

New approaches to MSME lending: challenging traditional credit assessment models in electronic cash-flow environments

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Micro, small, and medium-sized enterprises (MSMEs) play a critical role in economic growth and wage employment in both developed and developing economies, yet significant obstacles remain in unlocking the potential of these businesses – especially as regards access to credit. A confluence of three new market trends is reshaping longstanding efforts to overcome this dilemma: 1) increasing access to real-time, ‘electronically verifiable’ cash-flows; 2) the mining of cash-flow data to reveal insights into repayment likelihood beyond that discoverable in traditional credit analysis; and 3) the adoption of financial technology and certain principles of microfinance lending – most specifically uncollateralized lending and frequent incremental repayment – to meet the funding needs of MSMEs. This paper explores the interrelationship of these trends and contends that, together, they enable suitably empowered financial institutions to originate and manage short-term, unsecured loans to formal MSMEs on a profitable and scalable basis.

Keywords: SME, lending, microfinance, payments, banking

MUCH HAS BEEN WRITTEN of the ‘credit gap’ facing micro, small, and medium-sized enterprises (MSMEs; informal enterprises, and formal enterprises that typically have fewer than 250 employees – excluding farms and including non-employer, owner-operated firms). This is of particular concern to policymakers given the significance of MSMEs to economic growth and wage employment in both developed and developing economies. It is estimated that there are approximately 420 million to 510 million MSMEs facing a credit gap of US\$3.1 trillion to \$3.8 trillion (Stein et al., 2010). In developing economies alone, the 365 million to 445 million formal and informal MSMEs represent 45 per cent of overall employment and 33 per cent of GDP, yet face an unmet need for credit in the order of \$2.1 trillion to \$2.5 trillion (Stein et al., 2010).

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The authors believe that suitably empowered banks and other formal financial institutions which originate and manage short-term, unsecured loans to MSMEs can do so on a profitable and scalable basis – and in doing so, will dramatically reduce the credit gap. Yet based on the authors' own experience with these same banks, there are critical supply and demand factors that are hindering the extraordinary potential for banks in this space:

- Banks providing credit to MSMEs today tend to focus on sole proprietors – often an extension of a financial institution's 'consumer lending' practice – with underwriting largely premised upon the perceived credit score and broader personal relationship of the borrower with that institution (perhaps via personal deposit accounts, for example).
- A recent study by McKinsey & Company found that around three-quarters of banks cite poor business cases as a critical reason for credit declines, while more than two-thirds cite poor information availability as a critical constraint to lending (Chironga et al., 2012).
- The bank process of underwriting loans to even formal MSMEs is not cost effective for transactions below a certain loan value and/or term duration; this, in turn, often precludes borrowers who seek only a relatively small amount of credit for short-term cash-flow requirements.
- The requirement for collateral precludes those businesses which tend to be focused upon 'business-to-consumer' transactions – covering a broad spectrum of business activity, from florists and food service to retail stores and boutiques of all kinds, and even practitioners of medical services (which often can obtain financing from equipment manufacturers for specific devices but not for general operating cash-flow).

In short, while banks hold a majority of global MSME relationships today, their limited view and inability to cost-effectively assess creditworthiness is not only undermining a profitable business line, but also limiting the growth of MSMEs globally.

The 'alternative lending' approach

Pioneering enterprises, such as the authors' own company, Advanced Merchant Payments Limited (AMP), have discovered – as microfinance practitioners have done for informal enterprises – that if new lending models and technologies can be leveraged and appropriate financial products offered, MSMEs are not only credit-worthy but deliver a strong source of business growth and profitability to both the MSME and the provider of financing. AMP has demonstrated the effectiveness of this approach over more than four years of lending via its operations in Hong Kong, Singapore, and the Philippines, with upwards of \$30m in disbursement at a very strong rate of growth, and non-performing loans of less than 3 per cent over this period. As will be detailed later in the paper, the authors' long-term vision is for banks and formal financial institutions to leverage AMP's experience and specifically its financial technology to serve MSMEs at scale.

