**Financial Innovation and Financing Innovation: The Case for Mutual Guarantee Societies**

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Table of Contents

[I. Abstract 3](#_Toc430353386)

[II. Introduction 4](#_Toc430353387)

[III. Assessing the landscape for financing innovative SMEs 6](#_Toc430353388)

[Assessing the potential credit demand from Innovative SMEs 6](#_Toc430353389)

[Assessing the competitive landscape (potential supply) for financing innovative SMEs 8](#_Toc430353390)

[Financial Innovation and Financial Regulatory Dynamics 8](#_Toc430353391)

[An analysis of recent financial innovation 10](#_Toc430353392)

[Typology of techno-centric new entrants 11](#_Toc430353393)

[The MGS advantage restated 12](#_Toc430353394)

[MGS will need to shift operational capacities and market focus 13](#_Toc430353395)

[Leveraging operational aggregation to address issues of size 14](#_Toc430353396)

[IV. Financing what 15](#_Toc430353397)

[Debt, Equity, or Hybrids 15](#_Toc430353398)

[Venture Capital as potential market competitor or MGS as a substitute to VC. 15](#_Toc430353399)

[Paying only for success – Modifying and leveraging the Competition Model 15](#_Toc430353400)

# Abstract

*Mutual Guarantee Societies (MGS) are a group of SMEs that operate in a specific sector, and provide credit guarantees to other SMEs in their sector. This experience affords MGS a strong Lender-Borrower Affinity, where the lender knows the borrower, and a strong Lender- End-Use Affinity, where the lender knows the borrower’s market. This paper proposes leveraging the industry-specific knowledge of MGS (their Lender-End-Use Affinity) for assessing the commercial, scientific and credit validity of innovations directed at their sector and provided by Innovative Small and Medium Enterprises (SME). This concept attempts to replace existing physical or intangible collateral as the primary basis for extending credit to Innovative SMEs.*

*Since their inception, MGS have successfully leveraged their Lender-Borrower Affinity, but have not leveraged their Lender- End-Use Affinity. Providing credit guarantees for innovation targeted at their sector, MGS would require (1) leveraging this Lender-End-Use Affinity, as well as (2) incorporating additional scientific knowledge, and (3) refocusing a small part of their portfolio to financing innovation directed at their sector. This operational restructuring and market refocusing may expose MGS to significant additional operational costs and credit risk. These challenges are addressed by implementing the Concept at a higher aggregated MGS-level, and by including governments and multilateral institutions that for a long time have been keenly interested in investing in innovative SMEs but have not found a way to implement an acceptable credit decision process. Analyses of the Regulatory Dynamics in the financial sector and of recent financial innovations indicate that the particular advantage of MGS in this arena is not easily replaced or duplicated.*

# Introduction

*Financial innovation*, the introduction of new financial products or processes, has been around for a long time, and has been an integral part of how financial institutions evolve to address new challenges or opportunities[[1]](#footnote-1). The pace and complexity of financial innovation accelerated after the liberalization of capital flows, and the ensuing development of global financial institutions and markets. About the same time, financial institutions began to make greater use of computers. More recently, the advent of the Internet allowed them to make great use of *Information Communication Technology (ICT)*. Up to this point, the bulk of financial institutions consisted of commercial banks, investment banks, and finance companies that were in the regulatory domain of financial regulators.[[2]](#footnote-2)

The financial and global economic crisis of 2008-2009 seems to have worsened an already existing credit gap for entrepreneurs and *Medium and Small Enterprises (SME)[[3]](#footnote-3)*. Building on these technological innovations, and responding to the worsening SME credit gap, non-financial, technologically-centric firms entered the unregulated, or lightly regulated financial sector to meet this credit gap. These new entrants’ use non-traditional data-gathering methods to address the age-old problem of asymmetrical information with SME financing, where the lenders know less than the borrower about the SME[[4]](#footnote-4). As such, most of the innovation introduced by these new entrants has been in the form of *financial process innovation* that reduces the time or cost in the credit decision making process. This allowed these new entrants to extend credit to entrepreneurs and SMEs that were underserved by traditional financial institutions. This increased democratization of SME credit came mostly in the form of traditional credit products such as loans or *trade finance*, and not in the form of new products, (*financial product innovation)*, and certainly not in the form of products that financed innovation generated by SMEs[[5]](#footnote-5). This has continued to leave a credit gap for *Innovative SMEs*[[6]](#footnote-6). This specific segment of the *SME Spectrum* is populated by SMEs that are ideas rich but current capital poor, and as such are particularly incentivized to introduce disruptive innovation that catapults them to the top of the economic value chain, and as a group, can provide new economic growth and paths, and investment opportunities[[7]](#footnote-7).

