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ABSTRACT. This article reviews the literature on “shadow banking”, recognizing the multiple meanings given to each of its component terms. Broadly, the expression refers to activities also performed by traditional banking (“banking”) but through different means (“shadow”). Examining the fifty most cited publications, this article identifies nine interpretations of the term “banking” and eleven of the term “shadow”, combined in twenty-one different ways, out of which three stand out: (i) maturity transformation with no public guarantee, (ii) non-bank maturity transformation and (iii) non-bank financial intermediation. Publications are often ambiguous and inconsistent in their *interpretations* due to challenges in analysing contemporaneous financial systems.

JEL codes: G01, G20, G23, G28.

Keywords: shadow banking, non-banks, systemic risk, regulatory arbitrage, financial innovation.

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RÉSUMÉ NON TECHNIQUE

La notion du « shadow banking » est apparue au début de la crise financière globale en 2007. Elle a occupé une place centrale dans les débats sur les véritables causes de ladite crise ainsi que sur la nécessité de la révision du cadre réglementaire au niveau international afin de prévenir à l'avenir l'émergence d'une telle crise. Depuis, une vaste littérature dédiée à la problématique des risques véhiculés par cette composante du système financier a bourgeonné.

Toutefois, l'absence d'une définition consensuelle de cette notion a rendu cette littérature confuse. Ceci est typiquement attribué au fait que le « shadow banking » est un phénomène récent, complexe et en constante évolution. D'ailleurs, plusieurs différences entre définitions demeurent irréconciliables. Souvent, le « shadow banking » est identifié via les asymétries des maturités des actifs et des passifs, tandis qu'il est parfois déterminé selon des activités spécifiques de l'actif ou du passif des acteurs financiers. En outre, bien que le « shadow banking » soit défini le plus souvent par opposition au secteur bancaire, certains auteurs ont étendu son périmètre en y incluant quelques activités bancaires. Ainsi, il n'existe pas à ce jour une définition commune qui permettrait d'établir le périmètre couvert par les activités dites de « shadow banking ».

L'article offre plusieurs grilles de lecture pour l'activité du secteur dit « shadow banking » en analysant une cinquantaine des publications les plus citées. Cet exercice nous a permis d'identifier neuf interprétations différentes de la notion de « banking » et onze de la notion de « shadow ». Néanmoins trois définitions se distinguent par leur dominance. Il s'agit de : (i) la transformation des échéances sans aucune garantie publique, (ii) la transformation des échéances par des établissements non-bancaires et (iii) l'intermédiation financière non-bancaire. L'article révèle également que les publications sont souvent ambiguës dans leurs définitions et même incohérentes avec leurs propres interprétations de la notion « shadow banking ». Tout ceci permet de conclure à la présence d'un défi important pour l'analyse des systèmes financiers contemporains.

1. Introduction

Shadow banking was at the centre of the debate on the origins of the global financial crisis (GFC) and singled out by many as its sole cause (FCIC, 2011). Thus, shadow banking featured high on the post-GFC regulatory agenda, and the international body established to coordinate it, the Financial Stability Board (FSB), received also the mandate to lead shadow banking regulation and supervision (G20, 2010). Much has been written on shadow banking since 2008. However, as many acknowledge, there is still no agreement about what it exactly is, even though the FSB put forward an official definition in 2011. Yet this issue is often omitted from the discussion (see, for example, the most cited literature review, Adrian & Ashcraft, 2016), and its scope and causes remain largely unaddressed. Typically, it is argued that shadow banking is particularly hard to define because it is a quite recent and complex phenomenon, is constantly evolving and takes different shapes depending on each jurisdiction's regulation and financial system structure (FSB, 2011a, p. 2; Guttman, 2016, p. 124; IMF, 2014, p. 68).

Thus, advancing the quest for the “ideal definition” (IMF, 2014, p. 68) requires “[improving] on the current approaches and definitions” (Claessens & Ratnovski, 2014, p. 4) or “attempts at defining the phenomenon of shadow banking” (Guttman, 2016, p. 124). Such a definition would be (i) “precise” (ibid), describing “the central [shadow banking system] feature” (Guttman, 2016, p. 123), (ii) “all-encompassing” (IMF, 2014, p. 68), “[capturing most] of the activities that are commonly referred to as shadow banking today” (Claessens & Ratnovski, 2014, p. 4) as well as “the specific risks of each business model and its potential for spillovers” (IMF, 2014, p. 68) and (iii) “flexible” enough “to capture mutations” (FSB, 2011a, p. 2), i.e. “shadow banking activities and risks that may arise in the future” (Malatesta et al., 2016, p. 221; see also Claessens & Ratnovski, 2014, p. 4; Nabilou & Paccès, 2018, p. 11).

Some suggest that looking for the ideal definition might “be a futile endeavor” (Nabilou & Paccès, 2018, p. 10) but only on the basis that “no single definition or measure of shadow banking is likely to suffice for all purposes” (IMF, 2014, p. 72). Thus, with few exceptions, the idea that there is *one single* shadow banking phenomenon remains unchallenged (McMillan, 2014, p. 54; Pozsar, 2018, p. 19). However, differences between definitions are large enough to argue that shadow banking is rather an umbrella term encompassing a multiplicity of more or less related phenomena. For example, whereas some publications identify shadow banking with the provision of bank-like maturity transformation, others broaden the scope to encompass

almost any financial activity or confine it to specific asset- or liability-side instruments. Similarly, while many claim that, “[p]er definition, credit intermediation activity on the balance sheets of commercial banks does not constitute shadow banking” (Adrian & Ashcraft, 2016, p. 297), others argue that shadow banking is “sometimes on the balance sheets of entities called banks” (Mehrling et al., 2013, p. 2) or that “a starting point when it comes to measuring the shadow banking system [is] activities within banks” (Claessens & Ratnovski, 2014, p. 7). Moreover, there is no consensus on whether shadow banking is a regulatory arbitrage, a systemic risk or an innovative, socially valuable phenomenon (Adrian & Ashcraft, 2016).

Therefore, it is impossible to navigate shadow banking literature without a working interpretative framework allowing for distinguishing the essentially different meanings given to “shadow banking”. The standard classification, which distinguishes between entities- and activities-based definitions, is not very useful because it builds upon the presupposition that shadow banking is a *single, complex phenomenon*. Thus, it simply identifies which of its two main components definitions focus on (entities or activities), disregarding that they do not share the same criteria to determine what entities and activities fall within the scope of shadow banking. Furthermore, this taxonomy is conceptually misleading because it does not distinguish between two alternative approaches to define shadow banking but between definitions of two different subjects: “shadow banking”, an activity, and “the shadow banking system”, the entities that perform it.

This article puts forward an alternative approach based on understanding shadow banking as an ambiguous metaphor with different interpretations given to each of the two terms of the compound word “shadow banking”. Broadly, shadow banking activities are considered *functionally* similar to common banking—from here “banking”—but *outwardly* different because they perform this function through other means—hence, “shadow”. To build this taxonomy, the article scrutinises the definitions of shadow banking and descriptions of the shadow banking system in the fifty most cited publications of the literature. Automated methods are ruled out because (i) many publications provide no explicit definition of shadow banking, (ii) some publications attributed it to each shadow banking entity while others to the system as a whole (iii) and many of the keywords used to describe shadow banking entities and activities are employed with different meanings (e.g. “credit intermediation”, “money” and “liquid”).

The remainder of the paper is organized as follows. Section 2 traces the origin of the concept of “shadow banking” and its multiple interpretations. Section 3 elaborates on the limitations of the entities- vs. activities-based classification of shadow banking definitions and introduces an alternative approach consisting in analysing how each of the two terms of “shadow banking” are interpreted. Sections 4 and 5 respectively present the different meanings that the fifty most cited publications of the literature attribute to these two terms. Section 6 introduces the most frequent ways in which these interpretations are combined giving rise to different characterisations of “shadow banking”. Finally, Section 7 concludes.

2. The emergence of the concept of “shadow banking” and its multiple interpretations

The concept of “shadow banking” has been used inconsistently since its inception. Its first recorded mention can be found in the proceedings of the 2007 Jackson Hole Symposium, which took place just a few weeks after a sudden turmoil in the US and Europe’s interbank markets. Several participants linked this episode to the downturn in the US real estate market, which would have triggered a run on some banks’ off-balance sheet vehicles funding long-term mortgage-backed securities with short-term debt instruments. One of the proponents of this interpretation, the managing director at the US asset management firm PIMCO, Paul McCulley, dubbed these bank-sponsored entities the “shadow banking system” (FRBKC, 2007, p. 485; see also McCulley, 2007). The metaphor captured the idea that these non-bank financial intermediaries behaved like “real banks”, providing maturity transformation services, but beyond the scope of banking regulation and public backstops, in the off-balance sheet “shadow” of banks. Thus, shadow banking posed systemic risks that eventually materialised in the GFC.

The concept was echoed by financial media (Guha, 2007; Jones, 2007) and soon became widespread among commentators, practitioners and economics and law scholars, as well as in international policy forums (G20, 2009). However, as noted by Nesvetailova (2017, p. 2), it proved to be as ingenious as ambiguous. Different interpretations emerged around the three defining aspects of shadow banking: the entities that perform it, the type of financial activity it is, and its primary nature. Many expanded the scope of shadow banking entities to encompass not only bank-sponsored but also independent non-banks (Buiter, 2008; Gross, 2007; Ocampo, 2009; Pilkington, 2008; Roubini, 2008) or to describe a network of non-bank entities run by banks and their non-bank competitors (Acharya et al., 2009; Avgouleas, 2009; Daianu & Lungu,

2008; Farhi & Cintra, 2009; Pozsar, 2008; Schwartz & Creswell, 2008).¹ Alternatively, others defined the shadow banking system as a structure completely separated from banks (Krugman, 2008a, 2008b). Yet others argued that a priori, banks' on-balance sheet activities should not be excluded from shadow banking because banks also intermediate non-bank lending when they tap wholesale funding (Hume & Sentance, 2009; Merrouche & Nier, 2010).

In the meantime, many publications associated shadow banking with activities that did not necessarily involve asset-liability maturity mismatches. Some identified shadow banking with all securitisation activities aiming at circumventing banking regulation (Blackburn, 2008; Díaz Bonilla, 2008, p. 44; Kapadia & Jayadev, 2008; Király et al., 2008, p. 18; Mollenkamp et al., 2007). Meanwhile, others used “shadow banking” to describe different segments of the broader non-bank sector: (i) “new institutions” or “newcomers” such as hedge funds, private-equity partnerships, conduits and structured investment vehicles (Ferguson, 2008; Hildyard, 2008), (ii) old players that had now expanded their activities into the credit market, such as investment banks (Duhigg, 2008; Gabilondo, 2009; Hildyard, 2008), and (iii) a network of independent and bank-sponsored non-banks connecting ultimate borrowers and savers (Epstein & Crotty, 2008; Krohn & Gruver, 2008; Madrick, 2009). Finally, some rejected qualifying shadow banking as just a systemic risk source resulting from attempts to bypass regulation and attributed it with socially valuable functions that “should be recognized and protected” (Gorton, 2009, p. 5; see also Engelen, 2017), among which: providing wholesale deposit-like to large savers (ibid; Tucker, 2010, p. 8), lowering borrowing costs through specialisation and economies of scale (Pozsar et al., 2010, p. 52), servicing borrowers excluded by banks (ibid), reducing information asymmetries (Gorton & Metrick, 2010, p. 275) and providing a sizeable source of funding for the economy (Hume & Sentance, 2009, p. 1432).

