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## Strange Beasts

### Making Sense of PAYGo Solar Business Models

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*Creating Markets, Creating Opportunities*

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# Contents

## **EXECUTIVE SUMMARY 1**

### **1. INTRODUCTION 5**

What Is PAYGo? 5

What Is the Market Opportunity for PAYGo Solar? 6

PAYGo Impact 6

Same-Same, but Different 7

### **2. OPERATIONAL AND STRATEGIC IMPLICATIONS OF VERTICAL INTEGRATION 9**

Vertical Integration in the PAYGo Sector 9

Strategies for Smoother Scaling 10

### **3. CHALLENGES IN ASSESSING THE FINANCIAL PERFORMANCE OF PAYGO LENDERS 13**

Business Model Novelty Is a Barrier to Performance Analysis 13

Lessons from Other Industries 14

Applying the Lessons to the PAYGo Sector 16

A New Approach to PAYGo Financial Reporting 17

## **CONCLUSION 23**

## **REFERENCES 24**

## **APPENDIX 25**





## Executive Summary

**P**latypuses are strange beasts—unfamiliar combinations of familiar parts that defy classification. The same goes for the strange new breed of companies that sell pay-as-you-go (PAYGo) solar home systems (SHS). Born out of necessity, they defy categorization: Are they off-grid energy utilities? Retailers? Banks?

The impact of PAYGo companies is undeniable. In less than five years, they have improved the quality of life for up to 8 million people—primarily in Sub-Saharan Africa—by offering financed solar energy products. These solar products are replacing low-quality kerosene lamps with modern lighting. They enable convenient charging of mobile phones and they provide clean, affordable power for appliances ranging from TVs to refrigerators and grain mills.

The success of PAYGo companies is fueled by several factors, notably the following:

- Global spot prices for solar photovoltaic modules over the past decade have decreased by half (Economist 2012; EnergyTrend 2017), and there has been a three-quarters decline in battery pack prices since 2010 (Frankel and Wagner 2017).
- Super-efficient bulbs and appliances that require less power for the same output as “traditional” technology solutions have entered the market.
- Mobile money has become ubiquitous, particularly in East Africa. This development enables customers to make micropayments for energy services and expands the reach of energy companies into remote areas.

In many ways, PAYGo companies are typical startups that spring from innovative technological developments and attempt to “disrupt” the status quo. In other ways, they are atypical. They attract equity investments from Western venture capital firms in businesses that focus on the base-of-the-pyramid (BOP). And they sport a unique operational structure that spans multiple sectors and

features vertically integrated operations that encompass product design, sales and distribution, installation and maintenance, payment collection, and ultimately, financing. This paper focuses on how managers and investors assess the performance of PAYGo companies.

A complex business model (vertically integrated, lease-to-own) dominates the PAYGo sector. In this model, manufacturing, retail, and finance operations are combined. While this innovative configuration of multiple value chains has been important to the sector’s success, the model presents a challenge for companies and financiers that are seeking to optimize, evaluate, and value businesses whose constituent parts are distinct and dissimilar. Two key questions emerge:

1. What are the operational implications of vertical integration in the PAYGo business model, and what strategic considerations might enable smoother paths to scale?
2. How can companies and investors assess the financial performance of PAYGo lenders?

### Vertical Integration: Operational implications and strategic considerations

One useful approach to understanding any company is to list its activities and then map the activities to their corresponding value chains. Leading PAYGo firms’ activities include aspects of manufacturing, retail, and lending/leasing. These providers initially lacked viable partners from different sectors and became involved across several value chains. However, as processes and particularly products become more standardized and more companies that offer business-to-business services emerge in the wider ecosystem, vertical integration may no longer be necessary. Indeed, there are growing signs of specialization.

Companies that choose to remain vertically integrated can glean operational lessons from financial services providers, notably microfinance institutions (MFIs) that have serviced BOP customers for decades. These lessons include the following:

- Implement strict underwriting protocols, including credit scores using alternative data.
- Reduce tenor gaps between the commercial debt they incur and consumer finance they offer.
- Improve the monitoring and reporting of portfolio health.

From a strategic perspective, the most logical steps may be to either outsource financial management to a bank or MFI that specializes in this type of business or, alternatively, in-source by converting a PAYGo consumer financing unit into a deposit-taking bank, thereby itself becoming highly specialized. As noted in Muench, Waldron, and Faz (2016), both models offer advantages through lower cost of funds for the business and a higher likelihood that growth will be sustainable.