*Mutual Guarantee Societies (MGS)*, have a long history of providing credit to SMEs in their sector[[8]](#footnote-8). As such, **MGS have industry-specific knowledge that makes them particularly adept to assess the market potential of an innovation directed at their sector. In addition, with some additional capacities, MGS may be particularly adept to make the decision to finance the innovation directed at their sector, and the firm providing it**.

**These particular MGS capabilities are not easily replaced or duplicated**, as they are not based on technological factors, but are based on the unique combination of attributes of (1) its long history and specific knowledge in their respective sector, and (2) in their long history and specific knowledge in making credit decisions, especially in making credit decision in the SME sector. Replacing any one of these two attributes is certainly possible, but increasingly likely. More specifically, the growing corporate concentration in the financial sector, and the continuous shift toward automated credit decisions based on technology is making it increasingly unlikely that anyone of these two central MGS advantages will be replaced or duplicated.

It must be recognized that this particular MGS advantage is restricted to financing innovation targeted at the sectors where the MGS has a long and deep knowledge. Furthermore, even with this restriction, the anticipated risk for such financing is expected to be significantly higher than the median risk in the typical MGS portfolio. Thus, this financing option may be too risky for any single MGS. However, this concept may become more feasible if implemented at a higher aggregation, say were a group of like-minded MGS might combine knowledge, operational and risk-distribution capacities to implement a pilot project involving only a small percentage of the investment portfolio of each participating MGS. In addition, aggregation benefits could be further leveraged by including government entities that for a long time have been keenly interested in investing in innovative SMEs but have not been able to find a way to implement an acceptable credit decision process. Such collaboration would combine the sectorial-specific knowledge of individual MGS, the portfolio and operational capacities of the MGS group, and the financial scale of government entities.

# Assessing the landscape for financing innovative SMEs

Any decision to implement a concept for MGS financing Innovative SMEs, even at a small pilot level, should be preceded with a market analysis to assess (1) the potential market demand, (2) the potential market supply, and (3) the potential competitive advantage of MGS.

## Assessing the potential credit demand from Innovative SMEs

It may very well be that there are not enough innovative SMEs in a specific geographic area or in a specific sector to justify the costs and risks of developing this MGS investment capacity. Luckily most, or at least some, developed economies have sufficient data to obtain some estimates of this potential demand[[9]](#footnote-9). Most developed economies have data on the number of SMEs in a geographic area and working in specific sectors. In addition, the data on **existing** innovative SMEs providing innovative products and services to a specific sector should also be attainable in most developed economies. A preliminary estimate of the number of Innovative SMEs providing innovative solutions across specific economies and in specific sectors should be attainable by examining data on the registration of some of the more common *intangible assets*, such as *patents*, *trademarks*, *brands*, etc.[[10]](#footnote-10). These datasets provide detailed asset-level data, specifying the owner firm, and critical characteristics of the intangible asset. Obtaining estimates on their ability to utilize credit, would entail augmenting and linking the above datasets with datasets containing firm-level data on containing financial statements such as income, cash-flow and balance sheet statements. In addition the analysis would require data on their utilization of internal and external financing.

Obtaining estimates on the **potential** number of innovative SMEs, their ability to innovate and utilize credit may be empirically and analytically more challenging, but still possible The use of these datasets should allow the construction of a sample of innovative SMEs that received external credit (financed firms) and a similar sample of innovative SMEs that did not (non-financed firms). The difference in innovation generation and financial performance between the sample of financed firms and the sample of non-financed firms should provide an estimate of potential credit demand of innovative SMEs[[11]](#footnote-11). The use of readily available, already existing digitally readable data sets, *Administrative data*, across the public and private sector can provide a very cost-effective solution for undertaking these research questions[[12]](#footnote-12).