Against this backdrop, the FSB (2011a, p. 2, emphasis in original) put forward its definition of shadow banking: “the system of *credit intermediation* that involves entities and activities *outside the regular banking system*” or “non-bank credit intermediation in short”. Far from settling any of the three open issues in the definition of shadow banking, the FSB contributed to further complicating them. First, it introduced a complementary, “narrow” definition of shadow banking limited to those activities giving rise to “systemic risk [...] and/or regulatory arbitrage concerns” (FSB, 2011a, p. 2), whereas the above, “broad” definition also included those with a positive contribution to the economy—which provided “an alternative

source of funding and liquidity” and “[cost-]efficient credit” (FSB 2011b, p.1).¹ Second, the FSB defined shadow banking activities using a term known in the literature—“credit intermediation”—but with a different meaning. Whereas leading reference publications employed the expression as a synonym for maturity transformation (Pozsar, 2008; Pozsar et al., 2010), the FSB used it to refer to financial intermediation in general. Indeed, the FSB (2018) ended up renaming shadow banking as “non-bank financial intermediation”. Third, the FSB was quite ambiguous regarding whether some banks’ on-balance sheet activities could be considered shadow banking. The FSB’s definition suggested that “the activities comprising shadow banking are separated from traditional banking” (Guttman, 2016, p. 124). However, the FSB also claimed that shadow banking actually occurs “fully *or partly* outside the regular banking system” (FSB, 2011a, p. 2, emphasis added) and that banks can be, and often are, part of the shadow banking system or “shadow banking credit intermediation chain” connecting savers and borrowers (FSB, 2011a, p. 3, 2011b, pp. 2–3, 2012).²

Thus, shadow banking literature boomed between 2011 and 2013 without a clearly defined subject,³ and the problem remains. Observing how the list of entities and activities associated with shadow banking varies across publications is quite revealing (see Appendix A). It could be argued that such diversity results from a lack of consensus regarding which specific entities and activities meet some alleged, primary property of shadow banking. For example, Claessens and Ratnovski (2014, p.1) argue that, although “[t]here is much confusion about what shadow banking is”—“[s]ome equate it with securitization, others with non-traditional bank

¹ The FSB (2013a, pp. 5, 7; 2014, p. 5; 2015a, p. 17) describes the broad definition or broad measure of shadow banking as “a conservative proxy” to “cast the net wide”, encompassing all non-bank intermediaries. Before 2015, it excluded insurance companies and pension funds.

² The FSB only removed these statements from its reports in 2015 to unambiguously locate shadow banking outside prudentially consolidated banking groups. However, the FSB has always included prudentially consolidated non-banks in its broad measure of shadow banking (FSB, 2013a, p. 7; 2014, p. 6; 2015a, pp. 3, 18). This responds to its pragmatism to provide one consistent estimate of shadow banking across the maximum number of jurisdictions, as FSB member countries do not necessarily apply the same consolidation rules (FSB, 2011b, 17) or furnish data on non-banks consolidated into banking groups (FSB, 2013a, p. 19). However, the FSB also made a solid argument against excluding all consolidated non-banks from the scope of shadow banking: “[i]deally, the criteria [whether to include these entities or not within shadow banking] should be the strictness of regulation of the consolidated entity” (FSB, 2014, p. 19), *a priori*, “it is not entirely clear if the consolidated supervision of non-bank subsidiaries is appropriate and effective” (FSB 2013a, p. 19). Nevertheless, as of 2015, these remarks also disappeared from FSB reports.

³ According to Google Scholar, the number of publications released per year containing “shadow banking” in the title increased from fourteen in 2010 to ninety-nine in 2013.

activities, and yet others with non-bank lending”—“most think of shadow banking as activities that can create systemic risk”. However, this is often not the case: as mentioned above, the FSB considers that only a subset of shadow banking activities poses systemic risk concerns, whereas the other is just socially valuable. The same happens with descriptions of shadow banking as a regulatory arbitrage outcome or an efficient innovation. Following Pozsar et al. (2010, p. 5), some parts of the shadow banking system “were driven [...] by regulatory arbitrage but [others] by gains from specialization and comparative advantages over banks”. Meanwhile, as Tucker (2010, p. 2) notes, shadow banking does not necessarily refer to innovative instruments, but it sometimes encompasses “old channels” such as bond markets.⁴ Thus, at most, the common thread in shadow banking literature is the study of financial activities and entities that gained importance in the last decades.

3. Classifying shadow banking definitions

Shadow banking definitions are typically classified into two groups (Borst, 2014, p. 13; Claessens & Ratnovski, 2014, p. 3; Isslame-Rocher & de la Guéronnière, 2018, p. 36; Malatesta et al., 2016, p. 220; Nabilou & Paccès, 2018, p. 10). “Entities-based” or “institutions-based” definitions focus on describing the features of the firms that perform shadow banking, building upon the dichotomy “shadow banks vs. regular banks”. For example, according to Bengtsson (2013, p. 2), shadow banking “[encompasses] the range of non-bank institutions that to various extents provide liquidity services, maturity mismatch or leverage”. Meanwhile, “activities-based” or “functions-based” definitions describe the transactions and services provided encompassed by shadow banking and, hence, establish the dichotomy “shadow banking vs. regular banking”. In this vein, Pozsar et al. (2010, p. 11) define shadow banking as “credit intermediation activities that are (1) implicitly enhanced, (2) indirectly enhanced or (3) unenhanced by official guarantees”. Some argue that the activities-based approach is better suited to defining shadow banking (Borst, 2014, p. 13; Claessens & Ratnovski, 2014, p. 3), whereas others advocate for the entities-based approach (Malatesta et al., 2016, p. 221) or combining both (Guttmann, 2016, p. 125).

⁴ Moreover, many of the instruments and entities commonly associated with shadow banking are not that new: “[r]epurchase agreements have been in use since 1917; the first securitization transaction was executed in 1970; and the first MBS was established in 1971” (Deloitte, 2012).

However, most definitions describe both entities and activities because of two reasons. First, as “shadow banking entities” or “shadow banks” are not a legal category, it is impossible to distinguish them without describing the activities they conduct (see Bengtsson’s definition above). Second, although it is possible to formulate definitions of shadow banking activities without mentioning entities (see Pozsar et al.’s definition above), by default, most publications exclude the cases where such activities are performed by banks. For example, following Bakk-Simon et al. (2012, p. 4, emphasis added), “shadow banking refers to activities related to credit intermediation, liquidity and maturity transformation that take place *outside the regulated banking system*”. Thus, most publications can only be classified between these two categories based on whether they are considered to place greater emphasis on the role of entities or rather of activities.

Some publications consider further categories but without adding much to this taxonomy. “Instruments-based” and “markets-based” definitions describe, respectively, the financial products used in shadow banking and the markets in which they are negotiated (IMF, 2014, p. 68; Nabilou & Paccès, 2018, p. 11; Schwarcz, 2011, p. 622; Sun & Jia, 2018). However, as instruments and markets are the specific channels through which financial activities are carried out (Borio et al., 2022, p. 2), all these definitions fall within the activities-based category.⁵ Meanwhile, system-based definitions integrate entities and activities (Ban & Gabor, 2016, p. 902; Guttman, 2016, p. 125; IMF, 2014, p. 91; Tadjeddine, 2013, p. 103) and, hence, are not clearly distinguishable from most entities- and activities-based definitions.⁶

Nevertheless, the main problem of this taxonomy is that it does not actually distinguish between different approaches to define shadow banking but between definitions of two related but different subjects: “shadow banking”, which, as banking, is an *activity*, and “the shadow banking system”, which similarly to the banking system, is a group of interlinked *entities*

⁵ This is why the IMF (2014, p. 68) claims that its definition—“nontraditional (noncore) funding”—is based on activities, whereas Nabilou and Paccès (2018, p. 12) classify it as instrument-based.

⁶ Systemic definitions can make a difference if they do not only describe the services provided by the shadow banking system but also the activities and instruments through which shadow banking entities are connected to each other allowing for the internal cohesion of the system. For example, following Guttman (2016, p. 125), shadow banking is performed by entities that are bound to each other through customised bilateral contracts (so-called over-the-counter markets) instead of publicly traded standardised instruments.

performing this activity.⁷ Thus, even publications with purely activities-based definitions of shadow banking are sometimes classified as entities-based due to their definitions of shadow banking entities, as is the case with Pozsar et al. (2010) (Guttman, 2016, p. 124; Isslame-Rocher & de la Guéronnière, 2018, p. 36).⁸

Therefore, it is more relevant to focus on the different features that each definition attributes to shadow banking activities as well as to shadow banking entities. For this purpose, this article proposes dissecting the construction of the shadow banking metaphor, which draws a parallel between a set of financial activities and common banking. Each of the words of the expression represents one of the two primary properties of shadow banking: “banking” refers to the *essence* of shadow banking or the function it shares with conventional banking, whereas “shadow” alludes to the *form* of shadow banking or its distinctive way of performing this function. Since each of these two terms is open to multiple interpretations, there is a great number of significantly different characterisations of “shadow banking”.

Considering the vast number of publications on shadow banking, automated text analysis methods could seem quite appealing for identifying the main interpretations of the concept. However, this literature features two critical issues that make these methods less suitable. First, publications give different meanings to many of the key terms used to describe shadow banking activities and entities. As mentioned above, “credit intermediation” may mean maturity transformation or financial intermediation in general. The same happens with “money” and “liquid” assets, which may describe either short-term debt or easily exchangeable instruments of any tenure (see Section 4). Similarly, “bank” may refer to a chartered bank—whether as an individual legal entity, a prudentially consolidated unit or a corporate group—to any entity performing banking or to both commercial and investment banks (see Section 5).

Second, in many publications, the definition of shadow banking can only be inferred implicitly from their descriptions of shadow banking entities or the shadow banking system. However, there are two alternative ways to apply the shadow banking metaphor depending on

⁷ This conceptual conflation is, indeed, quite common in shadow banking literature. See, for example, Acharya et al. (2013, p. 516), Acharya and Schnabl (2010, p. 42), Z. Chen et al. (2020, p. 42), Claessens et al. (2012, p. 7), FSB (2015a, p. 1; 2015b, p. 1), Gorton (2009, pp. 23, 43), Gowan (2009, p. 55) and Greenwood and Scharfstein (2013, pp. 6, 21).

⁸ Pozsar et al. (2010, p. 11) define shadow banks as “financial intermediaries that conduct maturity, credit, and liquidity transformation without access to central bank liquidity or public sector credit guarantees”.

whether the “banking” function is attributed to each shadow banking entity or to the system as a whole. Following the “micro” approach, in which each shadow banking entity or “shadow bank” is functionally equivalent to a bank, the shadow banking system simply aggregates those entities that *individually* perform shadow banking. In this vein, Ricks (2016, p. 2) first defines what shadow banks do (“banking”) and how (“shadow”) and then claims that “[t]he shadow banking system is just the set of entities that meet these two criteria”. This approach raises a crucial but rarely addressed question: *how much* must an entity engage in shadow banking to fall within the shadow banking system perimeter? Pozsar et al. (2010, p. 11, emphasis added) maintain two contradictory positions: shadow banks are (i) only those “[f]inancial entities that engage *exclusively* in shadow credit intermediation” and (ii) any “specialist” intermediary participating in the shadow credit intermediation chain between savers and borrowers. Thus, entities such as MMFs are shadow banks following the second approach (ibid, Exhibits 6-9, 13-16, 18) but not according to the first one (ibid, Exhibit 1). Meanwhile, FSB (2015a, p. 7) argues that entities must be classified on the basis of “their principal activity”. Thus, while pension funds and insurance firms are “reported outside of [the] shadow banking [system], activities within these entities may be considered shadow banking” (ibid, p. 17).

On the contrary, following the “macro” approach, the shadow banking system is an entity of its own, which, as a whole, performs shadow banking. In this vein, Pozsar et al. (2010, p. 11) claim that, “unlike the traditional banking system, where credit intermediation [“banking”] is performed ‘under one roof’—that of a bank—in the shadow banking system it is performed through a daisy-chain of non-bank financial intermediaries, and through a granular set of steps.” From this point of view, shadow banking entities are not defined by their individual features but by their connection to the rest of the shadow banking system, and every entity engaged to any extent in shadow banking makes part of it. In this vein, Pozsar (2015, p. 28) claims that it is “a mistake to label any part of [the shadow banking system] as a shadow bank” as “there are no shadow banks, just a shadow banking system”. Nonetheless, this does not exclude the possibility that some entities in the middle of the chain perform activities that match the corresponding definition shadow banking.⁹ Thus, in practice, “macro” definitions of

⁹ For example, following Noeth and Sengupta (2011, p. 11), “[t]o the extent that each [shadow banking] entity uses short-term funding in the creation of assets (loans and securities) of longer maturity, these entities perform the functions of a bank”. However, “the credit intermediation process as a whole mimics the function of a

the shadow banking system are often expanded versions of the “micro” ones, as shown in Section 6.

