

# Wholesale Credit Regulations: An Uneven Playing Field for All

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September 2018

## Executive Summary

The Basel 2017 reforms (“Basel 2017”) have highlighted transatlantic differences in the implementation of wholesale banking regulation. This paper reviews the impact of those differences upon balance sheet management, risk profiles, capital requirements and the allocation of credit. Understanding the impact of these regulations is not only important to understand the response of the banks, but for their ramifications upon their clients, counterparts and the broader economy. The paper uses a number of proprietary sources, including bank sourced credit estimates, as well as public data. Some of the specific findings are as follows:

- US banks currently carry a *heavier (by nearly 50%) RWA load* per \$ of exposure, due to a combination of their current business mix and the current RWA weights applied to that mix.
- Their inability to use NRSRO Credit Agency ratings means that US banks are at a disadvantage when they use the current average RWA weights. US banks face a potential *volume constraint* on US Corporate investment grade lending due to the “outstanding securities” rule. This imposes a tighter and more conservative credit constraint upon the US banks, and requires each US bank to perform their own analysis, which may duplicate expensive analysis performed in other banks.
- There are viable alternatives to credit ratings and models; this paper uses consensus credit risk estimates sourced by Credit Benchmark from 25 major banks across a number of jurisdictions.
- The Basel 2017 reforms remove the current penalty in investment grade assets and could create a relative RWA advantage for US banks across their overall book. Based on the current estimated business mixes of US and non-US banks, this could be close to 13 percentage points. *Depending on exposures and capital calculation assumptions, this could translate to a potential capital redeployment of 1 percentage point.*
- North American (mainly US) banks are currently *more conservative* than European banks by at least one notch in 51% of cases on a like-for-like obligor basis.
- US banks have a number of current and prospective incentives:
  - *Relative disincentive* to lend to higher quality (A and better) investment grade borrowers. This represents 12% of the US obligor universe and 17% of the European obligor universe.
  - *Relative incentive* to lend to lower quality (B and C) non-investment grade borrowers. Under Basel 2017, they will also have a *relative incentive* to lend to BBB.
  - *Relative incentive* to treat all Non-Investment Grade as equivalent to Unrated.
- US banks could face significantly *higher impairment charges* under CECL rules than non-US banks under IFRS9 rules due to the CECL “whole loan life” rule. FDIC data also shows that US banks have lengthened the average term of their loan book over the past decade.

*In summary, existing regulations penalize US banks. Full implementation of Basel 2017 will **partly** redress the RWA penalty; but the inability to use NRSRO Credit Agency ratings, or internal modelling will be an ongoing disadvantage. Current IFRS9 rules place additional charges on non-US banks but the introduction of CECL will place a heavier relative penalty on US banks. As US banks are slightly more conservative in their individual borrower risk assessments; this will only exacerbate the penalty further.*

## 1 Overview

There exists a significant gap between banks in the US and the rest of the world; this gap is due to genuine regional, business mix and obligor differences, as well as different interpretations of the regulations in different jurisdictions as well as differences in calibration.

The stated aim behind current US regulation is to foster broad and deep credit markets. The Financial Choice Act is intended to “create hope and opportunity for investors, consumers, and entrepreneurs by ending bailouts and Too Big to Fail, holding Washington and Wall Street accountable, eliminating red tape to increase access to capital and credit.”

But this gap is already resulting in some unintended outcomes, where the more stringent standardized approach may become unexpectedly relevant. For example, as Risk.net recently reported:

*“Five of the largest US banks are below the so-called Collins floor, meaning their modelled risk-weighted assets (RWAs) are lower in value than those calculated by regulator-set standardized approaches. A Risk Quantum analysis across the eight US global systemically important banks (G-Sibs), shows that Morgan Stanley, JP Morgan, Citigroup, State Street and Wells Fargo had higher standardized RWAs than modelled RWAs as of the first quarter 2018.”*

As the gap widens, the Basel Committee’s “Regulatory Consistency Assessment Programme” looks unlikely to succeed any time soon. Writing for Banking Perspectives\*, Greg Baer, President of the Clearing House Association, points out:

*“In the United States, the use of credit ratings in regulation is forbidden by law...For those of us who were taught that one of the objectives of the Basel process is a global level playing field, this systematic discrimination is difficult to understand. Or another way of viewing the situation is that European and Asian regulators simply negotiated a deal where their banks hold less capital against a given corporate credit than U.S. banks, and U.S. regulators accepted that deal.”*

In the same publication, Carruthers and Faulkner argue that, within a jurisdiction:

*“Bank regulation is intended to prevent moral hazard and avoid undue risk-taking, but it inevitably acts as a standardizing factor. The challenge for regulators is to foster broader and deeper credit markets, while avoiding contagion across the banking system when an economic sector runs into credit problems.”*

This paper uses bank-sourced data and public data sources to estimate the potential financial impacts of the transatlantic regulatory gap.

\* “Basel 2017 reforms Requires Serious U.S. Review”, Greg Baer, Q1 2018, Banking Perspectives, Published by The Clearing House Association.