However, an accurate understanding of performance requires analyzing “financial institution activities” separately from the rest of the company’s activities, while recognizing that strong dependencies and synergies make this exercise imperfect.

Companies can undertake an internal management accounting exercise to produce separate statements for different business units that supplement audited financials. If the company is committed to its financial institution, it can start to carve out the financial institution into its own legal entity, making it easier for different classes of investors to invest in either side (Figure 1 illustrates this decision process).

## Financial Analysis of a PAYGo Lender

Depending on the nature of their business, companies structure their financial statements differently and require different analytical approaches to assess their performance. For example, a financial institution’s income statement compares interest revenue to interest expense. A manufacturer, on the other hand, compares revenues to the cost of goods

sold. Several options are available to ensure that best practices from each sector are adapted to the PAYGo model—the option proposed in this paper is that of splitting the financial statements in two. To illustrate how a PAYGo company could generate separate financial statements for its “energy services arm” (OpCo) and “financial institution arm” (FinCo), and the perils of neglecting to do so, this paper presents a financial model for a generic PAYGo company, PAYGo Inc.

Key insights derived from the model include the following:

- Consolidated earnings before interest, taxes, depreciation, and amortization (EBITDA) can be misleading if all customer payments are reported as revenue (including principal, interest, and margin), while interest expense is below the EBITDA line.
- Consolidated cash flows might be negative, particularly during initial years in operation. Yet, as long as PAYGo Inc. can earn a higher interest rate on its receivables than it pays on its debt, the company should grow its portfolio as quickly as its underwriting standards will allow.
- If PAYGO companies are evaluated as technology companies, their levels of debt might be a cause for concern. But lenders tend to have much higher leverage than commercial companies; looking at OpCo and FinCo debt separately provides a more nuanced and accurate picture.

## Conclusion

Despite their relatively recent emergence, PAYGo companies are rapidly approaching maturity. These businesses have the chance to reduce the energy poverty gap, drive financial inclusion, and improve the quality of life for millions of people. But their ability to reach a significant portion of the 1.1 billion people who lack modern energy could become constrained if aspects of the business model that might merit review and refinement are left as is. For a specific set of companies—those that are mature, are vertically integrated, and operate across multiple

value chains—it is imperative to understand the potential benefits and risks of moving along the spectrum of separation illustrated in Figure 1. By exploring these issues of integration in greater

depth, we hope to contribute to the objective of building efficient, effective, and scalable businesses that fulfill their inherent potential of providing valuable services to low-income customers.

FIGURE 1

### Spectrum of separation

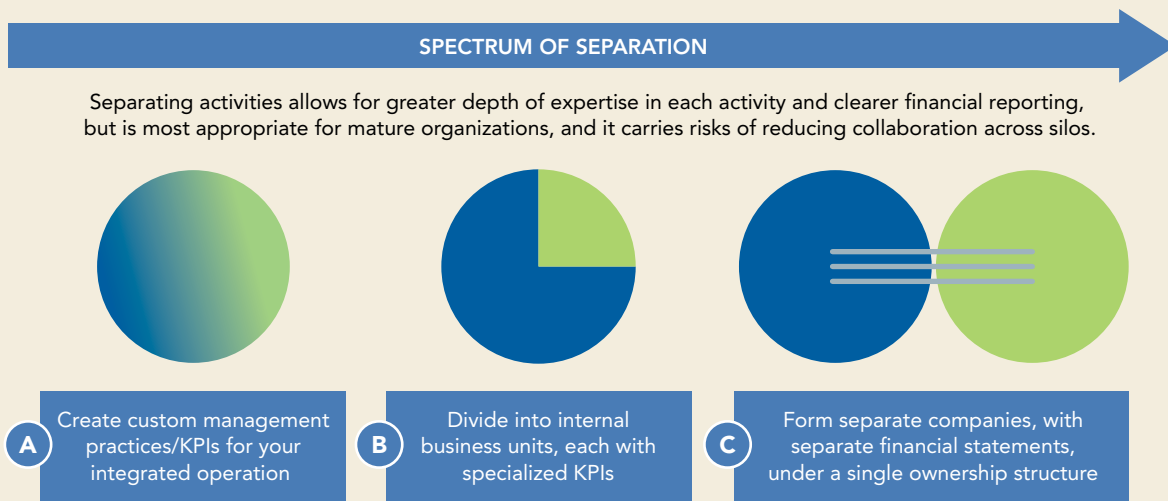




Photo by Bernard Recirdo



## Introduction

**P**latypuses are strange beasts. An aboriginal myth holds that they are the result of a (presumably) illicit liaison between a comely female duck and a persuasive river rat. In 1799, George Shaw performed the first scientific examination of a platypus. He spent the first half of the examination looking for the stitches holding together what appeared to him to be an obvious hoax. Part duck, part beaver, allegedly mammalian, but confirmedly egg-laying—platypuses defy classification.