Because of these issues, a careful analysis publication by publication is needed to identify the manifold interpretations of the shadow banking metaphor. Given the vastness of the shadow banking literature, this article focuses on a small but representative sample made up of the fifty most cited publications.¹⁰ To avoid excluding important contributions published as reports (e.g. Pozsar et al., 2010), Google Scholar was chosen over academic databases. The downside of Google’s research engine is that query results must be treated to remove non-relevant items (such as slides and newspaper articles) and to consolidate duplicate entries (Bornmann et al., 2016). In addition, it is important to take into account that many key publications do not mention “shadow banking” in the title (e.g. Adrian and Shin, 2010a and Acharya et al., 2013)—and the use of keywords is not common among non-academic writings. Instead, all publications containing “shadow banking” either in the title or at least five times in the body are selected. In the case of books, only the first criteria is used to avoid considering citations not related to the topic. As an exception, Gorton and Metrick (2012) was added to the sample despite it mentions “shadow banking” only once in a footnote. This publication, which is considered one of the main academic contributions to the literature (Adrian & Ashcraft, 2016), uses instead the term “securitized banking” (in the final sample, it is by far the most cited publication, see Table B.1 in Appendix B).¹¹

The final sample of publications is made up of thirty-six scholarly articles, eight reports, three working papers, two book chapters and one conference paper (see Table B.1 in Appendix B for details by publication). Only fourteen of these fifty publications define shadow banking explicitly, and three of them are not clear enough regarding their interpretation of the terms

bank” too as it also “transforms longer-term loans with significant credit risk [...] into instruments of shorter maturity and of considerably lower risk that are redeemable on demand” (ibid).

¹⁰ Within the 1,000 most cited publications containing “shadow banking” in the title, the top fifty represents only 5% of publications but account for 65% of total citations according to Google Scholar and 61% following OpenAlex (query run on 11 March 2023).

¹¹ Following Gorton and Metrick (2012, p. 426), the term “securitized banking” “emphasize[s] the role of the securitization process both as the main intermediation activity and as a crucial source of the collateral used to raise funds in repo transactions”, whereas “shadow banking” has “broader connotations and do not completely encompass [their] definition of securitized banking”. However, in previous works, Gorton and Metrick (2010, pp. 263-264) had, in practice, narrowed down shadow banking to repo-funded securitisation, despite claiming that it “include[s] activities beyond repos and securitization” (ibid, p. 262), and Gorton (2009, p. 14) had simply defined the shadow banking system as “the combination of repo and securitized debt”.

“shadow” or “banking”. Another seven publications define the shadow banking system. Among the remaining twenty-nine publications, only eighteen provide a sufficiently precise description of shadow banking entities or the shadow banking system to unequivocally associate it with a specific characterisation of “shadow banking”.

4. Shadow banking’s “banking”

In the shadow banking literature, “banking” defines the essential function of shadow banking. However, what is banking is a long-standing question at the core of one of the most disputed areas in economics, monetary theory. There are broadly three competing accounts of what banks do: lend savings (loanable funds theory), multiply central banks’ reserves (fractional reserve theory) and expand (and contract) money and credit simultaneously (endogenous money theory) (Lavoie, 2019; Werner, 2016). Further disputes can be found within each of these theories. Notably, within the dominant financial intermediation view, some authors debate whether banks are special financial entities because of their liability side (deposit-taking), their asset side (loan-making) or their balance sheet structure (asset-liability maturity mismatch) (Lewis 1992). Meanwhile, following liberalization, others casted doubt on banks’ uniqueness (Corrigan 1982; Gorton 1994), adopting a “functional perspective” through which none of the financial system’s basic functions may be a priori associated with a particular type of entity but with those intermediaries that, at any given moment, can provide them more efficiently (Merton 1995). Yet separating banking from banks further complicates the task of defining “banking”, and authors typically resort to any of the above functions that used to distinguish banks from non-banks.

“Banking” is also a politically contested term because of its regulatory implications. In the US, during much of the 20th century, banks were only allowed to engage in activities within the scope of “banking” (Huck, 1966). Thus, there was pressure “to define the business of banking in the broadest terms possible” (Cetorelli & Prazad, 2024, p. 9). For example, in the 1980s, regulators authorised banks to engage in commercial paper underwriting and securitisation after conceding that these activities were economically equivalent to traditional lending (Fein, 2013). As liberalisation advanced, the dispute over the meaning of “banking” became more relevant among proponents of “functional” regulation, following which similar requirements should be imposed on entities carrying out the same activity, regardless of their legal form. In this vein, any entity considered to perform “banking” could be required to meet

some of the regulatory standards applied to banks, as much shadow banking literature advocates.

Within the fifty most cited publications, shadow banking's "banking" takes on nine different meanings, as Table 1 shows (see Table B.1 in Appendix B for results detailed by publication). The most popular one is, by far, maturity-mismatched intermediation (adopted by sixteen publications accounting for 45% of the sample's total citations), followed by financial intermediation and loan-making (respectively, ten and seven publications representing 15% and 10% of citations). The remaining five interpretations of shadow banking's "banking" are significantly less influential (altogether, they are represented by nine publications making 12% of citations): (i) issuing liquid debt, (ii) issuing short-term money-like instruments, (iii) loan-making and deposit-taking, (iv) credit risk transformation and (v) loan-making, deposit-taking and maturity and credit transformation.

Table 1. The interpretations of "banking" to characterise shadow banking in the fifty most cited publications of the literature

Banking as a synonym for	Number of publications	Citations (% over total)
Maturity-mismatched intermediation	16	45 %
Financial intermediation	10	15 %
Loan-making	7	10 %
Production of liquid debt	3	6 %
Production of short-term money-like instruments	3	4 %
Loan-making and deposit-taking	1	1 %
Credit risk transformation	1	1 %
Loan-making, deposit-taking and maturity and credit transformation	1	1 %
Undefined	9	19 %
Total ¹	51	101 %

¹ The total sums adds more than 50 publications and 100% of citations because one publication (FSB, 2015a) uses two definitions of shadow banking. See Table B.1 in Appendix B for details by publication.

Yet nine of the fifty most cited publications do not clearly associate "banking" with any particular function. Some of these publications identify shadow banking vaguely with "several functions [...] traditionally associated with commercial and investment banks" (Acharya et al., 2013, p. 535; Acharya & Schnabl, 2010, p. 42), "banking operations" (Arnold, 2009, p. 804) or "financial activities" (Gennaioli et al., 2013, p. 1331), without specifying which. Other

publications only describe some shadow banking entities without clarifying whether they are representative of the whole shadow banking system or not (Blundell-Wignall & Atkinson, 2010, p. 13). Others do not stick to one single interpretation of “banking”, as is the case with Thakor (2020), who identifies shadow banking’s function first with maturity transformation and then with lending in general (regardless of whether it relies on short- or long-term funding). Finally, other publications neither define shadow banking nor describe any of the entities engaged in it (Adrian & Shin, 2009, 2010b; Dierksmeier & Seele, 2018).

4.1. “Banking” as a synonym for maturity-mismatched intermediation

The most common meaning ascribed to shadow banking’s “banking”—“maturity-mismatched intermediation” or “maturity transformation”—corresponds to “the classic textbook depiction” of banks, the combination of long-term loans on the asset side with sight deposits on the liability side (Gorton and Metrick 2010, p. 262).¹² Entities with such a balance sheet structure are vulnerable to runs and pose systemic risk concerns in the absence of public credit and liquidity backstops, such as deposit insurance and central bank borrowing. Yet maturity transformation is deemed to be socially valuable, whether because it helps match savers and borrowers’ opposing needs (immediately redeemable assets vs. long-term funding) (Diamond & Dybvig, 1983), it allows depositors to discipline their principal, thus preventing excessive risk-taking (Calomiris & Kahn, 1991), or it is inherent to the management of the payments system in modern economies (Aglietta, 1991).

Although only one of the fifty most cited publications explicitly defines banking as “the combination of short-term liabilities and partially illiquid long-term assets” (Gertler & Kiyotaki, 2015, p. 2011), many identify it as the common feature of “traditional” and “shadow banking” (Gorton & Metrick, 2012, p. 425), the “traditional” and “shadow” banking systems (Krishnamurthy et al., 2014; Levitin, 2011, p. 464; Plantin, 2015, p. 146; Pozsar, 2013, p. 297) or “traditional” and “shadow banks” (or shadow banking entities) (Acharya et al., 2009, p. 94; Adrian & Shin, 2010a, p. 636; Cummins & Weiss, 2014, p. 501; Greenwood & Scharfstein, 2013, p. 21; Hanson et al., 2011, p. 1; Mehran et al., 2011, pp. 21–22; Mishkin, 2011, p. 4;

¹² Some publications confine “banking” to maturity mismatches aimed at the ultimate funding of loans (typically through asset-backed securities), whereas others also include other debt securities (Adrian and Liang 2016; Adrian and Shin 2010a; Gorton and Metrick 2012, p. 425; Hanson et al. 2011, 15; Plantin 2015; Pozsar et al. 2010).

Stein, 2012, p. 86).¹³ In addition, several publications characterise shadow banking as a maturity transformation activity using the term “credit intermediation” (Adrian & Liang, 2016, p. 11; Pozsar et al., 2010, p. 11). According to Pozsar et al. (2010, p. 8), credit intermediation is “[t]he process through which banks ‘recycle’ savers’ deposits into loans”, which “involves credit, maturity, and liquidity transformation” (see also Adrian and Liang, 2016, p. 11). However, as short-term assets are safer (less exposed to debtors' insolvency) and more liquid (easier to cash out) than long-term ones, in the end, they narrow credit intermediation down to maturity transformation.¹⁴ Thus, Pozsar et al. (2010, pp. 8, 14, 69) interchangeably omit credit and liquidity transformation from the credit intermediation triplet.

In any case, most of these publications omit mentioning that virtually any form of financial intermediation involves some maturity transformation. Hence, to define maturity transformation as a clear-cut category, it is necessary to specify the asset-liability mismatch threshold that separates it from other activities. Otherwise, “banking” is just “a relative concept” (Pozsar, 2018, p. 19), and we can only place financial entities and activities along a continuous scale of “bankiness” or a “maturity transformation spectrum” (Pozsar et al., 2010, p. 61). Instead, publications vaguely describe maturity transformation as holding “somewhat longer term-term securities” (Greenwood & Scharfstein, 2013, p. 21) or claim that the shadow banking system engages in “significant amounts” of maturity transformation (Pozsar et al., 2010, p. 2) or provides it “to various extents” (Bengtsson, 2013, p. 2). As a result, some discrepancies go unnoticed. For example, most publications consider MMFs’ maturity mismatch (typically

¹³ It is also possible to argue that Stein (2012) defines “banking” as the issuance of short-term debt backed by debt of any maturity, as he (i) identifies shadow banking with “unregulated private money creation” and (ii) distinguishes between maturity-mismatched and “more benign forms of money creation, for example, money market fund accounts backed exclusively by Treasury bills” (ibid, p. 60). However, Stein (2012, pp. 60, 86) claims that only shadow banks’ money creation must be regulated (by imposing mandatory reserve requirements) because other forms of non-bank money creation do not involve the negative externalities of using long-term assets to back short-term debt.