In developing AMP's lending model, the company focuses upon credit products that meet the needs of the MSME market but which banks have not historically included within their product portfolios. In the authors' analysis, MSMEs comprising the credit gap tend to have strong commonalities – such as substantial and sometimes unpredictable fluctuations of cash-flow caused by seasonality, weather or holidays – which can serve as an existential threat when expenses are of a fixed nature (such as rent, utilities, supplies, payroll, or tax obligations). These MSMEs also tend to lack collateral, either because their products are unsuitable to inventory financing (being highly perishable and/or specialized), or because they hold no products or inventory whatsoever (as in the case of services industries). Such businesses also tend to have a relatively large number of high frequency transactions of comparatively small value. Consequently, the credit product most often cited as crucial for MSME growth is access to a line of credit or 'short-term' (that is, less than one year) advance to act as a reserve and buffer against occasional short-term cash-flow gaps, typically in an amount between half and one month's revenues (Carroll and Hoffman, 2013).

In recognition of these needs, AMP's initial product offering is an unsecured loan product that can be applied to a range of business needs: business or working capital, bridge financing, accounts receivable financing, equipment financing, and purchase/start-up financing, to name a few. To date, the average loan size of the three live loan portfolios has equalled just over \$30,000 for a term typically of 180 days. Interest rates are comparable to the bank-tested cost of general unsecured debt, such as personal credit cards, in a given country.

Moving to the supply side, alternative lenders in the United States, such as CAN Capital, OnDeck Capital and Kabbage, have provided billions of US dollars in unsecured loans to MSMEs while maintaining high portfolio quality. AMP has focused on non-US markets, as have a few other smaller (as of yet) players. For example, in May 2014, Kopo Kopo, a leading provider of business management software in Kenya with over 10,000 clients, announced a new 'merchant cash advance' service to those of its clients with electronic transactions processed through the company.

Collectively, alternative lenders have been successful where banks and formal financial institutions have not, by leveraging growing accessibility of electronically verifiable cash-flows available from MSMEs either in the form of a primary banking account or through payments data – such as merchant services (if the business accepts credit cards) and/or various forms of mobile payments. Under AMP's model, every borrower has at least one (and often two) commercial bank account relationships, from which repayment is drawn every banking day via direct debit, in fixed incremental instalments throughout the term of the loan.

From the perspective of what makes origination of loans by alternative lenders different from traditional models, the authors consider this through the framework of the 'Five Cs of Credit', a credit assessment model long used by lenders to determine the relative creditworthiness of potential borrowers (Rosenberg and Gleit, 1994). The five Cs are:

- Capacity of the borrower to repay the loan;
- Character of the borrower;
- Capital invested in the business by owners;
- Collateral to secure the loan; and
- Conditions of the external business environment (outside the control of the borrower).

Alternative lenders have redefined key aspects of the five Cs – and, arguably, added a sixth in the form of Communication – in order to determine creditworthiness, with Capacity and Character representing the most significant of the established criteria. Such providers use electronically verifiable cash-flows of recent periods – typically three to six months – as shorthand to determine the Capacity of the business to repay. The direct observation of real and recent cash-flows provides a reliable guide to predict future cash-flows – at least in the near term – and, by extension, to determine the ability of a firm to take on credit.

It is important to note that this does not necessarily refer to information gathered using electronic means, such as accessing bank account transaction information over the Internet or by mining the databases within a financial institution. Although such capability is becoming increasingly available, and will no doubt contribute significantly to reducing cost and time inefficiencies in future, in many markets financial institutions still provide transaction and financial statements in paper form. The ‘verifiability’, therefore, derives from the knowledge that the information on such paper statements was generated by reference to electronic accounting platforms – to which a potential lender can reasonably ascribe a high degree of certainty as to the veracity of the information.

It is in Capacity that access to an MSME applicant’s electronically verifiable cash-flow provides a clear and effective tool for analysis of ability to support repayment of the loan without putting undue strain on the business. Simply put, adding the daily cash-flows in and out of the core banking account provides a direct view to the business’s ‘freely available’ cash-flow by which to service a proposed loan of a particular amount. Given the daily debit cycle inherent in this form of lending, the properly structured loan would represent a debit amount of a small percentage of the average daily cash-flow, in order to ensure that debit payments will be successfully processed, allowing for a substantial margin of error for volatile daily trading activity.

All cash-flow, however, is not created equal; different line items can carry different weightings within the credit scoring algorithm. For example, incoming cash-flows from multiple sources (such as different payment card providers) would deserve a higher rating than the more ephemeral cash deposits, as obtaining each such merchant card payment account requires a level of due diligence, credit assessment, and ‘know your customer’ scrutiny by the institution granting it. In essence, there is security in numbers – if the borrower has intertwined his or her business practices to offer customers the choice of multiple payment card providers, it is reasonable to posit that the cash-flow from those channels is more secure for future loan repayments, as cancelling or rerouting settlement from those sales channels is

significantly more difficult than simply switching cash deposits away from the loan repayment account.