The same goes for this strange new breed of companies that offer pay-as-you-go (PAYGo) solar home systems (SHS). Born out of necessity, these companies bring together modern electricity generation options (solar photovoltaics) that are relatively new to base-of-pyramid (BOP) markets, familiar business models (hire-purchase or lease-to-own), and cutting-edge technology solutions (super-efficient direct current appliances, mobile money payment mechanisms) to create something genuinely new.

These companies are agglomerations, amalgamations, curious combinations of competencies operating in hard-to-reach places with unprecedented financial support. Even the nomenclature engenders confusion: Are they distributed energy service companies (DESCOs) or SHS retailers that use PAYGo approaches? Or are they DESCOs that use PAYGo? Part energy company, part retailer, with consumer financing activities somewhere close to a microfinance institution (MFI)—you would be forgiven for looking for the stitches.

### What is PAYGo?

The PAYGo sector emerged about five years ago, as companies that sold solar lanterns, kits, and home systems to off-grid (or weak-grid) customers primarily in Sub-Saharan Africa and South-East Asia realized that, to make these systems more afford-

able for customers, they needed to find an efficient way to spread the cost of their devices over time. The solution, it appeared, was to build in technology that allowed their products to be purchased in installments—effectively mimicking how customers currently purchase kerosene for lighting or mobile phone air time top-ups (in small batches, as they need and/or can afford it) or pay for charging services.

The PAYGo sector has taken time to coalesce around one model. An early debate between energy-as-a-service (where the customer paid for energy services but never acquired the solar system itself) and energy-as-an-asset (where the solar system is paid down over time and ultimately transferred to the customer) appears to have been resolved in favor of the asset: approximately 90 percent of PAYGo sales today are lease-to-own arrangements. In these, SHS are typically financed over a period of a year or more, with the user making a down payment of 10–20 percent, and then using a mobile wallet or scratch cards to buy “units” of energy service in whatever amount they choose (daily, weekly, monthly). If those units run out, the system automatically shuts off until credit is topped up, like a prepaid electric meter or prepaid airtime.

Once the user has purchased the contractual number of units, the system unlocks permanently and ownership transfers to the user. Having gathered significant consumer insight through repayment and use data, many providers offer additional financing to qualified customers who may choose to recollateralize (relock) their solar unit to purchase a financed cook stove, smartphone, or TV, also through the PAYGo lender.

There are variations within this lease-to-own model. For example, BBOXX, a major PAYGo company that operates in Kenya, Rwanda, and Togo, offers an asset-service hybrid: appliances, such as lights or TVs, are paid off in 36 months, but the solar unit itself is on a 10-year lease. This effectively is an energy-as-a-service model. And not all

asset models are identical: Lenders differ in the tenor of their loans (8–36 months) and the amount of flexibility they offer customers, with “acceptable” payment timelines 110–125 percent of the nominal tenor.

### What is the market opportunity for PAYGo solar?

Bridging the energy access gap and achieving the Sustainable Development Goal on energy—which will require reaching 1.1 billion unelectrified people by 2030—is a monumental challenge, and clearly PAYGo lenders cannot be expected to solve the problem by themselves. Other solutions, including grid extension and mini-grids, also play an important role. However, this paper’s focus is the PAYGo model. To better understand this business model’s potential, it is worth reviewing some rough numbers of the potential market demand and the funding that would be required to meet that demand.

Assuming there are more than 200 million households without electricity, of which one-quarter are potentially good candidates of PAYGo solar because of their electricity demand, willingness and ability to pay, and location in low-density areas, it would cost US\$11 billion for PAYGo lenders to get a US\$200 an SHS into each (see Figure 2). IFC (2012) estimated that, based on what people currently spend on kerosene and charging services alone, the energy access market is worth US\$18 billion annually. This implies a significant market opportunity

in diverting existing energy spend toward PAYGo solar, but the working capital needed to finance those units is likewise significant.

