Implications of Siloed and Segmented Data in Credit Markets

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Introduction

There is a broad and deep consensus that comprehensive, full-file reporting of credit information and non-financial payment data is crucial for a financial infrastructure that enables inclusive lending that is at the same time safe and responsible.[1] Comprehensive, full-file reporting is associated with significant increases in lending to the private sector (estimated at the equivalent of 40% of GDP) and lower default rates: larger markets with better performing portfolios.[2]

These impacts contrast strongly to negative-only reporting and pertinently to segmented reporting, in which data is siloed by sector across different databases. This is not surprising given the degree to which lending and lending decisions are driven by information on applicants. When the data available to lenders is negative-only or fragmented, the data by definition is 'thinner', making risk assessment harder.

Commercial credit data is very thin in the United States, especially when compared to data available on consumer borrowers. As with consumer credit data, but even more so, fragmenting this data across different commercial credit databases risks increasing the incidence of thin files in *both* the commercial credit bureau and any cooperative exchange (a database only accessible by members on a give-to-get basis). That is, when a database of commercial credit reports is fragmented such that different data furnishers report to different databases, each report is much more likely to have fewer tradelines. Consequently, commercial credit reports will be "thinned", and thinner files are associated with reduced credit access and worsened loan portfolio performance.

The evidence-based consensus on the value of comprehensive, full-file data—that it best expands credit access and improves portfolio performance—has held to the point of being codified in international guidelines, regional standards, and in national policy initiatives in the past decade.[3]

However, there is growing concern that the new data revolution, so-called Big Data, threatens to reverse the trend of establishing and growing independent comprehensive credit databases that foster CRA competition, lending competition, financial market efficiency, and transparency. Riding the Big Data wave, several prominent international consulting firms have been preaching to different data furnishers that the part is as great as the whole—that each firm is sitting on a steeply undervalued treasure trove of customer payment data—with negative effects. For instance, in developing markets, mobile network operators (MNOs) are hoarding data for use in lending, but are finding that the predictive power and usefulness of the mobile data alone is limited.[4]

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[1] Turner, Michael A., Robin Varghese and Patrick Walker. *Research Consensus Confirms Benefits of Alternative Data.* Durham, NC. PERC Press. March, 2015. See also: Miller, Margaret J. *Credit Reporting Systems and the International Economy*. Cambridge, MA. MIT Press. 2003.

[2] For a fuller discussion, see Turner, et al. The Economic Consequences of Credit Information Sharing. 2010.

[3] *General Principles for Credit Reporting.* World Bank Group Consultative Report. World Bank. Washington, DC. March, 2011. Similar principles were adopted by APEC in 2010, and have been reflected in national credit reporting reforms in Australia and New Zealand in 2012.

[4] PERC interviews with MNOs in East Africa and Southeast Asia on experiments with credit extensions based largely on MNO data. 2012-2015.

Even in the US consumer credit data market, which is characterized by three large nationwide CRAs, maintaining independent, comprehensive consumer databases, there is always the concern that a particular CRA—having exclusive or preferential access to a major category of data—will monopolize control over some meaningful fragment of consumer data effectively leading to a fragmented system.

Within the context of commercial credit reporting in the US, the small business credit data market is relatively underdeveloped, less comprehensive, and less competitive compared to the consumer credit data market in the US. The Small Business Financial Exchange (SBFE), in its drive to increase the availability of small business credit data, is performing a crucial role in improving this market. However, its dominant role, the fact that it is industry owned and controlled, that it restricts data access, does raise valid concerns about the future evolution of the commercial credit data market. For instance, will undue restrictions on data access reduce CRA competition and the development of value added services? Will excluded CRAs move to specialize in other data assets (creating a fragmented system)? And will large lenders use the SBFE and its policies to solidify dominance and restrict competition?