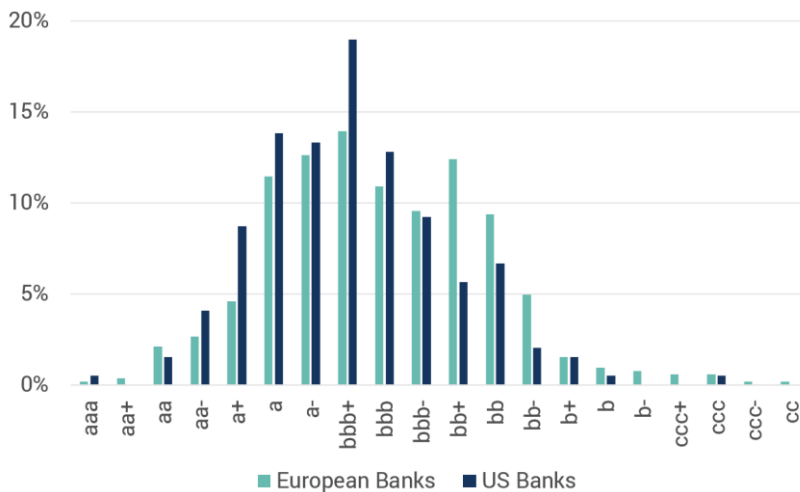
2 Introduction

The latest Basel rules for calculating RWA and bank capital were published in December 2017, and previous versions are still in various stages of actual implementation around the world. The Basel rules were and are intended to ensure the stability and robustness of the global financial system while promoting healthy balance sheet expansion. There is a global consensus on minimum standards, but the detailed implementation varies across jurisdictions and can create significant anomalies.

Regulators recognize that large, global, multi-function banks need *some* leeway to apply specialized risk models as well as being allowed some scope to calculate risk on a net basis in some related lines of business. This divides banks into Standardized vs. internal model-based; but the latest Basel iteration limits the scope for applying internal models, implying increasing standardization even for the largest and most sophisticated banks. This limits diversity within the financial system, so the scope for rare but systemic risks may be increased.

Figure 2.1 compares the US and European distributions of consensus credit ratings for banks; i.e. it shows bank-sourced views of the banking industry.

Figure 2.1 Consensus Credit Distribution of US and European banks



Source: Credit Benchmark

This suggests that European banks are generally of lower credit quality than their US counterparts. This is partly due to differences in size, but it also reflects the widespread challenges faced by some of the European banking systems. Recognition that some regional banking systems are undercapitalized may have been a factor in framing global legislation; whereas US legislation is focused on the maintenance of a generally strong system.

In the US, bank regulation as implemented by the Federal Reserve System, the OCC and the FDIC is aligned with legal statutes, including the Dodd-Frank Act of 2010 and its various amendments. Recent changes have increased the bank asset threshold for the highest level of oversight from \$50bn to \$250bn – thereby simultaneously removing a significant number of banks from the burden of compliance and reducing the level of regulatory oversight.

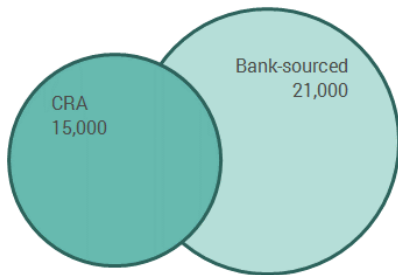
Banks also have to hold a separate, independent reserve against loan impairments; the current “backward-looking” approach will be replaced in the US in 2020 by the Current Expected Credit Loss (“CECL”) rules. International Financial Reporting Standard 9 (“IFRS9”) is now in force outside of the US and has led to an increase in reserving for a number of large, non-US banks<sup>†</sup>. Again, there are significant differences between the two which can have a material impact on impairment projections. There is also scope for anomalies: for many large global banks there is a requirement to report both IFRS9 and CECL, depending on the jurisdiction for each of their subsidiaries.

<sup>†</sup> <https://www.risk.net/risk-quantum/5471061/uk-banks-reveal-ifrs-9-capital-hit>

### 3 Bank-sourced credit data

Credit Benchmark collect and anonymize Probability of Default (“PD”)‡ data from 25 banks§ in jurisdictions that include US, Canada, UK, Continental Europe, South Africa, and Australia. At the issuer / legal entity level, the coverage extends to nearly 21,000 obligors. Most of these entities, especially funds, are otherwise unrated. Figure 3.1 shows the estimated union set of issuers with credit ratings from one of the largest three CRAs or with bank-sourced consensus ratings.

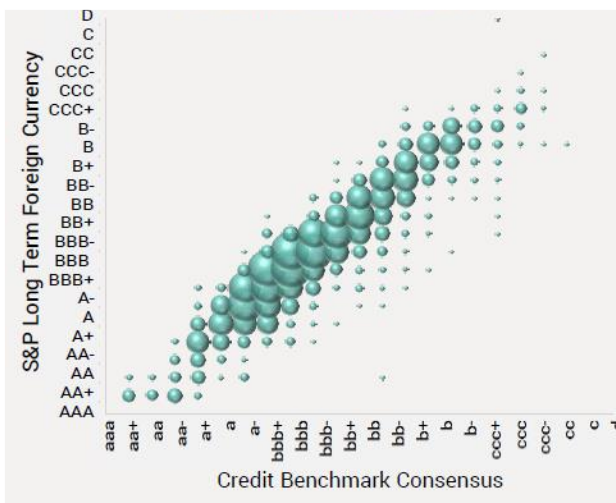
Figure 3.1: Union set of issuers with CRA or bank-sourced consensus ratings.