Analyzing these specific micro-level datasets should provide the best evidence of existing and potential credit demand from the innovative SME sector. There are alternative, less expensive although much less accurate approaches to arriving at these estimates. Macro-level data that is readily available and less expensive to use, can provide broad indicators as to level and trends in intangible assets across economies, which can be used to estimate very broad, general indicators for the need to finance innovative SMEs. For example, Jarboe (Jarboe 20XX) states that “In the United States, more than $1 trillion annually is invested in the creation of intangible assets, and in 2005 their total value was estimated at $9.2 trillion”[[13]](#footnote-13). This information supports the view that in the United States there is a significant market potential to finance intangible assets projects. A back of the envelope calculation on the ratio of SMEs to large entities in the U.S. economy that registered intangible assets would provide a rough estimate of the market potential for financing Innovative SMEs in the United States.[[14]](#footnote-14)

Jarboe continues “However, only a portion of that value shows up in company financial reports. Likewise, intangible assets rarely merit consideration in the financial system. As a result, companies are unable to obtain the capital that they could use for business innovation and expansion”. Jarboe’s comment highlights the maker potential, and market gap, for financing intangible assets, as well as the multitude of challenges in using intangible assets as an alternative source of collateral for replacing physical assets. Even more importantly, or perhaps most importantly, **the market gap to finance Innovative SMEs and the multitude of challenges of such an approach are the very demand-based factors that create the unique opportunity, and risks, for MGS to enter this market**.

More specifically, Jarboe’s recommendations aim to improve, standardize, the market evaluations and sale of **existing** intangible assets, so that they may serve as collateral for future borrowing by innovative firms. As such, Jarboe’s very worthwhile and much needed recommendations are intended to improve asset-based lending, with **existing** intangible assets being the specific collateral supporting future lending to innovative firms. The proposal outlined in this paper is based on a very different, indeed totally different, basis for financing future innovative SMEs. It proposes to use the sector-specific knowledge of the MGS to assess **future** commercial value and credit worthiness of **future** innovation provided by Innovative SMEs. Thus **the MGS model here proposed replaces the evaluation and collateralization of existing intangible assets as the basis for credit origination for Innovative SMEs with the evaluation and collateralization of future intangible assets as the basis for credit origination for Innovative SMEs**.

## Assessing the competitive landscape (potential supply) for financing innovative SMEs

Since the mid 1980’s, financial deregulation and technological innovation have favored increased corporate and operational concentration of financial institutions. As a result, credit origination decisions are increasingly made by larger financial institutions and far from the borrowers’ location. This is especially true for the origination of SME credit[[15]](#footnote-15). For example, in the United States regulatory changes increased the product spectrum and geographic range of commercial banks[[16]](#footnote-16). During the same time, the increased use of ICT (e.g. the MODEM in the latter part of the 1970’s to the diffusion of the Internet in the latter part of the 1990’s) by the financial sector allowed them to extend their operational geographic range.

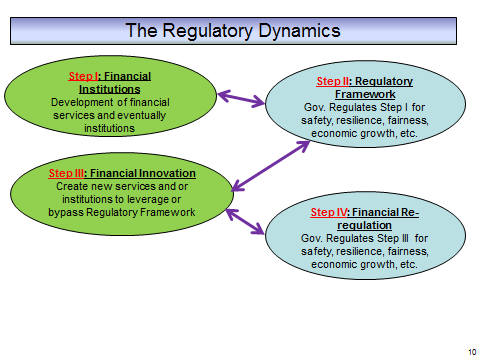
The same ICT dissemination across the economy, and the radical increase of computers’ computational capacity, allowed for the increased digitization and dissemination of transactional records, which in turn gave rise to the growth of *credit bureaus* and *credit scores[[17]](#footnote-17)*. As a result, a much larger share of low-volume credit is now is based on credit scores. As a result, the use of relationship banking, where the bankers and borrowers lived and operated in the same community get to know each other, has become a specialized niche market[[18]](#footnote-18). More importantly, relationship banking is the main factor differentiating MGS from other financial institutions, and affords it the unique capacity to lend to innovative SMEs.