These questions, particularly the last one, will increasingly be on the minds of policymakers, regulators, and small business and fair lending advocates—especially during dips in the business cycle when credit markets are traditionally tight. That access to crucial inputs in lending decisions are controlled by lenders, and the fact that key lending data is not collected independent of industry but by an organization controlled by lenders, means that the motives of the SBFE and the integrity of its data and polices will likely be under higher scrutiny than if the SBFE were completely independent of industry. Whether or not this leads to anti-competitive outcomes is not known. But it is likely that the perceived conflict of interest will attract regulator attention and steps will likely be taken to rectify potential conflicts.

Outcomes in lending markets with fragmented or bank-owned credit reporting systems suggest concerns surrounding the ownership of CRAs and data exchanges, and the fragmentation of data are very much legitimate. Specifically, majority ownership by banks reduces competition and the provision of value added services upstream, leading to less competition downstream. This results in reductions in credit access and higher priced credit that is profitable for lenders, but bad for borrowers and the economy as a whole. Bank owned bureaus, such as Buro de Credito (Mexico), JIC and CIC (Japan), even Schufa (Germany, though it performs better than other bank owned systems), offer fewer value-added services, especially when compared in recent years to the use of credit report data for innovative financing as found in North America, the UK, and South Africa. Similarly, the fragmentation of databases by sector reduces acceptance rates and/or increases default rates, as underwriting worsens.

One major issue with the SBFE is that a key source of small business credit, particularly for very small businesses, is trade credit. Trade credit is typically offered by entities that are not financial institutions that would not have access to SBFE data. Trade credit and financial credit work in tandem with financial credit histories offering trade credit providers a means of risk assessment and vice versa. *The withdrawal of this information risks weakening both means of financing ultimately and thereby the small business sector as a whole*.

The SBFE could be seen as a way to advantage financial institution creditors over trade credit creditors, since without access to financial credit histories, trade credit may retract and small businesses would turn to financial credit to serve as working capital. But fragmenting data between a trade credit silo and a financial credit silo runs the risk of introducing hurdles into underwriting.

As seen in other markets (such as Japan) this could result in the development of some CRAs specializing in financial institution credit and some in trade credit. The effect for lending under such conditions has been a decline in both types of credit. In Japan, with the lending attitude of financial institutions worsening, firms significantly decreased their use of trade credit. Furthermore, a reduction in trade credit, due to a decline in sales, leads to a reduction in the amount of loans extended. One implication is that trade credit and financial loans are complementary debt instruments, not substitutes. One analysis found a statistically significant correlation of 0.29 between the two.[5] Moreover, the weakening of one can lead to disruptions in the other creating a 'positive feedback', wherein each is weakened further.

Ultimately, this fragmented approach would harm small business borrowers, potentially the smallest small business owners. Fragmented systems that silo data by sector in the hands of data furnishers (often lenders or groups of lenders) are consistently associated with underperforming lending markets.

- Lower levels of lending, with estimates indicating approximately 10%-12% lower for usual default targets
- Higher rates of default, with increases of 10% to 30% in the default rate, depending on the economy. (See table below)

Tables 1a and 1b show how the trade off between access to capital measured by acceptance rates for potential borrowers and default rates worsens as databases become more fragmented. PERC simulations based on actual US credit files find that fragmenting the database reduces the acceptance rate from 83.4% to 75.4% for a default target of 3%. PERC found a similar decrease in simulations using Canadian credit files.

Furnisher ownership almost everywhere is associated with underdeveloped markets and more pertinently with lower levels of innovation.

- Markets with extensive data reporting and 3rd party ownership are more likely to be associated with innovative products such as big data analytics, uses of bureau data for equity markets, and new analytic techniques.
- 3rd party owners regularly push to see what new products and markets can be serviced with the data in ways that furnisher owners do not.

[5] See Iichiro Uesugia and Guy M. Yamashirob, "The Relationship between Trade Credit and Loans: Evidence from Small Businesses in Japan." *International Journal Of Business*, 13(2), 2008 ISSN: 1083−4346. p. 154.

Just as central bankers and Caesar's wife must be above suspicion, so too should the SBFE be. As much as is possible, the SBFE should move promote the widest use of its data, and the broadest competitive development of value added services based on its data just as if the SBFE were operated by an entity completely independent of industry looking to maximally benefit small business borrowers. This includes making SBFE data available to non-members, non-financial institution creditors, and others such as entities offering trade credit.