Source: Credit Benchmark estimates

There is some overlap between the CRA universe and the bank-sourced universe, but bank-sourced data also covers a large number of otherwise unrated issuers / legal entities. The overall union set of conventionally- and consensus- rated is close to 30,000 obligors. This represents a significant increase in credit transparency; widespread use of this expanded union set could foster the development of broader and deeper credit markets. Figure 3.2 compares bank-sourced consensus ratings with S&P long term issuer ratings.

Figure 3.2 Comparison of bank-sourced and S&P ratings



Source: Credit Benchmark, S&P

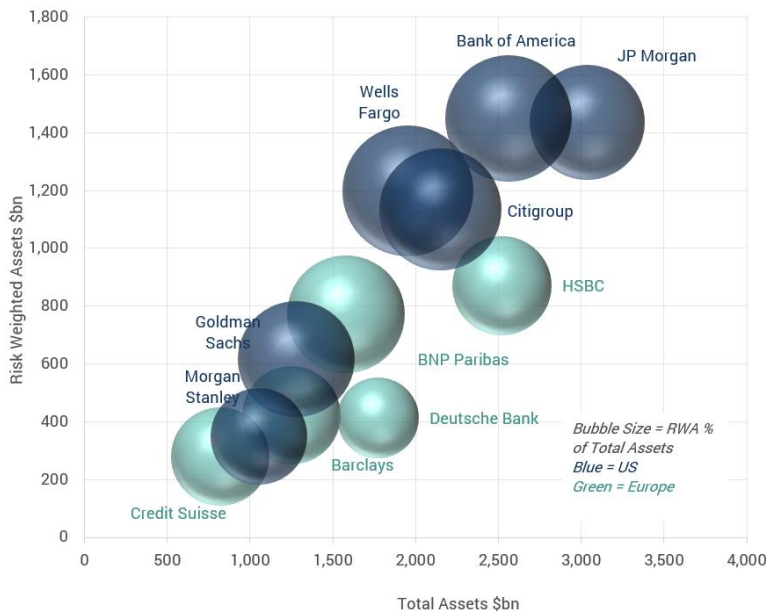
On a like-for-like obligor basis, consensus ratings are aligned with long term S&P ratings. However, banks are slightly more conservative in some marginal issuers, reflecting their material risk exposure, their broader universe of borrowers and the large number of analysts across all contributing banks. This suggests that bank-sourced consensus ratings for otherwise unrated obligors are aligned with the agency rating that would be awarded if the obligor had chosen to apply.

‡ Comparable to Long-term foreign currency ratings; data is Through the Cycle / Hybrid 1-year forward looking estimates of real-world default probability, prior to adjustment for guarantees or regulatory over-rides.  
 § More than 10 additional banks are in the process of on-boarding.

#### 4 Actual Risk-weighted assets: US vs. EU

RWA adjustments have very different impacts on individual banks as well as across jurisdictions. Figure 4.1 shows summary capital and assets for some of the largest US and European banks.

Figure 4.1 Capital and Assets for 11 US and EU banks



Average RWA / TA: US = 50% Europe = 35%

Source: Risky Finance

The bubble sizes show that the “shrinkage” from Total Assets to Risk-weighted assets is significantly less (by a ratio of nearly 50%) for the US banks in this sample.

**While this will be partly driven by transatlantic differences in business mix, it clearly shows that US banks are currently carrying a heavier (50% vs 35%, nearly 50% higher) RWA load per \$ of exposure.**

### 5 Basel and US rules for Standardized RWA Calculations

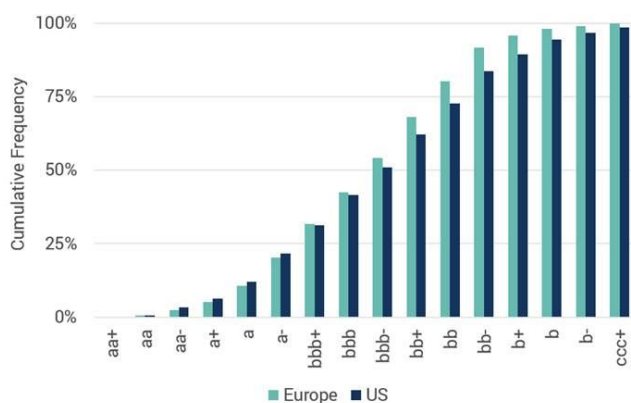
Basel 2017 will continue to provide some scope for banks to use Internal Ratings Based (IRB) models for the Probability of Default (“PD”) element of RWA and Regulatory Capital calculations, provided those models can be shown to provide a robust assessment of the credit risk across the bank loan book. In particular, models need to be calibrated to the relevant set of default rates. Since IRB modelling is expensive, some banks have chosen to implement the standardized approach (at least for regulatory capital, although not usually for economic capital) for some or all of their loan portfolio; especially in the less commercially sensitive areas. So Standardized Weightings are becoming more important. Basel 2017 includes modifications for jurisdictions that do not allow the use of external ratings - this group currently includes the US, although it is possible that this will change. The specific rule is as follows:

*42. Banks in jurisdictions that do not allow the use of external ratings for regulatory purposes may assign a 65% risk weight to exposures to “investment grade” corporates. An “investment grade” corporate is a corporate entity that has adequate capacity to meet its financial commitments in a timely manner and its ability to do so is assessed to be robust against adverse changes in the economic cycle and business conditions. When making this determination, the bank should assess the corporate entity against the investment grade definition taking into account the complexity of its business model, performance against industry and peers, and risks posed by the entity’s operating environment. Moreover, the corporate entity (or its parent company) **must have securities outstanding on a recognised securities exchange.**\*\* ††*

Rule 42 implies that banks need to become their own ratings agencies if they want to achieve RWA efficiency. This is because the default RWA weight of 100% can only be reduced to 65% by an individual bank if it can prove that the borrower would be treated as investment grade according to criteria similar to those used by NRSROs and – in addition – it has satisfied the criteria for listing its equities and / or bonds on a recognized exchange. The analysis in arriving at this conclusion will be replicated across multiple banks for the same obligor.