¹⁴ Pozsar et al. (2010) consider that, unlike maturity, credit and liquidity are neither immutable nor objective. In this vein, Pozsar et al. (2010, pp. 14, 2, emphasis added) highlight the “seemingly credit-risk free” nature of shadow banking deposit-likes and “the perceived risk-free, highly liquid nature of most AAA-rated assets that collateralized [them]”, a belief that turned out to be wrong at the onset of the GFC. In addition, they argue that maturity transformation already encompasses liquidity transformation to some extent, as it “creates liquidity for the saver” (8, emphasis added). Thus, in a previous publication, Pozsar (2008, p. 7) states straightforwardly that “credit intermediation [...] means borrowing short and lending long” (see also Greenbaum et al. 2019, p. 312).

shorter than a month) insignificant, whereas others, enough to qualify for “banking” (Greenwood & Scharfstein, 2013, p. 21).

4.2. “Banking” as a synonym for financial intermediation

Alternatively, following the second most common interpretation of shadow banking’s “banking”, the core function of traditional and shadow banking is financial intermediation (i.e. funding any type of financial asset with any financial liability).¹⁵ Financial intermediation is sometimes also called “qualitative asset transformation” (Bhattacharya & Thakor, 1993; Greenbaum et al., 2019) because it consists in offering instruments of different maturity, liquidity, credit risk, transparency and denomination than those in which the funds are invested. As banks have traditionally been the main financial institutions, “the terms *bank* and *financial intermediary* have normally been used interchangeably” (Cetorelli et al., 2012, p. 1, emphasis in original), as is also the case with “banking” and “financial intermediation” (Bhattacharya & Thakor, 1993).

Publications identify shadow banking with financial intermediation in a variety of ways. Some are straightforward, as Braun, (2020, p. 5), who defines shadow banking as “the marketisation of financial intermediation”. Others refer to it using the term “credit intermediation” in a broader sense than Pozsar et al. (2010). This is the case with the FSB, which interchangeably refers to shadow banking as “non-bank credit intermediation” and “non-bank financial intermediation” (see, for example, FSB, 2015a, p. 17). Meanwhile, Buchak et al. (2018, p. 453) follow the FSB’s shadow banking definition, mentioning mortgage origination and maturity transformation as examples of “banking” activities (ibid, p. 457).¹⁶

Adrian and Ashcraft (2012, p. 101, 2016, p. 282) also use “credit intermediation” in this sense. Although they quote the definition of Pozsar et al. (2010), they interpret it differently as credit, liquidity *and/or* maturity transformation. For example, Adrian and Ashcraft (2012, p. 115, emphasis added) claim that “[a]lthough securitization generally involves term funding and

¹⁵ Financial intermediation sometimes takes a broader meaning encompassing also brokerage activities (Bhattacharya and Thakor, 1993).

¹⁶ However, the FSB sometimes distinguishes between credit and financial intermediation, confining the former to the funding of debt assets and, hence, leaving entities such as equity-only funds and equity real estate investment trusts outside the shadow banking system (FSB 2015a, Note 8). The FSB uses this narrower definition of credit intermediation as a middle step between the broad and narrow definitions of shadow banking (FSB 2013a, p. 6; 2014, p. 5).

does not involve maturity transformation, structured securities are *a key component* of the shadow banking system”. Similarly, Adrian and Ashcraft (2012, p. 102) argue that “relative to direct lending [...], credit intermediation provides savers information and risk economies of scale by reducing the costs involved in screening and monitoring borrowers and by facilitating investments in a more diverse loan portfolio” but not necessarily assets of significantly shorter maturity. In the same way, Adrian and Ashcraft’s (2016, p. 284, emphasis added) estimation of the volume of shadow banking encompasses all activities involving *either* maturity transformation *or* credit transformation, among which *all* “*term* debt issued by non-banks”, regardless of whether they are short-term funded or not.

Yet others simply describe the common function of banks and shadow banks as “channel[ing] ‘savings into investments’” (Dallas, 2011, p. 275). Finally, other publications such as Admati et al. (2013, pp. 1, 4) associate shadow banking with a set of activities broad enough — “important activities” or “socially valuable activities of banks, including lending, deposit taking, or the creation of ‘money-like,’ liquid, and ‘informationally-insensitive’ securities”¹⁷ — to be equated to financial intermediation (see also Gowan, 2009, pp. 54–56).

4.3. “Banking” as a synonym for loan-making

The third most common interpretation of “banking” attributes shadow banking with the function of providing loans, an activity confined to the asset side of the balance sheet. Loans are a particular type of asset that cannot be directly negotiated in markets as they consist of customised arrangements with private information. The identification of banking with the provision of loans stems from the role attributed to banks as complementary to capital markets. Following standard microeconomic theory, loans cater for households and small firms, which, due to market imperfections, cannot issue bonds (Mishkin & Eakins, 2018, pp. 63–66). These borrowers resort instead to banks, which build upon long-term client relationships to accumulate the information as well as screening and monitoring expertise missing in financial markets. Alternatively, monetary circuit theory attributes banks with a unique role as managers of modern credit-based payments systems: banks inject new purchasing power into the economy by granting loans to firms and households which, once spent, generate savings later

¹⁷ The latter refer to liquid instruments with both short and long-term tenures, such as bank deposits and mortgage-backed securities (Admati et al. 2013, pp. 38–39).

invested in capital markets (Michell, 2017). However, in the last decades, important changes in the production, treatment and sharing of credit risk information (e.g. credit scores, securitisation and tech finance) have allowed other actors and markets to play a greater role in the origination and funding of loans.

Some publications are more explicit about their characterising shadow banking as loan-making activities. This is the case with K. Chen et al. (2018, p. 3931), who equate “shadow banking activities” to “shadow banking lending”, and Cong et al. (2019, p. 11), who describe shadow banking as “several types of off-balance sheet lending”.¹⁸ Meanwhile, other publications single out loan-making as the common function of the “traditional” and “shadow” banking systems (Hume & Sentance, 2009, p. 1432; Merrouche & Nier, 2010), which only differ in their liability side. Finally, other publications do not associate shadow banking with any other service than granting loans (Blackburn, 2008; Fungáčová & Weill, 2015).

4.4. Other interpretations of “banking”

Among the fifty most cited publications, there are five additional, less influential, interpretations of the word “banking”. Two of them confine it to the liability side and, in particular, to the provision of monetary, “liquid” or “safe” assets, which they define differently. On the one hand, some publications identify “money-like claims” (Hanson et al., 2015), “money-like instruments” (Moreira & Savov, 2017), “private money”, “near-money liquidity”, “liquid-claims” or “safe debt” (DeAngelo & Stulz, 2015) with instruments redeemable at short notice. Moreira and Savov (2017, pp. 2381–2383) also call the issuance of these assets “liquidity transformation”. Unlike maturity-mismatched banking, this “banking” does not exclude the combination of short-term liabilities and short-term assets, as is typically the case for MMFs (DeAngelo & Stulz, 2015, p. 227; Hanson et al., 2015, pp. 457, 460; Moreira & Savov, 2017, p. 2382). On the other hand, Gorton (2009, pp. 7, 14), Gorton et al. (2012, p. 101) and Gorton and Metrick (2010, p. 281) identify “money”, “safe debt” and “informationally-insensitive debt” with instruments that are easily saleable at virtually no discount, which this article defines as “liquid”. Following these authors, “this kind of debt is

¹⁸ K. Chen et al. (2018, p. 3892) define (shadow banking) loans quite flexibly including “bank acceptances”, a Chinese sort of letter of credit, i.e. negotiable credit guarantees. Meanwhile, following Cong et al. (2019, p. 11), shadow banking lending in China encompasses “loans by trust companies (trust loans) and entrusted firm-to-firm loans (entrusted loans)”.

very liquid because its value rarely changes and so it can be traded without fear that some people have secret information about [its] value”, which makes it suitable as a means of payment (Gorton, 2009, p. 3). Thus, although Gorton et al. (2012, pp. 101, 106) consider bank deposits as “the quintessential example” of money, they argue that liquid debt can take “the form of short-term instruments or long-term debt securities”.¹⁹

The remaining three interpretations of “banking” bear no relation to each other. First, Claessens et al. (2012, p. 4) understand “banking” as credit risk transformation, claiming that, “Similar to traditional banks, which issue ‘safe’ liabilities to fund risky projects, shadow banking focuses on intermediating credit from savers to borrowers and managing counterparty risks.” Second, Z. Chen et al. (2020, p. 48) identify “banking” with any of the two main textbook activities of banks: deposit-taking and loan-making. Accordingly, they claim that the (Chinese) shadow banking system is made up of entities that either provide lending (trust loans, undiscounted bankers’ acceptances and peer-to-peer lending) or deposit-like (wealth management products). Finally, as mentioned above, the FSB’s (2015a, p. 7) narrow definition of shadow banking identifies “banking” with the “subset” of financial intermediation “that may raise financial stability concerns”. This narrow definition initially referred to “maturity/liquidity transformation and/or flawed credit risk transfer and/or leverage” (FSB, 2011a, p. 2). Since 2015, the FSB identifies it with five “economic functions” (FSB, 2013b): providing instruments redeemable at short notice, funding loans, maturity-mismatched intermediation, providing credit guarantees and securitisation.

¹⁹ Following Gorton (2009, pp. 7, 9), high-grade long-term debt such as Treasury bonds and securitisation senior tranches are safe assets thanks to, respectively, government guarantees and proper collateralisation. Thus, Gorton (2009, 24, emphasis added) claims that “[s]ecuritization is banking in the sense that the SPVs hold loans and finance these loans with high-grade debt, debt which is largely informationally-insensitive”. Meanwhile, Gorton and Metrick (2010, p. 29) state that both (short-term) repos and (long-term) securitisations “are, in effect, new forms of banking, but with the same vulnerability as other forms of bank-created money”. Similarly, Gorton et al. (2012, p. 105) argue that “The private sector can produce substitutes for government debt in the form of short-term instruments or long-term debt securities that can be used as collateral or as safe stores of value. [...] Thus, if the demand for safe assets cannot be met in whole by the government, near-riskless debt issued by the financial sector plays an important role in facilitating trade.”

5. Shadow banking's "shadow"

The use of the qualifier "shadow" is not new in economics: "shadow economy" and "shadow prices" are well-established concepts. The shadow economy refers to "activities [...] that take place 'off the books,' out of the gaze of taxmen and government statisticians" (Schneider & Enste, 2002). This usage of the term is common in shadow banking literature, in which it is often believed that "[t]he first word, shadow, refers to banking that is performed out of the banking regulators' spotlight, in the shadows" (McMillan, 2014, p. 54). In this vein, Gorton and Metrick (2010, p. 267) claim that shadow banking happens in the "unregulated darkness", and Blackburn (2008, p. 69) refers to the shadow banking system as "the secondary, 'hidden', banking system". Some go further and qualify shadow banking as "unlicensed" (Plantin, 2015, p. 158) or "unauthorised banking" (Ricks, 2016, p. 17; see also Hockett & Omarova, 2017, p. 1201). Thus, many publications oppose either the shadow banking system or shadow banks to, respectively, "the regulated banking system" or "sector" or "regulated banks" (Acharya et al., 2013; Acharya & Schnabl, 2010; Admati et al., 2013; Gennaioli et al., 2013; Gorton, 2009; Gowan, 2009; Hanson et al., 2011; Hockett & Omarova, 2017; Krishnamurthy et al., 2014).

However, a significant part of shadow banking literature rejects this view. Many lament the popularity of the expression "shadow banking" because of its pejorative connotations (FSB, 2015a, p. 1; Pozsar et al., 2010, p. 4) and advocate for more "neutral" alternatives, such as "market-based banking" (Pozsar, 2013), "market-based credit system" (Mehrling et al., 2013) and "non-bank financial intermediation" (FSB, 2018). In addition, some contest the idea that regulators were not aware of most banks' shadow banking activities aiming at circumventing regulatory restrictions (Acharya & Schnabl, 2010; Admati et al., 2013; Fein, 2013; Gowan, 2009, p. 55). In this regard, the concept of "shadow price", the non-directly observable economic value of non-tradable goods, is more useful to understand the general use of the term "shadow" in shadow banking literature.