The remainder of this white paper further discusses the limitations of fragmented databases and furnisher ownership of credit databases.

The Experience of Markets with Fragmented Reporting

As was detailed above, the fragmentation of credit information into separate databases segmented by sector, whether it be lending or non-lending, e.g., banks, retail credit providers, utility and telecom databases, has long been understood to reduce lending and worsen the ability to assess risk.

Empirical assessments of credit reporting conducted via simulations on actual files have examined a few scenarios. Michael Staten and John Barron compare a full-file model to a retail only model using US credit files and find that defaults increase significantly, by 40% even for an acceptance rate of 75%. Symmetrically, the size of the market that can be served declines by 10% for reasonable default targets.

PERC found similar consequences when they used Canadian files to simulate the Japanese lending environment, with loss of market size of 10% or more for reasonable default targets.

Table 1a: Simulations Based on US Files—Effect on Acceptance Rates[6]

Target Default Rate	Full-file, Comprehensive Model	Retail-Only	Percentage change in the switch to full-file, comprehensive
3%	*83.4%*	*75.4%*	*+10.61%*
4%	90.6%	80.6%	+12.41%
5%	96.3%	94.1%	+2.34%

Table 1b: Simulations Based on Canadian Files

Target Default Rate	Full-file, Comprehensive Model	Non-bank Financial Institutions Only	Percentage change in the switch to full-file, comprehensive
0.5%	47.81%	31.32%	+52.65%
1%	70.90%	62.70%	+13.08%
2%	86.34%	79.34%	+8.82%
3%	*92.38%*	*83.29%*	*+10.91%*

[6] Source: John M. Barron and Michael Staten, "The Value of Comprehensive Credit Reports: Lessons from the U.S. Experience," in Margaret M. Miller ed., Credit Reporting Systems and the International Economy pp. 273-310 (Cambridge, MA: MIT Press. 2003); Michael Turner, Robin Varghese, and Patrick Walker, On The Impact of Credit Payment Reporting on the Finance Sector and Overall Economic Performance in Japan (Chapel Hill, NC: Information Policy Institute at PERC, March 2007), Table 5.

As seen from such analysis, the inclusion of more information from different sectors comprising different loan products increases access to credit. Increases by more than 10 percentage points of the borrower pool mark some of the lower bound for healthy target loan performance rates, i.e., default rates at or below 4%.

The actual experience of Japan is perhaps the best cautionary tale for the dangers of a system in which databases are fragmented. Japan has notoriously underdeveloped markets in consumer and SME lending for an advanced market economy. While there are undoubtedly many reasons for the long-standing underdevelopment of retail and commercial credit markets in Japan, ranked at the top are poorly developed consumer and commercial credit information sharing systems.

The extant credit information sharing system in Japan is fragmented among several providers, each of which focuses on a sector. KSC is a personal credit information center founded by the Japanese Bankers Association focusing on banks, bank-affiliated credit card companies and guarantee companies. Japan Information Center (JIC) provides data from consumer finance companies. Credit Information Center (CIC) provides data from some consumer credit companies but largely from department stores, retailers, leasing companies, and guarantee companies. The Central Communications Bureau (CCB) provides data from foreign owned consumer credit providers. This fragmentation lies at the core of the weak lending system.

In addition, PERC simulations on impacts of reducing and fragmenting credit data (such as excluding utility or telecom data or reducing traditional credit data) showed that such fragmentation and data reductions disproportionately reduced credit access among lower income consumers and members of ethnic minority groups.[7] It would also seem reasonable that fragmentation of small business credit data would disproportionately impact those on the small business credit margins, especially given the fact that they are disproportionately represented among the smallest of small businesses.

Furnisher Ownership Associated with Regulator Concerns About Reduced Innovation and Exclusion

In addition to the problems posed by fragmentation, ownership by lenders is often associated with a suboptimal use of data, in terms of innovation in underwriting, product development, secondary uses, and underwriting.