Once comfortable with the basic Capacity of the borrower, AMP can focus on what is often considered to be the most important consideration in credit risk assessment: Character, or the borrower's willingness to repay. Traditionally, in markets where it is available, for unsecured loans such as in consumer loans the lender would look to some benchmark credit score for the business owner or, if a limited company, the person authorized to apply for the loan on behalf of the entity. However, even in markets with relatively robust personal credit scoring systems, such as the United States or the United Kingdom, it is generally recognized that the personal credit score of the small business owner is not always a good predictor of probability of default. Though perhaps initially counterintuitive, the explanation may simply be that the small business owner has a lower than desired credit score because he or she has invested credit resources into keeping the business going – which perhaps might even mitigate in favour of a stronger score for the borrower's 'Capital' in the business.

As a consequence, public personal credit scoring providers are not particularly helpful in evaluating short-term, unsecured loans to MSMEs. Therefore, even in markets with relatively nascent credit bureaus (or, indeed, no credit bureaus at all), the methodology of scrutinizing the 'electronically verifiable' cash-flow for clues of the applicant's character can be a more-than-adequate substitute. The lender can take some comfort in the fact that the borrower has an account with an institution (and perhaps other relationships within the context of merchant payment accounts) for which the institution would likely have engaged in its own assessment of character based upon the then available information. Certainly, the clear trend in banking is towards ever greater scrutiny of active accounts; even if it is not to be relied upon directly, such a fact might at least limit the historical period to be evaluated within the context of the current loan application. In this regard, the historical cash-flow behaviour can offer the lender some significant clues as to the borrower's willingness to repay, relative to how the applicant has historically managed other payment obligations.

Each of Capital, Collateral, and Conditions has its place in the assessment. However, as many MSMEs lack equity in the business, or suitable collateral to pledge, and the credit need is often for a period measured in months such that macroeconomic forces may not be much of a factor, the reality is that the weight of the underwriting analysis must primarily focus upon Character and Capacity.

Finally, the authors recommend adding Communication as a 'Sixth C of Credit', representing the lender's ability and the borrower's propensity to maintain frequent contact, so as to provide ongoing status updates during the term of the loan. In borrowing, as in many things, the idiom 'out of sight, out of mind' is definitively certain; a borrower confronting difficulties in meeting financial obligations can be presumed more likely to prioritize payments to the more proactive lender.

Communication is an element both quantitative and qualitative in nature. It is a factor not simply of being in communication on a frequent – ideally, daily – basis, but also of doing so in such a manner as permits a qualitative assessment

of the borrower's circumstances at that time, so as to enable comparison with the facts upon which the loan was initially approved, as well as in relation to other loans within the portfolio. The act of Communication, therefore, is decidedly a post-disbursement activity; from an underwriting standpoint, what is important to assess is the extent to which the loan structure permits the frequent contact in a manner that provides as holistic a view as practicable relative to the borrower's circumstances.

Critical learnings to date

AMP was founded in 2009 by three individuals with backgrounds in merchant card payment processing who saw an opportunity for banks to utilize the then nascent 'alternative' lending technologies to offer a new loan product to their existing MSME customers. The founders recognized from prior experience that banks would not likely invest in the technological development necessary to support this new form of lending, given banks' many other priorities and the relatively unproven state of the return of such an investment. As such, AMP was created as a platform by which to enable banks with alternative lending capabilities, where the loan origination and portfolio management processing was performed on an outsourced basis by AMP, under contract with the bank. Such an approach, which is a long established business model for other services in the payment processing sector, offers the banks the advantage of speed to market with minimal technology development costs. Moreover, as AMP's platform would manage loan portfolios for any number of bank clients, the company could draw upon a much broader set of data upon which to continue refining its predictive capabilities and credit algorithms, while also offering a compelling value proposition by virtue of the economies of scale from managing multiple banks on the same technology overhead.

AMP is constantly refining its lending methodology based on past experience, as well as mining MSME borrower cash-flow and other data. Many lessons have been learned over the past four years, some the hard way – especially in the first year as evidenced by cases of non-recovery. For example, in the Philippines, the company has eliminated certain types of businesses from its portfolio based on continuous challenges – such as dentists – while actively pursuing others – service stations and optometrists. In AMP's more than 18 months of lending in the country, the company has yet to experience a non-recoverable loan.