Figure 5.1 shows the cumulative credit distributions of US and European Corporates, based on bank-sourced consensus credit ratings.

Figure 5.1 Cumulative Credit Distribution of US and European Corporate obligors



This shows that the distributions are very similar in most of the investment grade categories, but they diverge in the bb+/bb/bb- and b categories. Within the non-investment grade category, European banks focus their exposures on higher quality borrowers. Note that the pre-December 2017 Basel RWA weightings treat NRSRO BBB and BB as equivalent, but the reforms will incentivize European banks to favour BBB over BB.

These distributions will be influenced by the current RWA weights applicable in each jurisdiction. If the Basel 2017 reforms are fully implemented (in the US as well as elsewhere), then these distributions are likely to change. In other words, banks will probably make adjustments to their books of business to reflect RWA weights and capital efficiency.

Monitoring these distributions over time (and adjusting for regular credit migrations) will give some indication of the impact of regulation on bank books.

Source: Credit Benchmark Consensus Ratings

\*\* <https://www.bis.org/bcbs/publ/d424.pdf>, p.17

†† The US regulatory framework in 2013 agreed that all corporate exposures were to be 100% risk weighted for the standardised approach.

<https://www.gpo.gov/fdsys/pkg/FR-2013-10-11/pdf/2013-21653.pdf>. See also FDIC on RWA

<https://www.fdic.gov/news/news/financial/2012/fil12027.html> from 2012 where all corporate exposures are 100%. Proposed changes to 2015 Basel Rules: <https://www.bis.org/bcbs/publ/d347.pdf>. The finalised Basel III reforms from December 2017

<https://www.bis.org/bcbs/publ/d424.pdf> are expected to be implemented by 1<sup>st</sup> Jan 2022

Figure 5.2 summarizes the current and proposed (Basel 2017) jurisdictional differences in standardized RWA parameters for Corporate exposures

Figure 5.2: Comparison of Current and Basel 2017 reforms Standardized Corporate RWA weights (All %)<sup>##</sup>

Investment Grade	RWA Weightings %					Differences (EU - US)		
	Credit Category(1)	EU (Current)	EU (Basel 2017)	US (Current)	US (Basel 2017)	US (Interim Consultation)	Current	Basel 2017
Investment Grade	AAA	20	20	100	65	75	-80	-45
	AA	20	20	100	65	75	-80	-45
	A	50	50	100	65	75	-50	-15
	BBB	100	75	100	65	75	0	10
Non-Investment Grade	BB	100	100	100	100	100	0	0
	B	150	150	100	100	100	50	50
	C	150	150	100	100	100	50	50
	NR	100	100	100	100	100	0	0
Averages	Average	86.3	83.1	100	82.5	87.5	-13.8	0.6
	IG Average	47.5	41.3	100	65	75.0	-52.5	-23.8
	IG WAV (2)	80.2	64.5	100	65	89.1	-19.8	-0.5
	All WAV (2)	102.9	96.6	100	83.9	87.5	2.9	12.7

Source: BCBS, Federal Reserve, Clearing House

- The weighted average (“WAV”) calculation is based on *estimated* credit exposures (using obligor numbers as a proxy). This shows that the current Investment Grade US RWA penalty is still significant but reduces to 19.8%; Basel 2017 reforms would remove this difference (65 vs. 64.46). Across all *estimated* exposures, the difference favors the US by 12.7. (See red-boxed section in Figure 5.2). *Depending on exposures and capital calculation assumptions, this could translate to a potential capital redeployment of 1 percentage point.*
- As a hypothetical benchmark, the current equally weighted average RWA weight penalizes US banks (100 vs. 86.25), but this will be removed under Basel 2017 reforms (82.5 vs. 83.13). For Investment Grade borrowers, a simple average of the current weights penalizes the US (100 vs. 47.5) and this will only be partially remedied by the Basel 2017 reforms (65 vs. 41.25). *The major difference between weighted and unweighted RWA weights shows that the final US implementation for BBB definitions and RWA weights will be critical.*
- Across all credit categories, using the obligor count proxy, the US has a current (2.9) and prospective (12.7) advantage, mainly due to the 150% RWA weights for B and C lending in Europe, and partly because of the lower RWA weight of 65% for US banks for BBB exposures. *Non-US banks have an incentive to view Non-Investment Grade and Non-Rated borrowers as equivalent.*
- Under Basel 2017 reforms, US banks will have a *relative incentive* (10) to lend to lower quality investment grade (BBB) borrowers and a continued incentive (50) to lend to very low quality (B and C) non-investment grade borrowers. US Banks also have a general incentive to accurately identify Investment Grade borrowers. This implies that US bank loan pricing needs to err on the side of caution in order to reflect credit risk, at the risk of being uncompetitive.