Ownership by banks can bring some benefits depending on the stage of the national credit reporting system. For example, during the early stage of the development of a credit information sharing system, lender ownership of a CRA or data exchange network helps overcome traditional lender resistance to sharing data with competitors. This resistance is a challenge in markets that are new to credit reporting. In economies where there is no such resistance, and where credit information sharing systems are more mature, lender-owned bureaus and data sharing systems

[7] See Turner, et al. "Give Credit Where Credit is Due." PERC. 2006 and Turner et al. "The Fair Credit Reporting Act: Access Efficiency & Opportunity." Information Policy Institute. 2003.

are more likely to thwart competition, drawing the attention of regulators, and thwart innovation, creating stifled markets. Regulators have moved in cases where they suspect that lender owners of bureaus can strategically direct the information system for their own advantage.

- The Mexican experience over the last decade, in which both bureaus are majority-owned by banks, is an example of how the ownership form draws the scrutiny of regulators to both the banks and the bureaus they own.
    - In the past, Mexico's three largest banks used their position as majority owners to exclude their data in the development of scoring models, drawing disciplinary action from regulators.
    - Even with these practices undone, regulators have been concerned enough about the lack of competition to consider in recent months the development of a public registry for the same data, a public registry that would then provide the same information to others seen to be locked out of the information market.
    - The CNBV, the regulator of credit bureaus, in frustration, compelled each bureau to also bundle the other bureau's report with its own report out of concern that the two bureaus were buttressing and maintaining non-overlapping lending monopolies.
    - Recently, the Mexican competition commission has been evaluating a system of mandated reporting in which furnishers would furnish to all licensed bureaus.

- Similarly, Russian regulators intervened with the banking sector when banks established local bureaus as a means to avoid information sharing. Russian banks were mandated to share with at least one bureau. Small credit bureaus associated with a large bank or a small set of banks set up closed give-to-get bureaus. Regulators saw this as a move to curtail competition, bringing scrutiny on the banks and the bureaus.

- Indonesia has gone so far as to limit ownership of financial infrastructure, such as collateral registries, payment systems and credit bureaus out of concern that ownership will be used to extract rents and limit competition.

Initiatives in APEC, the G20, the OECD, and World Economic Forum, have all framed the information sharing system as a crucial component of financial *infrastructure*, moreover as one that is key for financial inclusion. That is, regulators have come to see information sharing as a key mechanism undergirding the distribution of credit in society, and thus key to growth, fairness, and equality of economic opportunity. They have become more sensitive to the strategic use of the infrastructure to secure rents.

The following table shows the pros and cons of different ownership forms. The only major challenge faced by independent bureaus is the collection of data in some markets that are new to information collection, a situation that does not obtain in the United States.

Table 2: Advantages and Disadvantage of Form of Private Ownership of Credit Bureaus

	Owned by Banks (majority share--Mexico)[8]	Owned by Banks (minority share—Hong Kong)	Independent (UK, US, Colombia, Brazil, South Africa)
Advantages	Given that the largest data providers/users initiate the CRA, high chance that data from largest sources is shared and used very quickly	Given that the largest data providers/users are participants the CRA, medium chance that data is shared and used	Goal of maximizing coverage, data quality and the provision of value added services, i.e., the interest of the market, is aligned with owner interests
Disadvantages	Conflict between bureau goal of expanding access to credit and increasing competition and owner goal of securing markets from competition	Disadvantage can be similar in kind and lower in degree as bank-majority owned bureaus; but governance structures can mitigate	Acquiring data is slower as data furnishers may be more reluctant to share
	Slow decision making process as boards meet infrequently and consensus is needed from multiple decision makers	Third party bureaus have less incentive to enter market	Potential challenges with adequate capital
	Can generate distrust/disincentives to sharing data to and from smaller, non-owner banks and other data furnishers such as MFIs, leading to fragmented systems and regulator scrutiny		
	Reluctance to invest heavily in latest technology		

The range of uses of bureau data is vast, and promises to become even more vast with the expansion of financial sector innovations, including those that go beyond lending such as equity- and royalty-based crowdfunding of small businesses, where the data can assist with valuation. Bank ownership of credit bureaus threatens to unduly delay or otherwise stymie these critical developments in digital financial services that could dramatically increase financial inclusion globally. Given this risk, regulators are prudent to carefully scrutinize such markets.