While these historical trends support the expansion of MGS into market for financing of Innovative SMEs space, the future relative advantage of MGS in this space must be considered. The question thus arises: would future financial innovation or would the recent entry of technologically-centric non-financial entities eventually displace MGS in financing innovative SMEs? An analysis of the *Regulatory Dynamics* that has been a permanent fixture of the regulated financial sector, and an analysis of the intrinsic nature of these new entries strongly indicate that they have no visible advantage to potentially displace MGS in the innovative SME space. The same analyses also indicate that if these new entrants were to develop any competitive advantage to the relationship-based approach of MGS, this advantage could easily be replicated or purchased by MGS. Indeed, such a development could strengthen the relative advantage of MGS in this space.

## Financial Innovation and Financial Regulatory Dynamics

Ever since the development of regulated banking, financial innovation and financial regulation has exhibited a consistent dynamic, dialectic, process of four fundamental categorical steps (see Figure X). In the first step, financial institutions develop products or services (innovate)[[19]](#footnote-19). At times, this step leads to the introduction of new types of financial institution[[20]](#footnote-20). In most developed economies, regulators are given mandates to maintain a favorable economic environment, usually defined as a stable price environment and at times a stable or near full employment environment[[21]](#footnote-21). Thus the second step in the process: In order to meet their mandate, financial regulators create and impose *rules* to foster *soundness*, *stability* and *fairness* in financial institutions under their domain.[[22]](#footnote-22). Then the third step follows when financial institutions introduce a new round of innovation to either leverage or even bypass the regulatory framework created financial regulators. The fourth and last logical step occurs when regulators, responding to the innovations of financial institutions, generate and impose new regulations on the new products, services or institutions to reestablish soundness, stability and fairness. Thus these steps represent a constant, rather continuous circle, were every step or full circle creates new products, or new entities. Understanding the nature of this continuity (dynamics) is critical for establishing robust, comprehensive policies that determine the broad growth trajectories acceptable risks within the financial sector, which is the domain of monetary authorities. Having a detailed knowledge of existing and emerging products and entities within the financial sector is critical for the implementation and oversight of these policies, which is the domain or regulatory authorities. The interdependencies of these two facets of the Regulatory Dynamics is a dominant factor the monetary authority and regulatory authority being housed in one entity, such as the Board of Governors of the Federal Reserve System in the U.S.

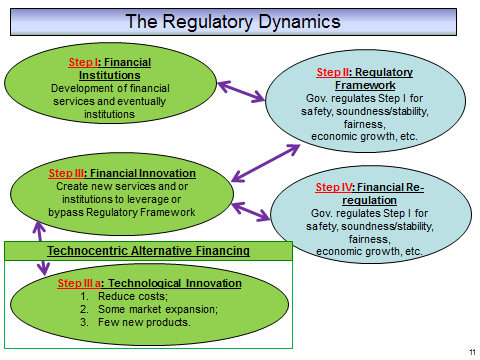
**Figure X: The Regulatory Dynamics of Regulated Financial Markets**



## An analysis of recent financial innovation

More recently, techno-centric firms entered the unregulated or lightly regulated financial sector to meet the SME credit gap. These firms manage not falling under the domain of financial regulators primarily by (1) not taking **savings deposits**, (2) by originating credit in such a way as not fall under the domain of financial regulators, (3) by not filing for a financial institution charter with financial regulators[[23]](#footnote-23). For the most part, these techno-centric firms entered the SME credit market by using new data-gathering methods to address the age-old challenge of the information asymmetry associated with SME credit origination.

**Figure X: The Regulatory Dynamics With Techno-centric New Entrants**



A historical analysis of **the recent entry of techno-centric firms into the financial sector indicates that it is a continuation of the already well-established process of replacing credit origination based on relationship banking with credit origination based on automated data gathering and processing**. Since the 1980’s, automated data processes have indeed displaced a significant portion of SME lending based on the borrower-lender relationship. **This development, however, is not indicative that current and future automated data processing methodologies will likely displace MGS in the credit origination of innovative SMEs**. This rather counterintuitive assertion is based on the observation that **automated data processing methodologies replaced only standardized SME credit products. A defining characteristic of financing Innovative SME is that it requires specific skills and knowledge that is difficult to automate, replicate, or substitute, and is thus not likely to be replaced by automated processes**.