<sup>##</sup> (1) Under Basel 2017 rules, and depending on the US response, US banks may reclassify some exposures as Investment Grade (“IG”). Section 7 of this report suggests that US banks are relatively conservative on a like-for-like obligor basis, giving scope for some reclassification. (2) These use the credit distribution of obligor names in the EU and US respectively; i.e. they are not explicitly exposure weighted at the obligor level. See Figure 5.1 for cumulative distributions. (3) The RWA weight for SMEs will be 85% under Basel 2017 for the US and similar jurisdictions; this may create some additional distortions vs. European banks. See Figure 5.5 below for the credit distribution of SMEs.



Figure 5.3 shows the **estimated** composition of nearly 2,500 US Corporates (Overall and Investment Grade) in the bank-sourced universe, in terms of whether they are rated by one of the major CRAs as well as by securities outstanding (equities, bonds, and/or both, including inherited parent ratings).

Figure 5.3 **Estimated** NRSRO rating and securities outstanding status of US Corporates (bank-sourced universe)

Figure 5.3.1 All Credit Categories

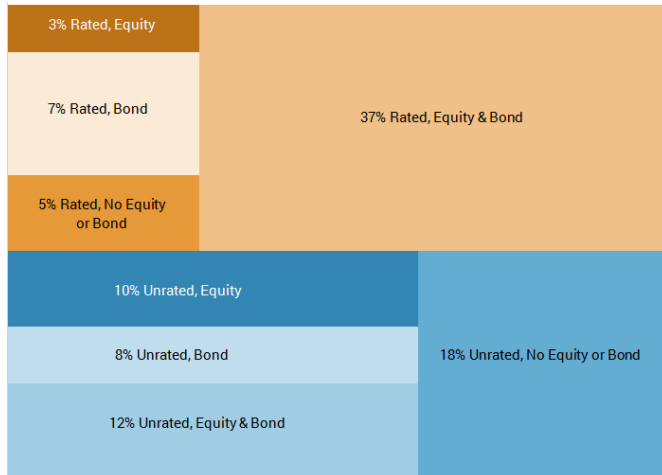
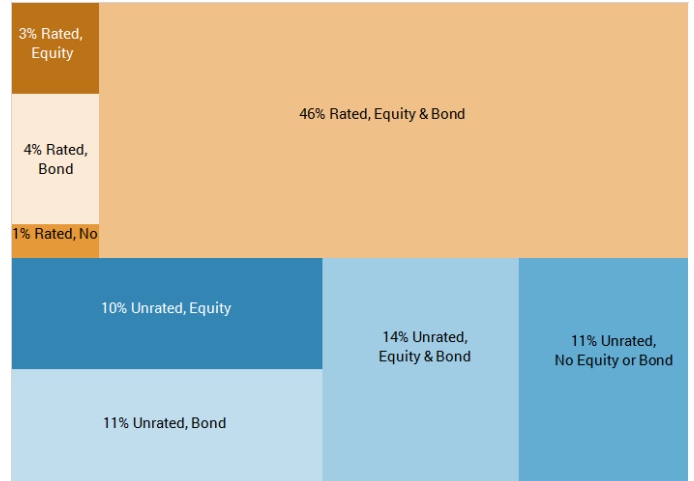


Figure 5.3.2 Investment Grade



Source: Credit Benchmark; Approximation only. In a number of cases, banks will inherit the “securities outstanding” status of the parent entity; there will be some subjectivity in this if the parent and subsidiary are classed as separate legal entities.

Figure 5.3.1 shows that an estimated 18% of the bank-sourced sample are unrated at the legal entity level by the major agencies and have no securities outstanding. A further 5% are rated, but have no securities outstanding. Many of these are subsidiaries but some of them are private companies, all of which have bank-sourced consensus ratings.

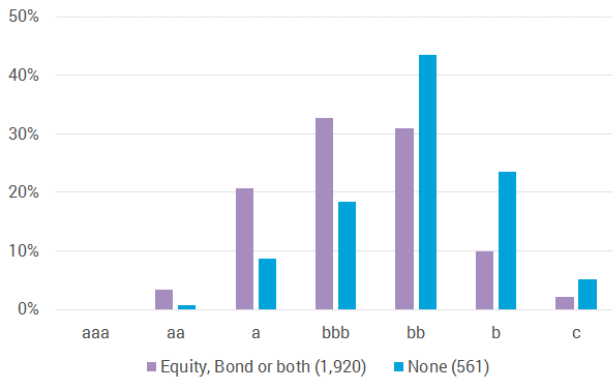
Figure 5.3.2 shows that an estimated 11% of the bank-sourced sample that are viewed as Investment Grade are unrated at the legal entity level by the major agencies and have no securities outstanding. A further 1% are rated, but have no securities outstanding, so a total of 12% of the Investment Grade obligors in this sample could be treated as unrated by Basel 2017. For this reason, US banks may face a **volume constraint** on investment grade lending. Large private companies that don't have bonds listed on an exchange - such as Bechtel - and who are classified as investment grade, potentially need to be treated as non-investment grade.

Since companies without securities outstanding are treated as Non-Investment Grade or as Non-Rated, they have a minimum RWA weight of 100%. However, this can work both ways: if a company has outstanding securities but happens to be unrated by NRSROs, then it is possible that a US bank can classify it as Investment Grade based on NRSRO-equivalent analysis of its balance sheet strength and overall creditworthiness.



Subject to the parent/ subsidiary caveats discussed previously, Figure 5.4 compares the bank-sourced credit distribution of this set of US corporates, comparing fully private US companies with the number of companies that have securities outstanding. All of these companies have a bank-sourced consensus rating.