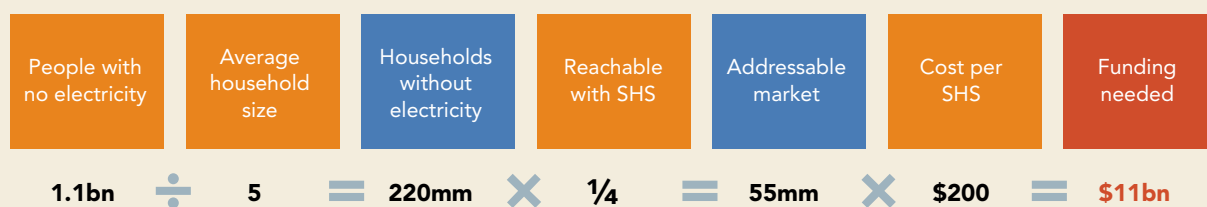
### PAYGo impact

Call them what you will (hereafter, in this paper, lease-to-own providers are referred to as PAYGo lenders and the sector is referred to as PAYGo), their impact has been undeniable:

- Upwards of 1.6 million units are estimated to have been sold by the middle of 2017, reaching 7–8 million people (Sharma 2017).
- In the second half of 2016, 54 percent of total SHS revenue went to PAYGo companies (with the remainder going to companies that use the retail sales model). The actual volume of PAYGo sales accounted for an even larger share of the market (GOGLA et al. 2017).
- 1.6 million mobile money transactions were generated by PAYGo lenders in one month (September 2016) (GSMA 2017).
- The top six PAYGo solar companies worldwide (M-KOPA, Fenix, Off Grid Electric, Mobisol, d. Light, and Azuri) account for more than 90 percent of all unit sales (Climatescope 2017); 83 percent of units were purchased by customers in four East African markets: Kenya, Tanzania, Uganda, and Rwanda (Sharma 2017).

FIGURE 2

#### Very rough and highly speculative estimate of funding need



Sources: 1.1 billion without electricity (IEA 2017), average household size (UN DESA 2017), % reachable with SHS (IEA 2012), cost per SHS (average of available pricing information).

These companies are addressing a significant market gap:

- Only 43 percent of households in Sub-Saharan Africa are electrified (IEA 2017).
- In a business-as-usual scenario, by 2030, it is estimated that 674 million people globally will remain unelectrified, of which the overwhelming majority—600 million people or 100 million households—are in Sub-Saharan Africa (IEA 2017).

The success of the sector has been fueled by multiple factors. The prices of solar photovoltaic (PV) panels have fallen precipitously. PV spot prices have dropped from \$76.67/watt in 1977 to \$0.23/watt in 2017 (Economist 2012; EnergyTrend 2017). This decline has been even more pronounced in recent years: PV module spot prices fell 37 percent from June 2014 to October 2017—a decline of almost 1 percent per month (EnergyTrend 2014, 2017). Storage has also become less expensive: Battery pack prices cost \$230 per kilowatt-hour in 2016, down from \$1,000 per kilowatt-hour in 2010 (Frankel and Wagner 2017). Together with the emergence of light-emitting diodes and efficient direct current appliances, these developments have enabled off-grid providers to offer increasingly higher levels of energy service using less electricity, and at better price points.

In parallel, innovation in mobile payment technologies, particularly in East Africa, means that people who do not have bank accounts and live in remote areas can make electronic payments at the click of a button, and by extension, companies can track their use patterns and payment history.

Operational improvements, though harder to quantify externally, also have played an important role. The largest PAYGo companies feature cloud-based customer relationship management and asset management systems, call centers in several languages, and well-trained local technicians—all of which allow them to provide high levels of service and maintenance to customers, often in remote areas.

Thanks to their early success, PAYGo companies are being heralded as a potentially significant group of players in the energy access market. In response to an apparently insatiable customer demand for modern energy, sector stakeholders are calling for more investment, now! And rather than wait for the

market to catch up with them, many are developing innovative financial solutions to speed up market capture:

- BBOXX, working with Persistent Energy and Oikocredit, was the first company to securitize its loan portfolio, selling \$500,000 in private placements in early 2016.
- Companies such as Fenix and SolarNow have experimented with off-balance-sheet financing through special purpose vehicles.
- Less innovative, but no less impressive, M-Kopa and BBOXX have both managed to secure local currency loans from commercial banks in Kenya and Rwanda, respectively.<sup>1</sup>
- M-Kopa raised \$80 million in commercial debt in October 2017, which included a \$9 million line of credit offered by Stanbic for M-Kopa's receivables.