[8] There are rare exceptions such as Germany's Schufa, of which small shares are owned by nearly every member of the credit sector.

The following table shows the range of services—from basic to revolutionary—that financial sector data, especially credit data, promises. As shown in the table below, the more impressive innovations in this era of Big Data and financial technology ("Fintech") innovation are associated with full-file, comprehensive information sets controlled by independent owners who are regularly puzzling about how the information can be used to serve and grow not simply the a narrow credit sector but even the financing sector more broadly. In the table, stages do not refer to any timeline, meaning Mexico's bureau is not younger than India's. In fact, it is much older, and yet, India's bureaus offer a wider array of services. This is attributable to the fact that third-party owned bureaus develop services to support lending at a faster level than bank owned bureaus. There are many reasons for why India's young bureaus are more advanced than Mexico's: 3rd party bureaus have greater pressures to make profits; they seek to expand their market; and they take the perspective of the whole sector rather than a partial view. Given these considerations, in this white paper the term "development stage" refers to the degree of maturity.

Table 3: Stages of Credit Bureau Development and Examples of Services

Stage	Examples of Services	Development Stage	Examples (Bureaus in…)
Stage 1	Database Provision of Basic Data	BUILD STAGE	Indonesia
Stage 2	Credit Reports Alerts and Some Add-On services	INITIAL CORE SERVICES	Kenya Bolivia
Stage 3	Initial Score and Decision Tools Initial Custom Analytics	INITIAL DECISION AND ANALYTICS TOOLS	Argentina
Stage 4	Fraud & Identity Management Marketing Services & Collections Management Commercial Credit Report	CONSUMER LIFE CYCLE MANAGEMENT TOOLS	Mexico
Stage 5	Consumer Reports Consumer Scores Credit Monitoring Consumer Education	MULTIPLE LINES OF BUSINESS	Brazil India
Stage 6	Auto, Utility, Telco Solutions Rental Screening, Employment Screening Healthcare, Small Business Insurance, Government Solutions Very mature scoring, Decision Tools, and Custom Analytics		South Africa Dominican Republic Canada
Stage 7	Big Data Solutions Peer to peer lending, Equity Financing Equity valuation, Secondary Market, Crowdfunding valuation, and Macroeconomic Factors Based Models	MOBILE & ONLINE FINANCE SOLUTIONS IN LENDING & OTHER FORMS OF FINANCING	U.S.A. U.K.

Source: Adapted from the presentation "Going Beyond Financial Services" delivered by TransUnion at IFC Credit Bureau Conference in Malaysia, May 2010.

What the above table suggests is that the SBFE may retard the development of innovations in Fintech or other more advanced services owing to the ownership/management structure. The small business financing sector is undergoing significant innovation with the rise of avenues such as crowdfunding, peer to peer lending, and the like, that is with the rise of alternatives to bank lending. Weakening the development of credit bureau innovations risks pushing small businesses into choosing alternative modes, while also leaving institutional investors from benefiting by participating in these alternative financing mechanisms.

Implications for SBFE: Competition, Efficiency, and Transparency

The Small Business Financial Exchange risks reproducing the worst negative consequences of both kinds of systems—fragmented bureaus and furnisher-owned bureaus. The current business model of the SBFE differs in one significant way, one that may be mitigating the negative market consequences, namely their use of certified vendors to disseminate and use the data. In comparison to systems such as Japan's sector-based information systems or systems like that in Mexico, a formal process of certifying vendors who are authorized to develop and sell the data adds a layer of transparency in terms of access and use. And to this extent, the SBFE avoids *some* of the more extreme pathologies that result from segmented data systems and incentive structures where a concentrated set of users form the core set owners.

Nonetheless, the SBFE's certified vendor program does not overcome all the challenges we see in fragmented and furnisher-owned systems in the spheres of transparency, efficiency and competition.