Figure 5.4 Credit Distribution (Bank-sourced categories) Private US Companies vs. Companies with securities outstanding



Source: Credit Benchmark

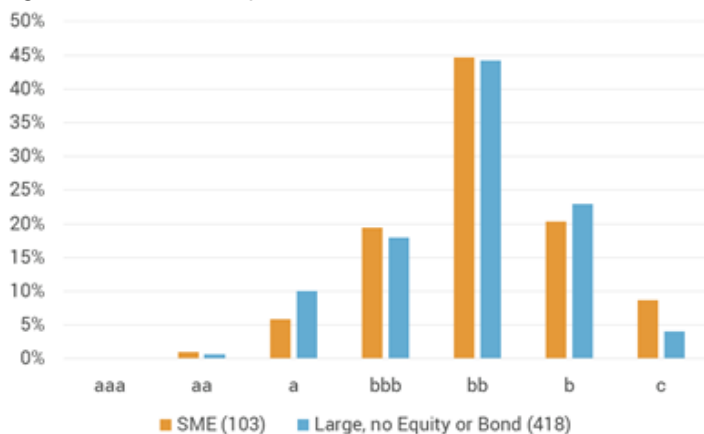
This shows that across all categories (Investment Grade and Non-Investment Grade), US Corporates with securities outstanding typically have lower credit risk than Private US Corporates. Of the 2,481 Corporates in the sample, 155 (6%) are private, but could qualify as investment grade according to the bank consensus.

**Using bank-sourced data to proxy the Investment Grade threshold, an estimated 6% US Corporates are viewed as investment grade by banks but may not qualify as such according to the Basel 2017 rules for jurisdictions which do not allow the use of external rating agencies.**

Overall, if the Basel 2017 reforms are adopted in both jurisdictions, these differences will create a fresh set of distortions – a borrower that is rated AA by NRSROs that is also rated as Investment Grade by US banks could be offered more favorable terms by a non-US bank. BBB borrowers could find better terms at a US bank, if they meet US bank criteria for Investment Grade status.

Wholesale SMEs have an RWA weight of 85%, compared with 65% (investment grade) and 100% (non-investment grade). Retail SMEs have a weight of 75%. Figure 5.5 plots the distribution of SMEs across the full range of credit categories.

Figure 5.5 Relationship between Size and Credit



Source: Credit Benchmark

This shows that, within the “unlisted” universe, SMEs have higher credit risk across the credit distribution. Given the RWA weight differences for different SME categories, this highlights the importance of accurate SME mapping.

6 CECL and IFRS9

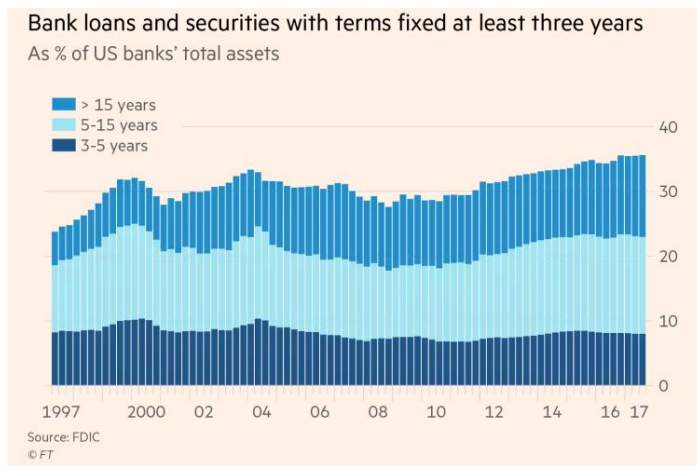
CECL requires impairment estimates for the whole life of a loan; IFRS9 currently only applies to the first year of the loan life, and only extends to the whole loan life in the event that the borrower has suffered “significant” deterioration<sup>§§</sup> in creditworthiness.

Everything else being equal, the impairment charge for comparable loans will be higher for US banks and will be approximately proportional to the weighted average duration of the typical US bank portfolio. Detailed transition matrices (which can be constructed from bank-sourced data) can provide curves which reduce this factor, especially for low quality loans<sup>\*\*\*</sup>. Overall, the US disadvantage may be somewhat offset if they have a lower proportion of impaired loans compared with an IFRS9 jurisdiction. A recent paper by Accenture<sup>†††</sup> demonstrated that CECL accounting has a similar impact to current backward-looking provisioning but brings that impact forward in time.

**CECL creates a disincentive for US banks to provide loans to low quality borrowers. Where US banks do provide loans to low-quality borrowers, there is a case for using detailed transition matrices to ensure accurate impairment charges.**

Figure 6.1 shows the evolution of US term loan exposures over the past 20 years.

Figure 6.1 US term loan exposures 1997-2017



Source: Financial Times, FDIC.

This shows that US bank loans with a term of more than 3 years are at a 20-year high, especially driven by loans with terms of greater than 15 years. Loans with a term of three years or more represent more than 35% of US bank assets; everything else being equal, this suggests that US banks will have significantly increased impairment charges compared with European banks.

**If these trends continue, the introduction of CECL accounting will result in increased US bank impairment estimates over time, when compared against European banks. This could create an incentive for US banks to shorten loan terms.**

This penalty creates a relative incentive for US banks to make short term loans and focus those on borrowers with low PDs and/or high LGDs. This will handicap some businesses who need the stability of longer term loans and it will reduce the volume of loans available to more credit risky (i.e. usually younger and smaller – see Figure 5.5) companies, especially those that cannot provide security for the loan.

