit. a SRD to exempt transactions with subsidiaries without an interest by an 'insider'. The additional option of excluding subsidiaries if their company law provides adequate protection seems to require an evaluation of various—possibly all—national company laws. However, listed subsidiaries from the European Economic Area present a special case as they are subject to Art. 9c SRD and more generally to the EU's harmonised capital market and company law rules. It seems fair to conclude that these subsidiaries enjoy sufficient protection under their company laws.[78]

Downstream transactions also occur with joint ventures (usually with a 50% stake) and with associate entities over which the company has significant influence (usually based on a shareholding between 20% and 50%). In contrast to subsidiaries, the SRD foresees no exception for joint ventures and associates. The different treatment could be justified, again, with the extension of RPT disclosure duties to transactions of subsidiaries but not of joint ventures and associates. Even so, the rationale behind classifying joint ventures and associates as related parties is a weak one to start with. It rests on the mere possibility that the company's management could use its influence to have the downstream entity pass value on to a company insider. Channeling wealth first to the entity and from there to the insider is a laborious, roundabout tunnelling technique. Compared to a subsidiary, management tends to have less power over an entity in which the company holds only a minority stake or is on equal footing with a business partner. These considerations militate for applying a more generous materiality test to transactions with joint ventures and associates, as analysed in Figure 10 above. A less desirable remedy would be to adopt an overly broad interpretation of transactions 'in the ordinary course of business and

78 In 2017, this would have concerned at least 17 listed German subsidiaries with a (German) listed parent, see Table 3.

concluded on normal market terms' that Art. 9c para. 5 SRD exempts from RPT review. In an urge to alleviate the burden for downstream transactions, member states could be tempted to equate 'normal market terms' to any arm's-length arrangement even if no actual market price for a comparable transaction can be quoted. Such an approach would loosen the shackles on upstream dealings that are at the heart of the new RPT rules and much deserve closer oversight. Relaxing the materiality test for downstream transactions much better aligns with the purpose of the RPT regime.

### 3. No Supplementary Test for Manager Transactions

While downstream transactions seem less worrying, it was contemplated above whether company dealings with individual managers should be subjected to stricter scrutiny. Indeed, transactions with managers—leaving aside remuneration issues and powerful shareholders who also serve as directors—rarely if ever cross the general materiality threshold, as we suspected earlier and then found supported in Table 5. Yet the meagre results of our search also suggest that manager transactions are of negligible import to shareholders. Not only are they small fry when they occur but also are they confined to a paltry 5% of the German stock market (19 of 384 companies in our sample). Although there is merit in promoting integrity and public trust in the loyalty of corporate managers, it seems hard to argue that current practice poses a threat to either one of these goals. Arguably, existing approval requirements under company law and the ex post reporting under IAS 24 already constrain managerial self-dealing to a considerable degree. It is hard to see how a more intense disclosure duty would lead to an improvement that justifies the complication of an additional threshold and the cost of monitoring it on a continuous basis.

## VI. Conclusion

The SRD's new approval and disclosure requirements for RPTs force continental European jurisdictions to reconsider their approach to conflicted transactions of listed companies. In implementing the new regime, the most consequential choice for national legislators is the quantitative materiality test that determines which transactions trigger ex ante review. Devising criteria for this selection remains a leap in the dark in the absence of data. We attempt to cast some light on RPTs of listed companies in Europe's largest economy, Germany. Our data provide reliable guidance to the German rulemaker but can hopefully also offer hints for similar European jurisdictions. As regards the legislative task at hand, our analysis has three main findings: that the materiality test should be based on more than a single ratio; that member states should provide relief to downstream transactions that the SRD has erroneously included in its regime; and that there is no need for a stricter approach to manager transactions. As a sideproduct, the study offers a first empirical glance at group structures and company dealings with major shareholders in a stock market with a rather concentrated ownership structure. Exploring these kinds of business relationships further and investigating their relevance for firm value and efficiency is a worthy errand for future work.