> ***Transparency****:* The SBFE's certified vendor program will provide clear rules for access and use. As such, it introduces a level of transparency. This transparency should not be confused for the transparency found in the national CRA's, whose decision making process regarding access and use are guided by regulatory systems, oversight, and independent business needs aimed at assisting the largest number of users as possible. Conditional provision of the data while based on rules, in short, is not the same as transparency in what shapes the conditionality. Ideally, the most transparent system is one where the conditions are the ones established by regulation, economics, and market needs.
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> Moreover, as third party data repositories have management and boards that are dedicated to the operations of the bureau, the process is both transparent in terms of roles and interests and is quick in terms of decision making (predictability of decision making processes is a crucial aspect of transparency). The SBFE's board will be largely made up of senior lenders who have "day jobs", other tasks and interests that render the internal processes less transparent and most likely will lead to slower and less predictable decisions.
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> ***Competition****:* In creating a system of data access that is limited to members of the data exchange, the SBFE creates a closed group that drastically limits access to their data and thereby limits access to finance. Limiting the data to only those in the SBFE, a crucial input for the provision of finance is no available to non-members. SBFE members will be able to loan on the equivalent of 'insider information', locking others, especially new entrants out. With a data cartel, one segment will have access to information for more efficient lending, while the other does not. Over time, as the former grows at the latter's expense, the cartel may be able to extract rents.
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> ***Efficiency****:* Partly for some of the reasons noted above, we can expect the commercial lending market to become less efficient that it otherwise would be. As noted the SBFE limits data to members. A smaller share of the lending sector will be lending based on

fuller information. We can consequently expect that credit access will diminish, delinquencies will increase, and credit rationing will become more common. Additionally, as also noted above, the revenue model, mode of management, and holistic structure of third party bureaus are designed to develop new products and extend the use of this information in new ways for financing, e.g., to examine equity markets, or recently to support peer-to-peer lending and crowdfunding.

Conclusion

In sum, lender owned or controlled information systems and data sources raise justified concerns among regulators that the ownership system will be misused, and even when not misused will lack the proper incentives to promote maximum lending competition, efficiency, and inclusion. Despite some fears from lenders, the greater sharing and availability of credit data in markets that is associated with independent CRAs with comprehensive databases has not been seen as decreasing lender profitability.[9] Instead, increased data availability has been seen associated with larger lending markets. So, while banks continue to compete with one another, profitability is maintained but the overall lending market grows with the increased availability of credit data.

Past PERC work has shown that reduced credit data has the greatest negative impacts on those occupying the credit margins. Thus, it may well be that the small business owners who would be most negatively impacted by a distorted or suboptimal small business credit data market would be the owners of the smallest small businesses, start-ups/entrepreneurs, and those otherwise on the credit margins of small business lending. Given, as mentioned, that the fragmentation of databases most certainly will increase the number of thin-file small businesses, these 'thinned" files are most likely to be among the smallest of small businesses, and with this new found thin-file status, they are most likely to suffer from rising financing challenges. The fact that the SBFE may advantage financial institution creditors over non-financial creditors (trade credit) could also raise concerns over the impacts on the smallest small businesses. Regulators sooner or later will notice these impacts, as in Mexico and Russia, and are likely to take measures against both the databases and the lender-owners, especially given the priority given to small business development.

As much as is possible the SBFE should move to greater independence and/or to promote the widest use of its data (by non-financial institutions and among many CRAs) and the development of value added services just as if it were operated by an entity completely independent of industry that was looking to maximally benefit small business borrowers. While the certified vendor program is a step in this direction, it is ultimately perhaps too small a one for the reasons elaborated above.

A comprehensive, full-file, 3rd party-owned database also best works with the systems of regulation seen in the United States and most advanced economies, a fact not lost on regulators.

[9] Turner, et al. The Impacts of Information Sharing on Competition in Lending Markets. October 2014.

If the objectives of an information sharing system are to expand financial access *and* responsible lending through as close to a 360 degree view as possible, a small business credit database should:

- Make sure financial credit is not fragmented from other kinds of credit, such as trade credit; and
- Have the database be a third-party one, as third party databases have consistently been shown to promote efficiency, transparency and competition.