Whereas the concept "shadow economy" is used to split the category "economic activities" into two groups, "shadow price" creates something new—an implicit price for goods that are not traded—by mirroring something known—the market price of traded goods. Therefore, embracing the concept of "shadow prices" means attributing the object to which it applies, non-traded goods, with a new quality: having an objective economic value. This is

exactly the case with “shadow banking”, which creates a genuinely new category of financial activities by attributing the quality of performing “banking” to entities and/or instruments so far alien to it (Bouguelli, 2019). Thus, McCulley (2007, 2009, emphasis added) originally compared “*shadow* banks” to “*real* banks”. In this vein, most publications describe “shadow banking” or “shadow banks” or “the shadow banking system” in contrast to, respectively, “traditional banking”, “traditional banks” or “the traditional banking system”, even among those using “shadow banking” in its pejorative sense. Other synonyms for “traditional” (or antonyms of “shadow”) in shadow banking literature are “regular” (Cong et al., 2019; FSB, 2015a) and “conventional” (DeAngelo & Stulz, 2015), and we could also add “common”.

Among the fifty most cited publications of the literature, there are up to eleven different interpretations of the term “shadow” to create the dichotomy “shadow vs. traditional banking” by defining the particular means through which the former provides “banking” (Table 2, see Table B.1 in Appendix B for details by publication). Two of them stand out, following which shadow banking respectively consists in banking run by non-banks (fourteen publications accounting for one-third of the sample’s total citations) and banking without public backstops (eleven publications representing one-quarter of citations). The remaining nine interpretations are used altogether by seventeen publications adding for another quarter of citations, following which the particularity of shadow banking is that it is, respectively: (i) run off-balance sheet by commercial and investment banks, (ii) run without public credit insurance, (iii) run off-balance sheet by banks, (iv) funded by non-banks, (v) performed by loosely regulated non-banks, (vi) run by banks through loosely regulated off- and on-balance sheet means, (vii) performed through non-banks and loosely regulated instruments, (viii) market-based and (ix) with indirect and implicit public backstops.

Table 2. The interpretations of “shadow” to characterise shadow banking in the fifty most cited publications of the literature

Shadow as a synonym for	Number of publications	Citations (% over total)
Performed by non-banks	14	32 %
Non-publicly backstopped	11	28 %
Run off-balance sheet by commercial or investment banks	4	10 %
Without public credit guarantees	3	4 %
Run off-balance sheet by banks	3	3 %
Non-bank funded	2	2 %
Performed by loosely regulated non-banks	1	2 %
Through non-banks or loosely regulated instruments	1	2 %
Run by banks through loosely regulated off- and on-balance sheet means	1	1 %
Market-based	1	1 %
With indirect and implicitly publicly backstopped	1	1 %
Undefined	8	15 %
Total	50	100 %

Meanwhile, eight of the fifty most cited publications give no clear meaning to the word “shadow” in “shadow banking”. Seven of them do not even describe the shadow banking system (Adrian & Shin, 2009, 2010b; Dierksmeier & Seele, 2018) or do it too vaguely (Adrian & Shin, 2010a, p. 615; Levitin, 2011, p. 464; Mishkin, 2011, p. 4; Shin, 2012, pp. 157, 171, 184), while the remaining one largely contradicts its interpretation of the term. This is the case with Claessens et al. (2012, p. 4), who establish that shadow banking “activities occur outside traditional banks” but then claim that one of the two most important ones, “collateral intermediation”, is mainly carried out by depository institutions acting as “dealer banks” (ibid, p. 14).

Before fleshing out these alternative ways of defining the dichotomy “shadow vs. traditional banking”, it is important to address an often crucial but rarely discussed issue for characterising shadow banking: there is no single approach to draw the dividing line between banks and non-banks. Most publications adopt a regulatory standpoint: “banks” encompass all entities with a banking licence plus their prudentially consolidated non-bank subsidiaries and vehicles, whereas “non-banks” are the remaining financial entities. The taxonomy of this article also distinguishes banks and non-banks based on the prudential consolidation perimeter. Nevertheless, some publications follow a functional approach, calling any entity performing

“banking” a “bank”, i.e. both regular and shadow banks (see Gorton & Metrick, 2010, pp. 264–265; Hanson et al., 2011). In addition, “bank” is sometimes used to describe both commercial and investment banks (see Blackburn, 2008, p. 96; Gorton & Metrick, 2012, p. 433; Gowan, 2009, p. 55). This issue is further complicated by the fact that some publications switch between these alternative approaches without notice. For example, in Gorton and Metrick (2010), “bank” sometimes means commercial banks (*ibid*, pp. 263, 273-274, 285), sometimes both commercial and investment banks (*ibid*, pp. 265, 279-280) and sometimes any entity performing (traditional or shadow) banking (*ibid*, pp. 264-265).²⁰

5.1. “Shadow” to describe activities performed by non-banks

As mentioned above, shadow banking’s shadow most often denotes that this activity is performed by (non-prudentially consolidated) non-banks, contrary to traditional banking, which is carried out by banks. Thus, many publications following this interpretation qualify shadow banking (or the shadow banking system) as “unregulated” or “lightly regulated” in the sense that it is not subject to banks’ regulatory requirements or that it abides by less stringent ones.²¹ Most publications focus exclusively on capital requirements. As an exception, Stein (2012) focuses on deposit reserve requirements. However, he considers them functionally equivalent

²⁰ Other possibilities to group financial entities between banks and non-banks are (i) at the individual legal entity level, (ii) following accounting consolidation criteria, which may differ from regulatory ones (Acharya and Schnabl, 2010; Thiemann, 2018), and (iii) from an organisation perspective, aggregating all entities under the effective control of a parent or sponsor entity (i.e. including also bankruptcy-remote vehicles) (see Mehran et al. 2011, p. 6; and Cetorelli and Peristiani, 2012).

²¹ In this vein, Gorton and Metrick (2010, pp. 270, 261) highlight that “MMMFs are closely regulated. For example, they are required to invest only in high-quality securities that would seem to have little credit risk”. Yet these authors consider MMMFs a key piece of the shadow banking system, which “remains largely unregulated” or whose “regulatory structure is light or nonexistent”. Similarly, Plantin (2015, p. 158) notes that US MMFs “are managed in accordance with Rule 2a-7 under the Investment Company Act of 1940, which puts restrictions on the maturity, quality, and dispersion of their investments”. Thus, Admati et al. (2013, p. 4) refer to the shadow banking system as “the unregulated parts of the financial system” in the sense that it is made up of entities such as MMFs that “operated like banks but were not regulated like banks”. Meanwhile, Adrian and Liang (2016, p. 16) argue that “shadow banking activities are often regulated for market conduct and market functioning, [but] most shadow banking entities and activities are not subject to prudential regulation”. However, it should be underlined that, in some jurisdictions, there are non-banks subject to prudential regulation and capital requirements. On this basis, the European Banking Authority (2022) argues that many non-banks in the EU fall within the scope of “the regulated framework” and should not be identified as shadow banking entities.

to the former because, through the lens of money multiplier theory, both limit the amount of short-term liabilities that entities can issue.

Publications find different ways to characterise shadow banking as non-bank banking. Some describe shadow banks directly as “nonbank financial companies” (Dallas, 2011, p. 344) or “nonbank (nondepository) lenders” (Buchak et al., 2018, p. 453). Others describe shadow banking as banking without banks, claiming that the shadow banking system consists in “financial intermediaries, other than traditional banks, who engage in typical banking activities” (Dallas, 2011, p. 275), is made up of entities that “are not commercial banks” (Gorton et al., 2012, p. 105) or “performs the same functions as traditional banking, but the names of the players are different” (Gorton & Metrick, 2010, p. 261). Others associate shadow banking with entities that do not share banks’ features: they “do not fund themselves with deposits” (Thakor, 2020, p. 4), they are not “tightly regulated” (Gertler & Kiyotaki, 2015, p. 2037) or they are not subject to “regulatory limits on leverage” faced by “conventional banks” (DeAngelo & Stulz, 2015, p. 221). Finally, others define shadow banking as activities “outside of the regulated”, “regular” or “formal” banking sector (FSB, 2015a, p. 1; Gennaioli et al., 2013, pp. 1331, 1360; Hockett & Omarova, 2017, p. 1775; Stein, 2012, p. 60)²² locate them outside the scope of banking regulation (Fungáčová & Weill, 2015, p. 197) or describe shadow banks as “[i]nstitutions outside the regulated [banking] sector” (Admati et al., 2013, p. 58).

5.2. “Shadow” to describe non-publicly backstopped activities

The second most common interpretation of “shadow” within the fifty most cited publications focuses on whether banking activities are provided with public backstopped or not. In this sense, shadow banking happens outside the public state safety net that guarantees repayment in full of certain assets (such as bank deposits) and ensures last-resort lending to some entities (notably, banks). This characterisation of shadow banking is narrower than the previous one, as some non-banks do enjoy public support.²³ For example, Pozsar et al. (2010,

²² As mentioned in supra note 13, Stein (2012) associates shadow banking with the issuance of short-term debt not subject to reserve requirements, which could potentially encompass uninsured bank liabilities. However, he ultimately opposes shadow banking money to “bank-created money” (60).

²³ Many publications characterise shadow banking as activities that are neither publicly backstopped nor subject to banking regulation (see Acharya et al. 2009, pp. 94, 112; Adrian & Liang 2016, 11; Cummins & Weiss 2014, p. 492; Gorton & Metrick 2012, p. 428; Jakab & Kumhof 2015, pp. 282–283, 312). They are classified within the non-backstopped interpretation of “shadow”, as this condition is more restrictive.

p. 9) and Adrian and Ashcraft (2012, p. 104) note that, in the US, the government guarantees a large part of pension funds' liabilities and many insurance policies and annuities of insurance firms.²⁴ Meanwhile, several central banks have accepted non-banks as eligible counterparties in recent years: the Bank of Canada established a permanent lending facility for any type of non-bank in 2020, Sweden's central bank for central counterparties in 2023, whereas the Bank of England for pension funds, insurance companies and liability-driven investment funds in 2025.

It is also possible to argue that temporary, ad hoc extensions of the public safety net during systemic events (e.g. the GFC and the COVID-19 lockdowns) reveal the existence of additional, *implicit* backstops to non-bank entities, which can also have *indirect* access to the lender of last resort through banks (especially if they belong to the same group). To avoid ambiguity, some publications define shadow banking as activities without *direct* and *explicit* public backstops (Adrian & Ashcraft, 2016, p. 283; Pozsar et al., 2010, p. 11). Nevertheless, many emphasise that an important part of shadow banking activities enjoys either implicit or indirect public support (Acharya et al., 2013, p. 535; Adrian & Ashcraft, 2016, p. 283; Mehrling et al., 2013, p. 1; Pozsar, 2013, pp. 291–292). In this vein, Pozsar et al. (2010, p. 7) argue that, during the GFC, “The shadow banking system was temporarily brought into the ‘daylight’ of public liquidity and liability insurance (like traditional banks), but was then pushed back into the shadows.” In contrast, other publications confine shadow banking to the scope of these implicit and indirect backstops and, hence, are considered to follow a different interpretation of “shadow” (see Hockett & Omarova, 2017).

Most publications adhering to the non-publicly backstopped characterisation of shadow banking are easily identifiable, as they either define it explicitly as such (Adrian & Ashcraft, 2012, pp. 101, 104, 2016, pp. 283, 293; Adrian & Liang, 2016, p. 11; Pozsar et al., 2010, p. 11) or describe shadow banking entities as entities operating outside the public safety net (Acharya et al., 2009, p. 94; Cummins & Weiss, 2014, p. 492; Greenwood & Scharfstein, 2013, p. 21; Jakab & Kumhof, 2015, p. 36). However, some of these publications are not fully consistent and occasionally mention banks' activities among examples of shadow banking. This is the case

²⁴ Since these guarantees are confined to specific instruments, Pozsar et al. (2010, p. 11) and Adrian and Ashcraft (2012, p. 104; 2016, p. 283) argue that the issuers of these assets may also engage in shadow banking through other instruments. On the contrary, Adrian and Liang (2016, p. 11, emphasis added) claim that, by definition, shadow banking takes place “outside of institutions with direct access to government backstops”.

for Pozsar et al. (2010, p. 10, Exhibit 1) with banks' credit lines and Adrian and Ashcraft's (2012, p. 103, Exhibit 1) with banks' non-deposit liabilities.