The origination of SME credit has historically been based on (a) the information gathered via the borrower-lender relationship, and (b) the information gathered via the borrower financial and possibly operational records. Borrowers would often establish depository accounts at financial institutions, and loan officers would often operate and live in the same social and economic community as the borrower. This process generated not only general information about the borrowing individual, but would also generate general information about the borrowing business and its markets. Upon a loan application, the loan office would obtain financial and possibly operational records from the borrowing individual and the borrowing business. Thus, credit origination based on this form of the borrower-lender relationship is based on a **direct, manual, and retail data gathering** method. These lenders, for the most part, were regulated, depository institutions that raised their funds from individual savers, as such they employed **retail fund-gathering methods**. These entities included commercial banks, credit unions, and MGS.

During the 1970’s these direct and retail-based methods began to be replaced by the **indirect, automated and wholesale** methods employed by Credit Bureaus and based on credit scoring. Both credit bureaus and credit scoring use information gathered from publically available records generated by local and national governments, and augment this information with privately held transactional-level information, that is made available for sale[[24]](#footnote-24). At the same time financial deregulations and technological innovations allowed the development of large, but regulated non-depository institutions that, to a large extent, gathered their funds from other large financial institutions, thus employed a **wholesale fund gathering methods.**

More recently, techno-centric non-financial, non-depository firms extended the indirect, automated and wholesale data gathering method by augmenting their data with borrower data from publically available information gathered from the internet. These entities then use complex algorithms to quickly determine the probability of payment or default of a specific individual or business borrower. Thus, this approach is a continuation of the indirect, automated data gathering and analyses approach that has been around for more for more than fifty years.

These entities do revert to the older method of gathering funds from individual **investors**, thus they employ a direct, but automated fund gathering method. The key difference in this approach is that these new techno-centric entrants gather funds for individual investors and not from individual savers. The distinction is critical because in most developed economies investors are afforded different, usually lesser, protections than savers. In addition, low-level investments, usually in the form of equity flotation in specific exchange, are typically afforded lower regulatory burdens than large equity flotation.

## Typology of techno-centric new entrants[[25]](#footnote-25)

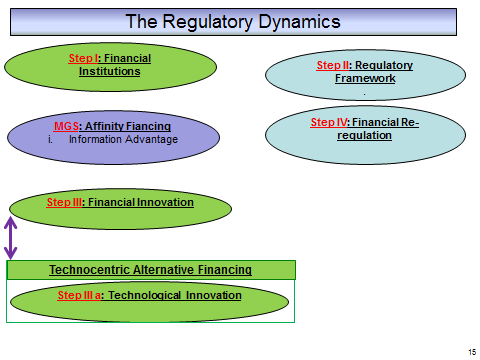
These new techno-centric entrants can be roughly classified in three categories: (1) *Online Balance Sheet Lenders*, that use non-traditional data gathering and complex algorithms to quickly assess the future profitability and risk of a loan[[26]](#footnote-26). Examples of these entities include OnDeck < [www.ondeck.com](http://www.ondeck.com)> and Kabbage < [www.kabbage.com](http://www.kabbage.com)>. (2) *Peer to Peer Lenders* (P2PL) that match lenders and borrowers. Depending on the size of the loan, the credit origination can include one lender and one borrower, or may include many lenders and one borrower, or one lender and many borrowers. Examples of these entities include Lending Club < [www.lendingclub.com](http://www.lendingclub.com) > and Funding Circle < [www.fundingcircle.com](http://www.fundingcircle.com) >. (3) *Market Place Creators*. Examples of these sites include Fundera < [www.fundera.com](http://www.fundera.com) > and Biz2Credit < [www.biz2credit.com](http://www.biz2credit.com) >, Crowdfunding sites can also be included in this type of techno-centric entities that have entered the unregulated or lightly regulated segment of the financial sector. **An analysis of these techno-centric new entrants shows that they utilize alternative, usually more efficient, processes for delivering traditional financial products to traditional and at times young firms. They certainly do not focus on providing credit to innovative SMEs that usually lack collateral and possibly a transactional history**.