The company has also learned that while electronically verifiable cash-flow is fundamental to the credit methodology, there are critical other data checks that must be undertaken in the origination process to develop a full understanding of creditworthiness. For example, account credits indicating no cash deposits, or lower deposits compared with similarly situated businesses, might suggest the business owner is hiding cash – not necessarily to avoid loan repayments, but perhaps to avoid taxes; either way, it may not reflect positively on the 'Character' of the business.

Similarly, a record of bounced cheques or any other form of missed payments would clearly raise a red flag as to the borrower's integrity, or at least his or her competence

in managing the business. More deeply, however, the applicant's payment behaviour on items essential to the business can be telling. Does the borrower pay the rent or utilities reliably on time? As these are typically evident in 30 day cycles, the payment behaviour over a period of months would be telling as to the applicant's willingness to preserve cash-flow by delaying payments of essential items.

Finally, AMP considers the borrower's cash-flow transaction behaviour for other hints as to character and capacity. Does a debit in a specific amount on a recurring basis represent a payment on another loan obligation and, if so, was the loan disclosed in the application (and, indeed, how does it fit into the capacity evaluation)? Are there unexplained occasional payments or withdrawals of an amount substantially larger than the historical pattern? These and other behaviours are all hints as to the applicant's integrity with respect to fulfilling his or her obligations and, taken collectively, can provide an effective weighting in a credit scoring analysis.

Absent from the discussion until this point is the fundamental role of technology in the enablement of AMP's approach. Based on the authors' experience, such efforts – perhaps neatly distinguished in phases as origination, repayment collection, and a post-disbursement 'health assessment' of active loans – are not likely to be scalable in a manual context. While bank statements can be manually reviewed (or manually translated into machine-readable format) towards an origination decision, daily loan repayment and active health assessment are far more suited to automated processes. For example, the debiting of the bank accounts for any number of borrowers in a portfolio and updating the loan ledger in the portfolio before the next debit cycle, or comparing the current cash-flow information to identify exception cases and executing an intervention to bring the exception back into norm, requires a system capable of handling these tasks on a reliable and robust basis.

Such systems are not readily available to financial institutions 'off the shelf' (although resolving this need is the core focus of AMP). Among other requirements, such a system would need to interface to the relevant financial institutions for debit access and file retrieval, as well as having a robust accounting capability to track the daily movement of the loan ledgers, and advanced data analysis capabilities both to identify patterns in the cash-flow information, but also to reliably update the weightings in the credit scoring algorithms based upon the 'continuous loop' of new electronically verifiable cash-flow information generated by the borrower. Such systems would also need to be highly secure, given the value of the financial information at stake, and also adherent to the data privacy protections in place in many jurisdictions. AMP's proprietary system is designed to do all of the above on behalf of banks. The authors believe that the company's history of successful operation in three different markets, regulatory environments, currencies, and banking systems, is proof that such systems can work, both in developed and developing markets.

Case study: alternative lending using electronically verifiable cash-flow

One particular AMP client was founded in the early 1960s as a modest fast-food type eatery in the streets of Parañaque, Metro Manila. As business boomed the

eatery expanded, opening several new branches throughout the 1990s. Trade was steady and the business stable until a number of factors conspired to overwhelm the resources available and the business found itself in financial difficulties. As is the case with so many cash-only small businesses around the world, the restaurant was unable to qualify for a bank loan and so turned to informal moneylenders.

As the business manager explained to the authors:

We found ourselves in a situation where we needed money fast but we knew we'd never qualify for a normal bank loan. Our only option was to borrow from other cash lenders. It was an easy solution but the interest rates were incredibly high, we were left owing increasing amounts of money to all sorts of entities. It was a downward spiral and there was no end in sight.

With AMP's support, the restaurant set up a bank account and implemented a card acceptance system to bring it onto the banking grid and provide the necessary infrastructure for the loan tracking and repayments. AMP also provided the much needed access to credit, which has now turned into a loan renewal facility. Today, the restaurant is a thriving business and established bank customer, continuing to grow its business in Manila.

In summarizing the effect of AMP's involvement with the business, the manager commented:

AMP's lending solution was a lifeline. For the first time we had the money to pay off our existing debts. The automated daily repayments and much lower interest rates meant the loan was realistic and manageable. Additionally, the ability to accept card payments has transformed our business. With many diners now choosing to pay by card, revenues are up and business is back on track.