Meanwhile, other publications sometimes seem to disregard liquidity backstops and consider only credit guarantees instead, placing some on-balance sheet activities of banks within the scope of shadow banking. For example, Gorton (2009, p. 45) and Gorton and Metrick (2012, p. 45; emphasis added) claim that “[t]raditional banking is the business of making and holding loans, *with insured demand deposits as the main source of funds*”, whereas “[s]ecuritized banking is the business of packaging and reselling loans, *with repo agreements as the main source of funds*”, something they recognize that banks do as well.²⁵ However, Gorton (2009, 15) compares the 2007 run on repos with bank panics *before the Federal Reserve* and opposes the shadow banking system to “the (chartered bank) industry”, while Gorton and Metrick (2012, 428) do include liquidity backstops in a table listing the differences between traditional and shadow banking. Pozsar (2013, 291) is also rather ambiguous on this issue, as he equates shadow banking to “wholesale funding”, including “the non-bank-to-bank subset”. Nevertheless, Pozsar (2013, 303) ultimately claims that shadow banking instruments are issued by “non-bank intermediaries” and are unstable because these entities neither enjoy deposit insurance nor access to central bank lending (*ibid*, p. 301). Thus, we may consider that these publications interpret shadow banking as non-publicly backstopped activities but are sometimes inconsistent with their definition.

5.3. Other interpretations of “shadow”

The remaining nine, less influential interpretations of shadow banking's “shadow” can be organised into four groups. The first group encompasses four interpretations arising from regulatory arbitrage concerns. The narrowest of these interpretations corresponds to McCulley's original association of shadow banking with banks' off-balance sheet activities. Publications following this view consider shadow banking as a strategy of banks to operate beyond the scope

²⁵ According to Gorton (2009, p. 10), “dealer banks and commercial banks [...] have large needs for collateral”, especially for repos, for which they use securitisation bonds (*ibid*, p. 29). Meanwhile, following Gorton and Metrick (2012, p. 425), “Securitized-banking activities were central to the operations of firms formerly known as investment banks (e.g. Bear Stearns, Lehman Brothers, Morgan Stanley, and Merrill Lynch), but they also play a role at commercial banks, as a supplement to traditional-banking activities of firms such as Citigroup, J.P. Morgan, and Bank of America.” (see also *ibid*, p. 433).

of banking regulation.²⁶ In this vein, Plantin (2015, p. 158) claims that “[s]hadow banking aimed at recreating outside the regulatory umbrella the basics of banking”, and Z. Chen et al. (2020, p. 63) refer to the shadow banking system as “the off-balance-sheet shadow banking sector”. Other publications expand this interpretation in three alternative ways. First, K. Chen et al. (2018, p. 3893) also include banks’ on-balance sheet regulatory arbitrage activities, which consist in reclassifying assets into balance sheet items subject to less stringent regulatory requirements. For example, they argue that Chinese banks often conceal loans as entrusted rights, which are not subject to credit risk restrictions and ceilings on their ratio to deposits (ibid, p. 3902).

Second, some US-focused publications include instead investment banks’ off-balance sheet activities alongside those of commercial banks on the basis that the former are also subject to capital requirements they seek to circumvent, although set by the financial markets authority (Acharya & Schnabl, 2010, p. 41). In this vein, Blackburn (2008, pp. 67, 69–70, 64) claims that the shadow banking system - “the banks’ ‘invisible balance sheet’” - is “constituted by off-balance sheet SIVs, conduits and bank-sponsored hedge funds” used by “core financial institutions”, including the by then independent investment bank Merrill Lynch, “to hid much of their exposure”. In the same way, Arnold (2009, p. 804) identifies shadow banking with commercial and investment banks’ “practice of using structured investment vehicles to move banking operations off-balance sheets in order to evade accounting rules and regulatory capital standards”. Similarly, Acharya et al. (2013, p. 516, emphasis added; see also Acharya & Schnabl, 2010, p. 42) claim that shadow banking “performs several functions that traditionally are associated with *commercial and investment banks* but runs in the shadow of the *regulated banks*, in the sense that it is off-balance sheet and less regulated”. Third, Gowan (2009, pp. 54–56) considers the activities performed not only by commercial and investment bank-sponsored but also independent non-banks as well as through lightly regulated instruments and markets, such as credit default swaps and collateralised debt obligations. Following this interpretation, commercial and investment banks engage in shadow banking when they purchase these

²⁶ In particular, Plantin (2015, pp. 159, 161) refers to banks using non-consolidated ABCP conduits and MMFs to circumvent US regulatory capital requirements. Meanwhile, Cong et al. (2019, p. 11) pinpoint entrusted loans and trust companies, to which Z. Chen et al. (2020, p. 48) add off-balance sheet wealth management products, which allowed banks in China to bypass interest rate regulations and credit caps.

instruments, which are not subject to the same capital requirements than economically equivalent assets (ibid, p. 55).

The second group consists of two interpretations focused on public backstops. On the one hand, as mentioned above, Hockett and Omarova (2017) characterise shadow banking as activities operating with indirect and implicit public backstops through banks and public ad hoc emergency programmes. On the other hand, several publications distinguish shadow from traditional banking based on the presence of direct and explicit public *credit* guarantees, thus supporting the idea that shadow banking can also happen on the balance sheets of banks (or any other entity with access to the lender-of-last-resort). In this vein, Hanson et al. (2015, p. 450) define “traditional” and “shadow” banking as “two intermediation strategies” that, despite having “a close correspondence [with] specific legal forms”, are not restricted to them. While traditional banking relies on insured deposits, shadow banking uses other non-publicly guaranteed funding sources, among which are uninsured deposits (see also Moreira and Savov, 2017, pp. 2382–2383). Similarly, Krishnamurthy et al. (2014, p. 2385) associate shadow banking with repo funding using asset-backed securities (ABS) as collateral raised by “dealer banks”, among which they mention not only investment but also commercial banks (in particular, Citigroup). Thus, while “nonbank to dealer repo [...] is a source of net funding for the shadow banking system”, “interdealer repo [...] reallocates liquidity *within* the shadow banking system” (Krishnamurthy et al., 2014, p. 2415, emphasis added).

On the contrary, the third group of interpretations of the qualifier “shadow” defines shadow banking as a purely non-bank phenomenon. On the one hand, Blundell-Wignall and Atkinson (2010, p. 13, emphasis added) confine it to the activities of particularly loosely regulated non-banks: “shadow banks” (such as hedge funds) are “lightly regulated” compared to “highly regulated” banks and other non-banks (such as insurance companies), “which are not regulated *in the same way* [as banks]”. On the other hand, Hume and Sentance (2009, p. 1432) and Merrouche and Nier (2010, p. 27) equate shadow banking to all loans (“banking”) directly or indirectly funded by non-banks, including those granted by banks relying on “wholesale funding markets as opposed to traditional customer deposits” (Hume & Sentance, 2009, p. 1432). Finally, the last group consists of one single interpretation focused on the type of instruments used for carrying out banking activities. In particular, Braun (2020, p. 5) follows Hardie and Howarth (2013) and defines shadow banking as “the marketization of financial

intermediation”, which also encompasses banks’ market-based activities such as investing in and issuing debt securities.

6. The main characterisations of shadow banking

Publications combine these different interpretations of the terms “shadow” and “banking” in a variety of ways giving rise to multiple characterisations of “shadow banking”. Within the literature’s fifty most cited publications, it is possible to identify up to twenty-one characterisations, even though fourteen publications do not characterise shadow banking in any clear way (see Table B.1 in Appendix B). As Table 3 shows, only seven of these characterisations are adopted by more than one publication, from which only three by at least four publications: (i) non-publicly backstopped maturity transformation, (ii) non-bank maturity transformation and (iii) non-bank financial intermediation. Altogether, these characterisations are represented by fifteen publications accumulating almost half of the total citations of the sample. Meanwhile, the other four characterisations can be found in just two publications each, which altogether account for just 10% of total citations: (i) non-bank production of liquid debt, (ii) uninsured provision of short-term debt, (iii) non-bank funded loan-making and (iv) non-publicly backstopped financial intermediation. In contrast, the fourteen publications using the remaining fourteen characterisations add up to less than one-quarter of total citations. As mentioned in Section 4, it is possible to define two different shadow banking system perimeters based on each of these characterisations of shadow banking, depending on whether the activity is attributed to each shadow banking entity alone or the system as a whole.

Table 3. The main characterisations of shadow banking among the fifty most cited publications

Shadow	Banking	Number of publications	Citations (% over total)
Publicly non-backstopped	Maturity-mismatched intermediation	7	22 %
Non-bank	Maturity-mismatched intermediation	4	13 %
Non-bank	Financial intermediation	4	8 %
By loosely regulated non-banks	Production of liquid debt	2	4 %
Without public credit insurance	Provision of money-likes	2	2 %
Non-bank funded	Lending	2	2 %
Non-publicly backstopped	Financial intermediation	2	2 %
Other (14 characterisations) ¹		14	18 %
Unspecified		14	29 %
Total ²		51	101 %

¹ Ranked by number of citations, these are: (i) maturity transformation with no public credit guarantees, (ii) non-bank loan-making, (iii) not publicly backstopped financial intermediation, (iv) financial intermediation through non-banks and unregulated instruments, (v) production of liquid debt without public credit guarantees, (vi) commercial and investment banks' off-balance sheet lending, (vii) non-bank provision of deposit-likes, (viii) banks' off-balance sheet loan-making and deposit-taking, (ix) banks' off-balance sheet maturity transformation, (x) loosely regulated off- and on-balance sheet bank lending, (xi) loan-making, deposit-taking, maturity transformation and credit risk transfer by non-banks, (xii) banks' off-balance sheet lending, (xiii) market-based financial intermediation and (xiv) indirect and implicitly publicly backstopped financial intermediation. See Table B.1 in Appendix B for details by publication.

² The sum adds more than 50 publications and 100% of citations because one publication (FSB, 2015a) uses two characterisations of shadow banking. See Table B.1 in Appendix B for more details.

6.1. Shadow banking as non-publicly backstopped maturity-mismatched intermediation

Following its most popular characterisation, shadow banking consists in maturity transformation with no public (credit or liquidity) backstops (Acharya et al., 2009; Adrian & Liang, 2016; Cummins & Weiss, 2014; Gorton & Metrick, 2012; Greenwood & Scharfstein, 2013; Pozsar, 2013; Pozsar et al., 2010). In this sense, shadow banking reproduces “traditional banking, but in a less-stable way”, as it lacks access to the mechanisms designed to prevent banking panics (Greenwood & Scharfstein, 2013, p. 6). In particular, systemic risk concerns from shadow banking runs stem from the facility with which they can spread through tightly

interconnected shadow banking entities (Acharya et al., 2009; Cummins & Weiss, 2014, p. 510; Greenwood & Scharfstein, 2013, p. 25) and the widespread fire sales they can trigger (Adrian & Liang, 2016, p. 13; Cummins & Weiss, 2014, p. 496; Gorton & Metrick, 2012; Pozsar et al., 2010, p. 70). This characterisation of shadow banking is typically associated with the US mortgage lending boom-bust cycle of the 2000s that led to the GFC.

Among the publications adopting this characterisation, some take the macro approach to define the shadow banking system as a network of entities connecting short-term savers with long-term borrowers. Following Pozsar et al. (2010 p.13), “the shadow banking system decomposes the simple process of deposit-funded, hold-to-maturity lending conducted by banks, into a more complex, wholesale-funded, securitization-based lending process that involves a range of shadow banks” (see also Adrian and Liang, 2016, p. 11). Similarly, Gorton and Metrick (2012, p. 427) claim that “securitized banking is a cycle that requires all steps to keep running”, each successively executed by a different entity in the “securitized-banking system”. Entities on the asset-side end of this system hold loans, mostly originated by banks. These loans are subsequently processed by a chain of intermediaries, which pool, tranche and enhance these claims to create more liquid, less risky assets, which ultimately serve as collateral for short-term deposit-like on the liability side end of the system.