## The MGS advantage restated

Taking under consideration the defining characteristics of the Regulatory Dynamics, the characteristics of techno-centric new entrants, the particular advantage of MGS to provide financing to innovative SMEs becomes more evident. It also becomes clear that this particular advantage is based on (a) restructuring of its *affinity financing* capacity and (b) extending its knowledge of lending to SMEs in its own sector.

Traditionally, affinity finance has taken the form of *lender-borrower affinity*, where the lender has the same characteristics or operates in the same market as the borrower. Indeed, this is the defining characteristic of MGS financing. **Financing the portion of innovative SMEs that serve the MGS sector is based on a variation of this concept. More specifically, it is based on the notion that the MGS has an affinity, (has specific knowledge) of the market application (end-use) of the innovative solution provided by the innovative SME, and not necessarily based on MGS affinity with the borrower**. This type of affinity can thus be **described as *lender-end-use market affinity*.**

**Figure X: The Regulatory Dynamics With Techno-centric New Entrants and MGS**



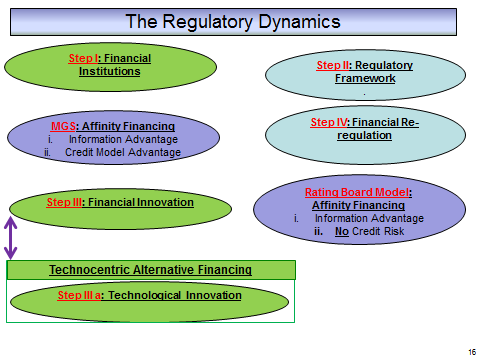
A second and critical MGS advantage in this arena is its long and deep knowledge how to lend to SMEs in its own sector. However, **it is reasonable to assume that most Innovative SME to be financed by MGS will not directly operate in the specific sector covered by the MGS**. As a result, the MGS will need to extend its well-established capacity to lend to SMEs in its own sector to an ability to lend to the specific segments of innovative SMEs that provide innovative solutions for the sector covered by the MGS, and are not part of the MGS domain. **The MGS will need to extend its well-established lender-borrower affinity to a new lender-end-use market affinity**.

## MGS will need to shift operational capacities and market focus

Shifting from lender-borrower affinity financing to financing based on the lender-end-use affinity shift implies meaningful refocusing, indeed expanding, MGS operational capacities and market focus. While the MGS may have an advantage assessing the potential end-use market of the innovative solution provided by the SME, it is reasonable to expect that it does not have the capacity of the assess the *Scientific Validity* of the specific innovative solution proposed by the Innovative SME[[27]](#footnote-27). This knowledge gap can be easily addressed by incorporating scientific experts in the MGS itself, or in a subdivision of the MGS.

This method of incorporating scientific knowledge in the MGS is very different than the *Rating Board Evaluation Method*, where a group of subject-matter experts are asked to rate a singular or set of innovative solutions for their scientific and possibly end-use market potential. The critical differentiating factor between these two methods is that the MGS method requires that the scientific evaluators contribute a certain amount of **their own capital** to the MGS, or to the financing of the specific innovation they are rating, but the rating board method does not include this requirement. Plainly stated, the MGS method requires that the evaluation be backed by the evaluators’ own capital; evaluators are asked to put in sufficient “skin in the game” to influence their rating decisions.

**Figure X: The Regulatory Dynamics with techno-centric new entrants, MGS and rating boards**



Second the MGS will need to gain an understanding of the potential ability of an innovative SME to develop and manage innovation. Fortunately there are a few entities that provide services to address this knowledge gap. IMP3rove Academy < [www.improve-innovation.eu/](http://www.improve-innovation.eu/) > and Korea Technology Finance Corporation(KOTEC) < <http://www.kibo.or.kr/src/english/> >. These firms analyze the history of an innovative SME and provide an assessment of the SME’s ability to develop and manage innovation[[28]](#footnote-28).

## Leveraging operational aggregation to address issues of size

There are many rather obvious advantages to implementing this method by incorporating many MGS, and regional and national governments. For example, on the demand side, there may not be sufficient innovation being targeted at any one sector, or there may not be enough innovative SMEs targeting any one specific sector to justify allocating scarce resources to such an endeavor.