This case study highlights the manner in which electronically verifiable cash-flow can support a reliable origination decision, and provide an efficient post-disbursement loan management tool to effect repayment, for what historically had been a cash-based business. However, the process of boarding the business onto the banking relationship and completing the 'know your customer' verifications does require time and effort for both parties; as such, it supports the premise that cash-based businesses can be induced into the formal banking sector, with the promise of potential access to reliable and competitively priced credit. Certainly, though, the lower-hanging opportunity for financial institutions is to utilize these methods for those MSMEs which already maintain an account at that institution, by deploying the data analytics capabilities in AMP's platform for precision selling, with specific loan offers to pre-qualified clients.

AMP: the alternative to alternative lending

AMP presents itself in MSME industry forums as the 'bank's alternative to alternative lenders'. AMP believes that in order to close the MSME credit gap, banks and other formal financial institutions will need to leverage the product design, data analysis, loan origination, and portfolio management processing technology that companies

such as AMP have developed to reach scale. The company makes a very different case from other alternative lenders which seem to believe that specialized organizations like their own – building their own sales force, their own brand, and their own balance sheet in competition with banks – will drive future growth in MSME lending.

For those with experience in the microfinance industry, as distinct from MSME lending, the relevant observation is that microfinance now reaches hundreds of millions of families around the world through specialized financial institutions, not banks and formal financial institutions. The authors feel there is a critical distinction, however, with respect to MSME lending. As noted in the opening of the paper, the majority of MSMEs have existing relationships with banks (unlike most microfinance borrowers) and thus banks are best placed to serve this market, given their lower cost of capital, access to historical cash-flow data, and established distribution channels.

AMP seeks to empower banks and other financial institutions with ‘alternative lending’ capabilities for the benefit of their MSME customers. To that end, AMP offers three primary forms of collaboration to partner institutions such as banks:

- Channel partnership whereby AMP holds individual loan risk while the partner institution earns a referral fee.
- Secured credit facility whereby AMP holds individual loan risk while the partner institution funds the underlying portfolio on a secured basis.
- Processing solution whereby the partner institution holds the individual loan risk while AMP earns a performance-based processing fee (with risk sharing options available).

AMP is currently executing on the first form of collaboration in all three of its existing markets with a regional merchant acquiring institution. The company is actively in discussions with banks exploring the range of collaboration opportunities. Concerns raised by banks to date include the perception that they are already successful in this space, that they can build the technology themselves if they determine to adopt the alternative lending approach, and further, data privacy concerns as they do not want a third party gaining access to the bank’s client-level data.

A slightly more nuanced look at the authors’ experience with banks suggests that banks in developing markets seem to be more prepared to jump directly into the processing model, putting their own money at risk, while AMP serves as a discrete processor in the background, earning processing fees and a share of the revenue generated relative to AMP’s proportionate sharing of risk on the portfolio. While the authors cannot yet suggest a trend, it may be that banks in developed markets are perhaps not yet dissuaded from the notion that they can figure this out for themselves given their huge investments in technical infrastructure; whereas it may be that the more practical-minded banks in developing countries are prepared to embrace new ideas and technologies as they race for growth.

As the authors look to the future of electronic payments, especially in developing countries, the continuing growth of mobile payments offers exciting prospects

in the alternative lending space. Efforts towards 'branchless banking' increasingly prevalent in developing economies (such as: 1) self-serve through mobile phones and ATMs; 2) staff-based through mobile branches; and 3) third party agents through retailers or individuals using point of services (POS) devices, mobile devices, and the internet) are creating the groundwork of 'electronically verifiable cash-flow' upon which the principles discussed in this paper can be applied. In future, for example, third-party agents of microfinance institutions or banks using mobile phones to capture their business activities might provide the cash-flow data required to solve one of the biggest contemporary challenges to mobile payments and mobile banking: the liquidity at the agent level, especially in sparsely populated and/or less economically active areas, to effectively serve the community. This too will continue to evolve, but the early trends are encouraging.

Conclusion

This paper supports the view that suitably empowered financial institutions can profitably and efficiently lend to MSMEs on an unsecured, short-term basis, in an amount relative to the borrower's 'electronically verifiable' cash-flow, where repayment can be drawn in frequent incremental instalments by virtue of the lender's electronic access to one or more of the borrower's financial accounts. At scale, this approach has the potential to reinvent lending to MSMEs in the way microfinance reinvented lending to the poor and informal economy.

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