Thus, whereas the system as a whole performs maturity transformation, these publications mention several shadow banking entities that run no significant maturity mismatches. For example, on the asset-side end, banks’ off-balance sheet special purpose vehicles fund long-term loans with long-term ABS and, hence, “perform credit and liquidity transformation, but due to their maturity-matched nature, no maturity transformation” (Pozsar et al., 2010, p. 18). Similarly, on the liability end, MMFs invest in short-term ABS-collateralised repos and ABCP issuing shares redeemable on short notice.²⁷ This is not the case with publications defining the shadow banking system perimeter following the micro approach, which confine it to “those financial institutions that mostly looked like banks” (Acharya et al., 2009, p. 94), i.e. that “issue short-term, liquid claims and hold longer-term, riskier, and less-liquid assets”, but had no public support (Greenwood & Scharfstein, 2013, p. 91; see also Cummins & Weiss, 2014, p. 496). These entities typically sit in the middle of the “macro”

²⁷ Pozsar et al. (2010, p. 54) consider that MMFs engage in some degree of maturity transformation but place them in the lowest range of the spectrum.

shadow banking system, as is notably the case with banks' structured investment vehicles, which funded (long-term) ABS with (short-term) ABCP (Acharya et al., 2009, p. 95; Cummins & Weiss, 2014, p. 492; Greenwood & Scharfstein, 2013, p. 21).

6.2. Shadow banking as maturity-mismatched intermediation run by non-banks

According to the second most popular characterisation, shadow banking also consists in maturity-mismatched intermediation, although provided by any non-bank, i.e. it allows the inclusion of activities carried out by publicly backstopped non-banks (Gertler & Kiyotaki, 2015; Hanson et al., 2011; Mehran et al., 2011; Plantin, 2015; Stein, 2012). This difference is not critical among the most cited publications, as those adopting this shadow banking characterisation (i) focus on the pre-GFC US financial system, in which only banks had direct access to lender-of-last-resort facilities, and (ii) assume that non-banks with guaranteed liabilities (namely, pension funds and insurance companies) did not participate in maturity transformation activities. Therefore, they refer to roughly the same set of entities and activities mentioned above. In particular, these publications define the perimeter of the shadow banking system according to the micro approach and mostly identify shadow banking with the activities of ABCP vehicles (Gertler & Kiyotaki, 2015, p. 2022; Hanson et al., 2011, p. 15; Mehran et al., 2011, pp. 21–22).

Nevertheless, in other contexts, the difference between these two main characterisations can be significant. For example, in the UK, the 2022 liability-driven investment crisis showed that return-boosting strategies based on funding long-term securities with short-term repos were widespread among publicly guaranteed, defined benefit pension funds. Moreover, to prevent future liquidity disruptions in gilt markets, the Bank of England allowed pension funds to apply for the new contingent repo facility established in 2025. These maturity-mismatched activities fall within the second characterisation of shadow banking but could be excluded from the first one (see *supra* note 23).

This difference reflects the fact that these two characterisations are motivated by slightly different systemic risk concerns. Whereas publications adopting the first characterisation (non-publicly backstopped maturity transformation) are mainly worried about systemic non-bank runs, those following the second characterisation (non-bank maturity transformation) are more concerned about excessive leveraging in the absence of banking capital requirements. In this

vein, Gertler and Kiyotaki (2015, p. 2036) claim that “[c]apital requirements can offset [the] distortion” stemming from the fact that “the free-market leverage multiple is larger than the social optimum”, which explains why “shadow banks [...] tended to operate with higher leverage multiples and lower interest margins than do commercial banks” (ibid, p. 2026). When combined with maturity mismatches, the higher the leverage, the larger the fire sales following a run on shadow banks’ short-term liabilities and, hence, the stronger the possibility of a systemic crisis (Gertler & Kiyotaki, 2015, p. 2012; Hanson et al., 2011, pp. 13–14; Stein, 2012, p. 65).

6.3. Shadow banking as non-bank financial intermediation

Meanwhile, the third main characterisation of shadow banking consists in non-bank financial intermediation (Admati et al., 2013; Buchak et al., 2018; Dallas, 2011; FSB, 2015a). This interpretation is even broader, as it does not confine shadow banking to activities involving significant maturity transformation but also encompasses publicly backstopped non-banks. Indeed, it simply opposes the activities of the (prudentially consolidated) banking sector to those of the (non-prudentially consolidated into banking groups) non-bank sector. That is to say, as every non-bank meets the description, it is irrelevant whether to define the perimeter of the shadow banking system following the micro or the macro approach.

Within the most cited publications, those following this interpretation use the concept of “shadow banking” to analyse the implications of a larger volume of financial activity happening outside the scope of banking regulation. Dallas (2011, p. 345) argues that the growth in non-bank finance preceding the GFC was, to an important extent, the result of attempts at arbitraging entities- and instruments-based regulation through innovations such as the originate-to-distribute model. In this vein, Dallas (2011, pp. 282, 284, 285, 318, 344) claims that more non-bank finance may render the financial system more fragile because non-banks can take on higher leverage than banks and issue short-term liabilities without adequate public backstops. Also based on the GFC experience, Admati et al. (2013, p. 58) confines non-bank systemic risks primarily to bank-sponsored entities. Following these authors, although independent non-banks can threaten financial stability, those set up by banks tend to leverage on guarantees from their sponsors to take on greater risks (ibid, p. 4).

FSB (2015a, pp. 1, 3), which monitors the evolution of the non-bank sector since the GFC, also distinguishes between two groups of non-banks but based on the type of activities or “economic functions” they perform: one half (the “narrow shadow banking”) “may pose bank-like systemic risks” and should be carefully monitored, whereas the other half constitutes a socially valuable, efficient funding channel for the real economy that should be promoted. Finally, Buchak et al. (2018, p. 482) analyse the post-GFC US loan market and identify a trade-off in non-bank lending: on the one hand, non-banks can bring socially valuable innovation but, on the other hand, they seem to cater to riskier borrowers, especially by taking over the segments left by banks due to tightened regulation.

6.4. Secondary shadow banking characterisations

Besides these three main characterisations of shadow banking, there are another four, less influential interpretations of the concept but, unlike the remaining ones, adopted by more than one publication each. Two of them associate shadow banking with non-banks’ activities, whereas the other two, with activities not fully backstopped by the public sector. The first characterisation among the former conceives shadow banking as the production of liquid debt by non-banks, which is considered to be unstable because it is not subject to banking regulation (Gorton et al., 2012, p. 101; Gorton & Metrick, 2010, p. 281). This characterisation builds upon the presupposition that liquid debt involves positive externalities: it fulfils the function of means of exchange, both directly and indirectly as collateral in financial transactions, whose value is not internalised by its issuers. Thus, unless properly regulated, liquid debt issuance typically involves excessive credit risk taking. This would have been the case in the GFC, when securitisation allowed for a larger share of these instruments to be issued outside banks’ balance sheets. In contrast, following the second of these non-bank characterisations, shadow banking consists in loan lending funded by non-banks, which stems from concerns about the influence of the non-bank sector on credit dynamics. According to Hume and Sentance (2009) and Merrouche and Nier (2010), non-banks do not only increase credit to the real economy by lending directly to non-financial agents but also indirectly by providing wholesale funding to banks. In this sense, shadow banking can be proxied by “non-deposit credit” (Hume & Sentance, 2009, p. 1433).

Meanwhile, following the first of the two remaining backstops-based characterisations, shadow banking consists in non-publicly backstopped financial intermediation (Adrian &

Ashcraft, 2012, 2016). This interpretation of the concept of “shadow banking” expands the scope of the most popular one (non-publicly backstopped *maturity transformation*) following concerns about the stability of any financial activities outside the public safety net. According to Adrian and Ashcraft (2012, pp. 101–102, 2016, pp. 301–306), financial intermediaries are inherently prone to underestimating tail risks, which results in excessive levels of fragile funding, leverage and low-quality assets. Thus, private backstops tend to be underpriced and prove deficient when risks materialise, which often leads authorities to protect the real economy by expanding public backstops temporarily.

In contrast, the other backstops-based characterisation identifies shadow banking with the provision of short-term money-like instruments without public *credit* guarantees, i.e. broadly any short-term liability beyond insured deposits (Hanson et al., 2015; Moreira & Savov, 2017). On the one hand, this characterisation narrows shadow banking down to activities involving short-term funding (but not necessarily long-term assets). On the other hand, by disregarding lender-of-last-resort backstops, it includes some on-balance-sheet bank liabilities such as uninsured deposits and commercial paper. Following this interpretation, shadow and traditional banking are “two intermediation strategies” (Hanson et al., 2015, p. 450). Traditional banking is a “‘stable funding strategy’ that relies on an equity cushion and insured deposits” (ibid), a “safe, always-liquid security” (Moreira & Savov, 2017, p. 2382). This relatively “stable deposit structure” “enables [intermediaries] to hold investments to maturity, riding out transitory valuation shocks until prices revert to fundamental values” (Hanson et al., 2015, p. 450). On the contrary, shadow banking is an “unstable funding strategy” prone to fire sales because it relies on “unstable” “shadow banking deposits” (ibid, pp. 450, 457) or “fragile” “shadow money” (Moreira & Savov, 2017). In this way, shadow banking “boosts asset prices and creates growth in good times at the expense of bad times” (ibid, p. 2415).

7. Conclusions

This article showed that finding a widely accepted definition of shadow banking is not challenging due to the allegedly recent, complex or evolving nature of *the phenomenon* but because the term is used to describe *different phenomena*. The concept “shadow banking” draws a parallel with traditional banking to create a new analytical category of financial services: shadow banking activities are functionally equivalent to traditional banking (hence the name “banking”) but outwardly different because they perform this function through different

channels, be it instruments and/or entities (hence the adjective “shadow”). Originally, Paul McCulley used it to refer to maturity transformation services (“banking”) provided off-balance sheet by banks (“shadow”). However, the ambiguity of both terms of the compound word “shadow banking” led to the immediate emergence of multiple alternative interpretations.

This issue has been masked by further semantic and conceptual ambiguities. First, many publications do not explicitly formulate their definition of shadow banking but take it for granted. Second, many of the terms commonly used to describe shadow banking entities and activities are inadvertently employed with different meanings (e.g. credit intermediation, money, liquid assets and banks). Third, the literature often conflates “shadow banking” (the activity) with “the shadow banking system” (the entities performing it) and, therefore, classifies definitions based on whether they describe activities or entities, rather than on *how* they describe each of them. Fourth, any definition of shadow banking is compatible with quite broad a range of activities and entities because many publications do not apply the shadow banking metaphor at the individual level (every shadow bank is functionally equivalent to a bank) but rather at the aggregate level (the shadow banking system as a network of entities with different, specialized roles).

Within the fifty most cited publications of the literature, the article identified nine interpretations of “shadow” and eight of “banking”, combined in twenty-one different ways. Three characterizations stood out—(i) not publicly backstopped maturity transformation, (ii) non-bank maturity transformation and (iii) non-bank financial intermediation—yet they were altogether represented by less than one-third of the publications adding up to 43% of the total sample citations. Thus, the literature features two main points of contention. On the “banking” side, although the most common function attributed to shadow banking is maturity transformation (sixteen publications accounting for 45% of citations), a larger number of publications (twenty-five, 37% of citations) do not identify shadow banking with any balance-sheet structure but with any or some asset- or liability-side activities. On the “shadow” side, most publications confine shadow banking to the non-bank sector (twenty-seven publications, 64% of citations), but many others associate it with activities carried out by banks off-balance sheet (seven publications, 13% of citations) or even on-balance sheet (eight publications, 11% of citations).