<sup>§§</sup> The definition of “significant” is inexact, but a possible objective measure is the extent to which an index of borrower PDs has moved relative to the historic volatility of that index. This is a proxy for, and may be a leading indicator of, an increase in credit spreads.

<sup>\*\*\*</sup> See Appendix.

<sup>†††</sup> “Impacts of CECL: Empirical Assessments and Implications” by Soner Tunay, May 2018

## 7 The Value of Local Knowledge: Information Asymmetries

Bank-sourced data provides some insight into the value of local knowledge in credit decision making. Intuitively, it seems likely that most banks will have more accurate credit assessments for companies in their country of domicile; but the accuracy of assessments by global banks may match or exceed those of local-domiciled banks.

Figure 7.1 and 7.2 use bank sourced data to compare North American European bank views of the same obligors.

Figure 7.1: Differences between North American and European Corporate CBCs

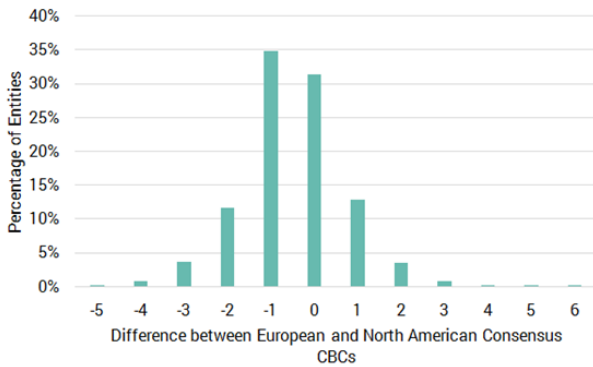
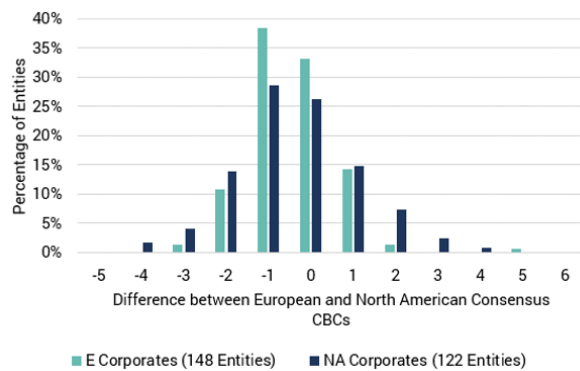


Figure 7.2 Differences by Obligor Region



Source: Credit Benchmark (Based on 1063 North American and European obligors provided by 18 banks.)

NB negative differences on the x-axis mean that the North American banks are more conservative.

The left-hand chart shows that North American banks tend to assign lower credit ratings to the same obligors (negative differences on the x-axis mean that the North American banks are more conservative). In total, North American banks are conservative by at least one notch in 51% of cases.

The right-hand chart shows that North American and European banks are more closely aligned on European Corporate obligors; they show more divergence for North American obligors. This suggests that North American banks do not face a significant information asymmetry and so have an incentive to compete directly with European banks; but some of the transatlantic RWA differences could penalize North American banks on an otherwise level playing field.

**The relatively conservative approach of North American banks to the same obligor in around 50% of cases is likely to result in higher North American RWAs. In addition, regional differences in RWA weightings penalize North American banks who could otherwise compete in Europe.**

### Information Asymmetry Example: Steinhoff

Steinhoff was founded in West Germany in the 1960's. The business model was to buy cheap furniture in Communist Eastern Europe and sell it to Capitalist Western Europe. Through a series of mergers and acquisitions, it acquired a South African listing in 1998 and a Frankfurt listing in 2015. Management remained in South Africa, but the listed vehicle was owned by a Dutch holding company. Allegations of accounting irregularities led to the resignation of the CEO in December 2017. Around this time, the company Chairman arranged stop-gap financing of about \$2bn, provided by a consortium of US and Japanese banks. The share price has fallen by more than 95% over the past year; a PwC investigation is ongoing, and various banks have announced charge offs or unrealized losses. There was initially a serious concern about Investec's exposure, but that bank recently reported a loss of just \$17m, saying "We managed to trade out better than the extreme." Nomura, on the other hand, reported a loss of \$128m. Anecdotally, the South African banks typically secured their Steinhoff loans on physical assets; other banks either made unsecured loans or took equities or bonds as security. In this case, the local knowledge may have made a significant difference to the loss experience.

## Conclusion

The analysis and data presented in this paper, suggests a number of conclusions:

- Although there is a global consensus on minimum wholesale banking regulations, there is a transatlantic gap in the interpretation and calibration of the detailed implementation in each jurisdiction. The US-EU playing field is lumpy, rather than biased.
- US banks currently carry a heavier (close to 50% higher) RWA load per \$ of exposure, due to a combination of their current business mix and the current RWA weights applied to that mix.
- Prior to the December 2017 reforms, if US banks had held equal exposures to each credit category, then they would face an RWA penalty across all credit categories of 13.75%, and in the investment grade category the penalty would be 52.5%. If the Federal Reserve System implements the full Basel 2017 rules then the penalty is removed and becomes a relative advantage across all categories of 0.6%. Investment Grade will continue to be penalized (albeit at a lower level) by 23.75%. However, the RWA weights make some allowances for the uneven distribution of credit exposures across the credit categories; but in doing so they inevitably create additional incentives to adapt the credit mix in order to avoid regulatory constraints on risk-adjusted profitability.
- Weighted by estimated credit exposures (using obligor numbers as a proxy), the current Investment Grade US penalty is still significant but reduces to 19.8; Basel 2017 reforms would remove this difference (65 vs. 64.46). Across ALL credit categories, the weighted difference currently *favours* the US by 2.9% and this would increase under Basel 2017 to 12.7%. The major difference between weighted and unweighted RWA weights shows that the final US rules for BBB RWA weights may be critical.
- US banks will have a *relative disincentive* (15% to 45% of RWA) to lend to higher quality (A and above) investment grade borrowers, but they will have a *relative incentive* (10%) to lend to lower quality investment grade (BBB) borrowers and a significant incentive (50%) to lend to very low quality (B and C) non-investment grade borrowers. US banks have a current and prospective incentive to view Non-Investment and Non-Rated borrowers as equivalent.
- US banks have an incentive to accurately and credibly identify Investment Grade borrowers, but each bank has to identify these borrowers based on their own analysis.
- US banks face a possible *volume constraint* on investment grade lending due to the “securities outstanding” rule. The scale of this will partly depend on some subjective assessments of the legal strength of the parent-subsidiary linkage in each case. Non-US banks face an effective *volume constraint* in the A, AA and AAA categories, which attract the lowest RWA weight but only represents a very small number of obligors.
- US banks will probably face significantly *higher impairment charges* under CECL rules than non-US banks do under IFRS9 rules. This is because CECL applies to the whole life of the loan, whether credit is impaired or not. FDIC data also shows that US banks have lengthened the average term of their loan book over the past decade, but CECL may incentivize US banks to shorten the typical loan life in some areas of loan competition. Bank-sourced credit transition matrices could provide some amelioration, especially for lower quality obligors.
- North American (mainly US) banks are more conservative than European banks on a like-for-like obligor basis, by up to one notch in 51% of cases. This may in part be a response to the different RWA weights and definitions applying in each jurisdiction.

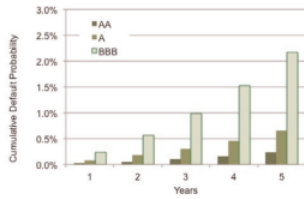
Bank-sourced data illustrates potential anomalies in credit provision allocation and scope for expansion of global lending books if banks generally used bank-sourced credit data to inform and calibrate their credit assessments on otherwise unrated assets.

Appendix: IFRS9 and CECL – alternative approaches to curve estimation

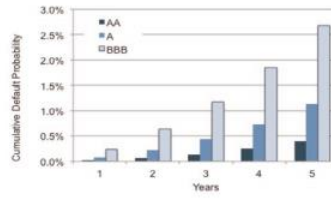
The main driver of impairment calculations is the PD term structure. This can be estimated using the direct “Survival Rate” approach, or by using Credit Transition Matrices; risk premiums need to be added to convert these Through-the-Cycle estimates to Point-in-Time. Exhibit A.1 shows a comparison of 1-year and 5-year Expected Losses using (1) S&P and (2) bank-sourced data, based on the Survival Rate approach, for AA, A and BBB obligors.

Exhibit A.1 PD Term Structures based on Survival Rate approach

Term structure based on S&P transition matrix



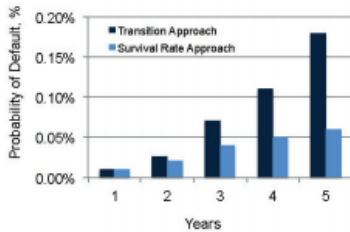
Term structure based on CB transition matrix



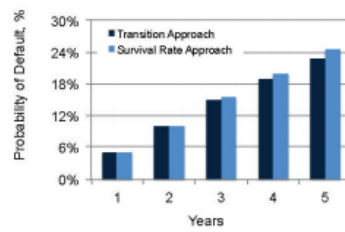
This shows a very similar set of probabilities for both data providers. However, Exhibit A.2 uses bank sourced data to compare **aaa**, **bb** and **ccc-c** term structures using bank-sourced Credit Transition Matrices.

Exhibit A.2 PD Term Structures based on Transition Matrix approach

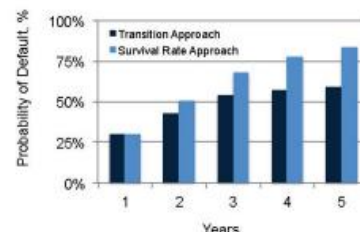
Category **aaa**



Category **bb**



Category **ccc-c**



This shows that the two approaches give very different estimates of default probabilities at different time horizons. It also shows that there is a crossover point somewhere between **bbb** and **bb**. For credits of **bbb** and better, the survival approach understates the cumulative probability of default; for credits of **bb** or worse, the survival approach overstates the cumulative probability of default. This is because the cumulative PD for the **aaa** credit class curves up; the **c** class curves down.

The implication is that, under the more realistic transition matrix approach, the impairment charge for the speculative categories will be significantly lower; for the highest quality categories it will be significantly higher as a % of the Survival rate PD but not in absolute \$ terms. Banks with lower quality loan exposures should consider using the Transition Matrix approach to ensure more accurate impairment charges. Bank-sourced data can support a rich set of credit transition matrices.

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