Likewise on the supply side, the required knowledge and operational capacity to implement such an approach might be too large for any single MGS, and too expensive relative to the limited market size of any single sector covered by any one MGS. In addition, even though the number of investments and the dollar value of these investments might be small, the associated risk might be too high for any one MGS.

These size-related challenges, whether on the supply or demand side, can be addressed by aggregating MGS at the society-level and incorporating regional and national governments that for a long time have been keenly interested in investing in innovative SMEs but have not been able to find a way to implement an acceptable credit decision process. Such collaboration would combine the sectorial-specific knowledge of individual MGS, the portfolio and operational capacities of the MGS group, and the financial scale of government entities. It is also reasonable to expect that such a concept be implemented as a small, pilot project that would serve as a learning experiment to evaluate future potential expansion.

Note to the reader: The following sections are to be developed.

# Financing what

## Debt, Equity, or Hybrids

## Venture Capital as potential market competitor or MGS as a substitute to VC.

## Paying only for success – Modifying and leveraging the Competition Model

About the Author

**Giuseppe Gramigna, Economist**

Giuseppe’s work focuses on the small and medium enterprise sector. His academic research focused on how changes in the financial markets affect small business lending, and on labor migration during periods of economic transition. He later worked in the Equity Research Department of a major investment bank, where he focused on natural resource industries.

At the U.S. Small Business Administration, Giuseppe serves as the Agency’s Chief Economist, advises the Agency on economic trends affecting small businesses, and leads research on economic impact evaluations and strategic planning. He serves as the Chair of the interagency Subcommittee on Evaluating Business Technical Assistance Programs (E-BTAP), a group responsible for developing best practices for implementing economic impact evaluations within the U.S. Federal government. He also serves as the U.S. Permanent Delegate and Vice Chair to the OECD Working Party on SMEs and Entrepreneurship. Giuseppe works with international organizations such as APEC and ASEAN. He severs on the scientific committees of several academic institutions and publications, and is a frequent speaker on the domestic and international arena.

Before joining the U.S. Small Business Administration, Giuseppe headed the consulting firm, DASSI Corp. His other areas of interest include the construction industries, tourism, information services, and regional economic development. Giuseppe earned a BA in economics from The State University of New York at Purchase, and a graduate degree in economics from The New School For Social Research.

During 1996 to 2001 Giuseppe served as vice president and then president of the SUNY Purchase College Alumni Association., He also served as Alumni Representative to the Purchase College Council, a gubernatorial appointed oversight body.

1. A commonly quoted example is the use in Europe during the Middle Ages where, in order to avoid interest prohibition on lending, bankers received loan repayments in a currency other than the currency used to disburse the loan. [↑](#footnote-ref-1)
2. GG to possibly discuss Financial Deregulation in the U.S. [↑](#footnote-ref-2)
3. GG to site Warren report, GG Springer report, and OECD Scoreboard reports for info on crisis and SME definitions [↑](#footnote-ref-3)
4. GG to cite Joseph Stiglitz 1980’s work [↑](#footnote-ref-4)
5. GG to define and provide examples of Trade Finance. [↑](#footnote-ref-5)
6. Unfortunately there is no readily available data to measure the size and nature of this credit gap…cite literature on this presumed gap. [↑](#footnote-ref-6)
7. GG to further discuss SME Spectrum Paper, and the importance of SMEs to Innovation [↑](#footnote-ref-7)
8. Mutual societies are a collective of independent businesses that commit to granting a collective credit guarantee to their members. The philosophy is based on the mutualization of responsibility, decision-making by peers, and to operating within a market economy. Nevertheless, mutual guarantee societies can and do receive public support. See the European Commission. Best Reports No3-2006, “*Guarantees and Mutual Guarantees*”. 2006 [↑](#footnote-ref-8)
9. The availability of micro-level data with such high degree of data items in each country or region may play an important role in determining where such a pilot project could be first supported and implemented. [↑](#footnote-ref-9)
10. *Intangible Assets* are defined as …. GG Further develop this research note: With respect to the question on metrics of innovation, patents, trademarks, brands, and publications are generally considered a rough, and possibly poor, proxies to be used when all else fails... Additional data and research on this area:

    Look at the innovation questions in the new proposed Census Annual Survey of Business Owners (ASBO). The Canadians use both IP metrics and new product/process question in their Survey on Financing and Growth of Small and Medium Enterprises - <http://www.ic.gc.ca/eic/site/061.nsf/eng/02776.html> ...Census already collects for NSF some innovation data on new products/processes by company as part of its Business Research and Development and Innovation Survey. See <http://www.nsf.gov/statistics/srvyindustry/> for general information; <http://www.nsf.gov/statistics/2015/nsf15307/#chp1&chp2> for data from the last survey 2011 - item 50

    <http://www.nsf.gov/statistics/2015/nsf15307/pdf/srvybrdis_2011.pdf> - questions 1-11 to 1-14.

    NSF is schedule to release the latest data in July (from Census' 2013 survey). Note that this is a mandatory survey for participants (under Census powers). Census and NSF also piloted the ASBO question in its Microbusiness Innovation Science and Technology Survey. I don't know how often this survey will be. Both of these are in keeping with the OECD Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition [www.oecd.org/sti/oslomanual](http://www.oecd.org/sti/oslomanual) The Oslo Manual goes into much greater depth on types of innovation. [↑](#footnote-ref-10)
11. GG Note: let XProf = profit of financed innovative SME, YProf = profit of non-financed innovative SME. Then Market Potential = f[(XProf – YProf)\*Number of non-financed innovative SMEs]. [↑](#footnote-ref-11)
12. GG to provide source: White House and OMB docs, and E-BTAP upcoming paper. [↑](#footnote-ref-12)
13. Kenan P. Jarboe and Ian Ellis. *Intangible Assets Innovative Financing for Innovation*, Winter 2010 [↑](#footnote-ref-13)
14. GG to cite Kenan Jarboe works. [↑](#footnote-ref-14)
15. Gramigna 1985 paper, and recent FDIC data on decline in financial institutions, especially Community Banks. Also FDIC Data on small loans, possibly citing GG OECD Scoreboard writings. [↑](#footnote-ref-15)
16. GG to provide data [↑](#footnote-ref-16)
17. GG to develop… Credit bureaus have been around since the 1880’s… and Credit Scores … [↑](#footnote-ref-17)
18. GG to provide data and evidence to support this argument [↑](#footnote-ref-18)
19. GG to provide example… 1980’s development of Certificate of Deposits [↑](#footnote-ref-19)
20. GG to provide example… 1980’s development of Bank Holding Companies [↑](#footnote-ref-20)
21. See the Federal Reserve Act of 1977; ECB: Price, Treaty on the Functioning of the European Union, Article 127 (1) [↑](#footnote-ref-21)
22. If needed GG to expand on the notions of *Rule*, *Soundness*, *Stability*, and *Fairness*. [↑](#footnote-ref-22)
23. GG to further develop the second and third assertion. [↑](#footnote-ref-23)
24. Most developed economies are regulated. In the U.S., the *Consumer Finance Protection Bureau* is the regulatory agency. *The European Securities and Markets Authority (ESMA)* is the responsible regulatory agency. [↑](#footnote-ref-24)
25. GG to expand this section to ensure that the full spectrum of techno-centric new entrants is covered. Also want to develop the concept of **Capital Raising Function** (retail Vs. Wholesale. See GG 15 05 21 Malaysia Presentation.) [↑](#footnote-ref-25)
26. Most financial institutions use Survival Analyses that estimate the timing and value amounts of critical loan statuses for the entire expected lifetime of a loan, which in turn, determine the cash-flow, profitability and risk of the loan. Aggregating these elements across a financial institution’s portfolio determines the portfolio’s cash-flow, profitability and risk. Typically the rudimentary loan statuses include on time payments, pre payments, default, recovery, and charge offs. [↑](#footnote-ref-26)
27. Assessing the *Scientific Validity* of a specific innovation typically includes assessing the scientific evidence that indicates (i) if the innovative solution actually works, (ii) it is unique enough to pass patenting requirements, and (iii) it is not easily duplicated or replaceable. [↑](#footnote-ref-27)
28. GG to provide further details [↑](#footnote-ref-28)