Hence, authors often run into great inconsistencies when they build upon, debate or support other contributions without paying due attention to whether they follow or share the same definition of shadow banking or not. This translates into huge differences in terms of the volume of shadow banking activities or the balance sheet size of the shadow banking system. For example, let us consider the two activities most commonly associated with shadow banking—securitisation and repos—with regard to, respectively, the interpretation of “banking” and “shadow”. At the onset of the GFC, only one-fifth of outstanding securitised loans were funded with short-term liabilities and could, hence, be related to maturity transformation (Gallin, 2013). Meanwhile, in many places such as Europe, repo markets are largely dominated by banks (Gabor & Ban, 2016).

Some interpretations of the concept of “shadow banking” respond to different systemic risk concerns. Among the fifty most cited publications, those associating shadow banking with short-term debt issued without public backstops are typically concerned about contagious runs. Meanwhile, those identifying shadow banking with activities carried out by non-banks are often concerned about excessive leverage and credit risk-taking outside banks’ prudential regulatory framework. Other definitions of shadow banking may be attributed to the fact that, in the immediate aftermath of the GFC, shadow banking was not just an analytical category but a politically contested concept: it defined the perimeter of financial activities and entities deemed to constitute a new source of systemic risk. The scope of this perimeter was a matter of dispute as many sought to avoid either accountability for the GFC or tighter regulation and supervision. For example, according to Fein (2013), some banking supervisors re-characterized shadow banking as non-bank activities in an attempt to drive attention away from the off-balance sheet activities of banks that they had allowed or even encouraged. Meanwhile, the European MMF industry argued against calls for being subject to banking capital requirements adopting a rather narrow definition of banking as maturity transformation of a higher degree - “measured in years” - than that run by MMFs (IMMFA, 2014).

Finally, the article also noted that most publications defined shadow banking quite vaguely or ambiguously and that many were unable to be fully consistent with their interpretation of the concept, revealing some challenges encountered in analysing modern, liberalised financial systems. Two issues are particularly remarkable. First, two crucial categories in shadow banking literature, “maturity transformation activities” and “shadow

banking entities”, remain nebulous as publications avoid discussing the threshold values of maturity mismatch and engagement in shadow banking that separate them from other financial activities and entities. This evidences the fact that the dividing line between safe and risky activities and entities is nowadays quite blurry, while markets are tightly interconnected. As the UK gilt crisis of 2022 showed, risks can emerge from any corner of the financial system, as virtually any entity can pursue greater returns by engaging in riskier activities and adopting increasingly fragile balance sheet structures, threatening even the most liquid markets. Second, many publications characterising shadow banking as a non-bank phenomenon are often ambiguous about banks’ engagement in these activities or experience difficulties to clearly distinguish the shadow from the traditional banking system. Not only do they note that banks often backstop non-bank subsidiaries, but they often end up identifying core shadow banking activities *inside* banks’ balance sheets in addition to their “traditional” banking business. This contradicts the assumption, often accompanying this interpretation of shadow banking, that non-banks will use their regulatory advantages to progressively displace banks, evidencing that, despite extensive liberalisation, a purely functional approach is incomplete to understand modern financial systems.

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Appendix A. Main entities and activities involved in shadow banking across publications

The two tables below show the main entities and activities associated with shadow banking across publications. The tables only contain publications providing a more or less comprehensive list of entities and activities and not just some scattered examples. Publications discussing the Chinese shadow banking system are not considered, as the latter involves its own set of entities and activities.

Table A.4. Main entities involved in shadow banking across publications

	ABS vehicles	Broker- dealers	Finance companie s	GSEs	Hedge funds	Insurance companie s	MMFs	Mortgage brokers	Pension funds	Securities lenders	SIVs and ABCP
Buiter (2008)	x				x		x				x
Pilkington (2008)	x	x	x		x	x	x		x		x
Farhi & Cintra (2009)	x	x		x	x	x			x		x
Gabilondo (2009)		x			x	x			x		
Gowan (2009)					x						x
Acharya et al. (2009)	x	x	x		x		x				x
Hume & Sentance (2009)	x	x			x						x
Acharya & Schnabl (2010)	x						x			x	x
Adrian & Shin (2010a)	x		x								
Gorton & Metrick (2010)		x					x	x			
Merrouche & Nier (2010)	x	x		x							
Pozsar et al. (2010)	x	x	x				x	x			
Ricks (2010)		x			x		x			x	x
Singh & Aitken (2010)		x			x	x	x		x		
Bord & Santos (2012)	x	x	x								
Dallas (2011)		x	x		x				x		

Hanson et al. (2011)		x			x						x
Levitin (2011)				x	x	x	x				
Schwarcz (2011)	x	x	x		x		x				
Adrian & Ashcraft (2012)	x	x		x		x	x			x	x
Bakk-Simon et al. (2012)	x		x		x		x				x
Deloitte (2012)	x						x			x	x
Claessens et al. (2012)	x	x			x		x			x	x
De Bandt et al. (2013)	x	x			x	x					x
Greenwood & Scharfstein (2013)		x		x			x				x
Pozsar (2013)	x	x		x							x
Cummins & Weiss (2014)	x		x	x	x					x	x
Krishnamurty et al. (2014)		x			x						x
Jakab & Kumhof (2015)		x	x								
Hanson et al. (2015)		x			x		x				x
Plantin (2015)	x						x				x
FSB (2015a) ¹	x	x	x			x					
Adrian & Ashcraft (2016)	x						x				x
Hockett & Omarova (2017)	x	x					x				x

Note: ABCP stands for asset-backed commercial paper, ABS for asset-backed securities, GSEs for US government-sponsored enterprises, MMFs for money-market funds and SIVs for structured investment vehicles.

¹ According to the FSB's "narrow" definition of shadow banking. The "broad" definition encompasses all non-bank entities non-prudentially consolidated into banking groups.

Table A.5. Main activities involved in shadow banking across publications

	ABCP issuance	CDS issuance	Issuing saving instruments redeemable at short notice (e.g. MMF shares)	Loan- making	Providing backstops to sponsored entities	Repo borrowing	Securities lending	Securitisatio n (ABS issuance)	Unfunded credit lines	Wholesale funding
Acharya et al. (2009)	x			x		x		x		
Gorton (2009)						x		x		
Gorton & Metrick (2010)						x		x		
Pozsar et al. (2010)	x		x		x	x	x	x		
Hanson et al. (2011)	x					x				
Mishkin (2011)	x					x				
Adrian & Ashcraft (2012)	x				x	x	x	x	x	x
Bakk-Simon et al. (2012)	x					x		x		
Claessens et al. (2012)						x	x	x		
Gorton & Metrick (2012)						x		x		
Greenwood & Scharfstein (2013)	x		x			x		x		
Pozsar (2013)	x	x				x		x		
Borst (2014)				x						
Claessens & Ratnovski (2014)				x	x	x	x	x		x
Levitin (2011)	x	x				x				
Cummins & Weiss (2014)	x					x				
IMF (2014)				x				x		x
Krishnamurthy et al.	x					x		x		

(2014)										
FSB (2015a) ¹			x	x		x	x	x		
Hanson et al. (2015)	x		x			x				
Adrian & Ashcraft (2016)						x	x	x	x	
Adrian & Liang (2016)	x			x		x	x	x		
Hockett & Omarova (2017)		x				x		x		
Thakor (2020)				x				x		

¹ According to the FSB's "narrow" definition of shadow banking. The "broad" definition includes any activity provided by non-banks.

Appendix B. Results detailed by publication

Table B.1 summarises the results of analysing how the fifty most cited publications of the literature characterise shadow banking based on their interpretations of the words “banking” and “shadow” to respectively define the core function of shadow banking and its distinctive way of performing it with regard to traditional banking.

Table B.1. The characterisation of shadow banking in the fifty most cited publications of the literature

Rank	Publication	Number of citations	Shadow	Banking	Characterisation ¹
1	Gorton and Metrick (2012)	2827	non-publicly backstopped	maturity transformation	1
2	Hanson et al. (2011)	1478	non-bank	maturity transformation	2
3	Pozsar et al. (2010)	1399	non-publicly backstopped	maturity transformation	1
4	Acharya et al. (2013)	1303	commercial and investment banks' off-balance sheet	-	-
5	Buchak et al. (2018)	1099	non-bank	financial intermediation	3
6	Stein (2012)	1081	non-bank	maturity transformation	2
7	Adrian and Shin (2010a)	1018	-	maturity transformation	-
8	Shin (2012)	799	-	loan-making	-
9	Gorton and Metrick (2010)	769	non-bank	production of liquid debt	4
10	Gennaioli et al. (2013)	670	non-bank	-	-
11	Mishkin (2011)	629	-	maturity transformation	-
12	Gertler and Kiyotaki (2015)	603	non-bank	maturity transformation	2
13	Thakor (2020)	601	non-bank	-	-
14	Greenwood and Scharfstein (2013)	597	non-publicly backstopped	maturity transformation	1
15	Acharya et al. (2009)	546	non-publicly backstopped	maturity transformation	1
16	Adrian and Shin (2010b)	545	-	-	-
17	Krishnamurthy et al. (2014)	519	without public credit insurance	maturity transformation	8
18	Acharya and Schnabl (2010)	512	commercial and investment banks' off-balance sheet	-	-
19	Blundell-Wignall and Atkinson (2010)	510	loosely regulated non-banks	-	-
20	Arnold (2009)	475	commercial and investment banks' off-balance sheet	-	-
21	Fungáčová and Weill (2015)	471	non-bank	loan-making	9
22	Jakab and Kumhof (2015)	454	non-publicly backstopped	financial intermediation	10
23	Dallas (2011)	453	non-bank	financial intermediation	3
24	Gowan (2009)	433	through non-banks or loosely regulated instruments	financial intermediation	11
25	Gorton (2009)	429	non-publicly backstopped	production of liquid debt	12
26	Mehran et al. (2011)	428	non-bank	maturity transformation	2

27	Adrian and Shin (2009)	426	-	-	-
28	Blackburn (2008)	393	commercial and investment banks' off-balance sheet	loan-making	13
29	Admati et al. (2013)	385	non-bank	financial intermediation	3
30	Gorton et al. (2012)	373	non-bank	production of liquid debt	4
31	DeAngelo and Stulz (2015)	350	non-bank	production of short-term instruments	14
32	Moreira and Savov (2017)	350	without public credit insurance	production of short-term instruments	5
33	Hanson et al. (2015)	348	without public credit insurance	production of short-term instruments	5
34	Adrian and Liang (2016)	337	non-publicly backstopped	maturity transformation	1
35	Adrian and Ashcraft (2016)	334	non-publicly backstopped	financial intermediation	7
36	Pozsar (2013)	328	non-publicly backstopped	maturity transformation	1
37	Z. Chen et al. (2018)	319	banks' off-balance sheet	loan-making and deposit-taking	15
38	Plantin (2015)	316	banks' off-balance sheet	maturity transformation	16
39	K. Chen et al. (2020)	298	run by banks through loosely regulated means	loan-making	17
40	FSB (2015a) ²	295	non-bank	financial intermediation	3
			non-bank	loan-making, deposit-taking and maturity and credit transformation	18
41	Cummins and Weiss (2014)	289	non-publicly backstopped	maturity transformation	1
42	Levitin (2010)	270	-	maturity transformation	-
43	Nier and Merrouche (2010)	268	non-bank funded	loan-making	6
44	Adrian and Ashcraft (2012)	264	non-publicly backstopped	financial intermediation	7
45	Cong et al. (2019)	260	banks' off-balance sheet	loan-making	19
46	Hume and Sentance (2009)	259	non-bank funded	loan-making	6
47	Braun (2020)	259	market-based	financial intermediation	20
48	Claessens et al. (2012)	258	-	risk transformation	-
49	Hockett and Omarova (2017)	255	with indirect or implicit public backstops	financial intermediation	21
50	Dierksmeier and Seele (2018)	251	-	-	-

Note: number of citations according to Google Scholar. The query was run on 11 March 2023.

¹ Numbers correspond to the position of each of the twenty-one characterisations ranked by number of citations.

² FSB (2015a) uses two characterisations of shadow banking: a “broad” and a “narrow” one.



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