## Same-same, but different

In many ways, PAYGo providers are typical start-up companies that leverage innovative technological developments, rely initially on angel investors, and attempt to “disrupt” business as usual. In other ways, they are atypical small and medium-sized companies for the markets in which they operate.

Most have young management teams from industrialized countries working in emerging markets. They are among the first examples of BOP-oriented private companies that receive commercial equity investments from venture capital firms. Moreover, many providers aspire to leverage their deep customer relationships to offer a wider range of desirable products and services, from video content to internet access and health insurance to education loans. Each of the leading companies sells its own proprietary hardware, with vertically integrated operations that encompass product design, sales and distribution, installation and maintenance, payment collection, and ultimately, financing.

1. Commercial Bank of Africa in Kenya and Banque Populaire du Rwanda are issuing these loans. For an African financial sector that is notoriously risk-averse when lending to the real economy, this is a major step.

This paper focuses on the financial analysis of PAYGo companies that span multiple sectors and fuse manufacturing, retail, and finance operations. Engaging across business areas that require distinct competencies can be distracting for the management of any company; this is especially true for medium-sized businesses that have a low-income customer base. PAYGo companies also face challenges because a large chunk of their core activities (financial and to a lesser extent energy) are in highly regulated areas. In addition to the management complexities, this existential murkiness poses an important challenge for investors tasked with evaluating integrated businesses with constituent parts that cannot be easily analyzed. At the same time, disaggregating PAYGo lenders—pulling apart the platypus—entails risks and benefits.

With the emerging prominence of a logical, but complex, business model (vertically integrated, lease-to-own) that fills a gap in the market, there is an opportunity to address two key questions:

1. What are the operational implications of vertical integration in the PAYGo business model?

2. How can companies and investors assess the financial performance of PAYGo lenders?

This business model presents several challenges: large general and administrative expenses, slowing growth in core markets, and high cash burn rates. This paper explores whether these and other issues could be the result of a mismatch between activities and competencies.

As such, this paper outlines the beginnings of an analytical framework that could help the companies themselves and the investment community differentiate between good and bad performance. It is based on dialogue with PAYGo providers, is built on sound theories, uses financial models grounded in real-life companies, and draws parallels from case studies in other sectors.

The PAYGo sector has the potential to expand energy access at almost unprecedented rates, drive financial inclusion, and ultimately improve the quality of people's lives. If businesses that achieve these objectives can function more efficiently and effectively, they can help more people, faster.

## Operational and strategic implications of vertical integration

One useful approach to understanding any company is to list the activities it is involved in and then map those activities to the value chains they correspond to. This paper presents a financial model for a generic PAYGo company—PAYGo Inc.—to illustrate this process. The company’s initial list of activities is shown in Figure 3.

On its own, the list is unruly and difficult to understand. It can be made clearer and more useful if it is arranged as shown in Figure 4.

In Figure 4, PAYGo Inc.’s core activities are mapped across two value chains, that of a manufacturer/retailer (OpCo) and of a financial institution (FinCo). Depending on the company this analysis is applied to, you might end up with different configurations. Some PAYGo companies may look more like off-grid utilities, while others will be active in only parts of a value chain. However, PAYGo Inc. is a reasonable representation of some of the largest PAYGo companies operating today, particularly in Africa.

### Vertical integration in the PAYGo sector

Today’s leading PAYGo providers created something new. A decade ago, when companies started to seriously explore the commercial potential for off-grid PV solutions to serve households in Africa and Asia, they were faced with markets that were entirely unexposed to modern off-grid solutions, such as SHS; spoiled by cheap solar products of questionable quality; lacking in efficient distribution and product service networks; and/or underdeveloped as financial sectors, preventing most low-income households from accessing credit. No one knew how to offer modern energy access to BOP customers at scale, what the technical specifications and overall design would need to be to meet market requirements, or what it would take to provide consumer financing for these products. It makes sense that these companies would create vertically integrated ventures to look across the stages of the value chains and find a way to fit all the

FIGURE 3

#### List of PAYGo Inc. activities

Liability management	Underwriting	Collections	Marketing	Origination
Inventory management/distribution	Customer research	Design	Data collection and analysis	Portfolio management
Sales/distribution	Loan/lease servicing	Manufacture	Customer support	Customer base expansion

FIGURE 4

**PAYGo Inc. value chain**

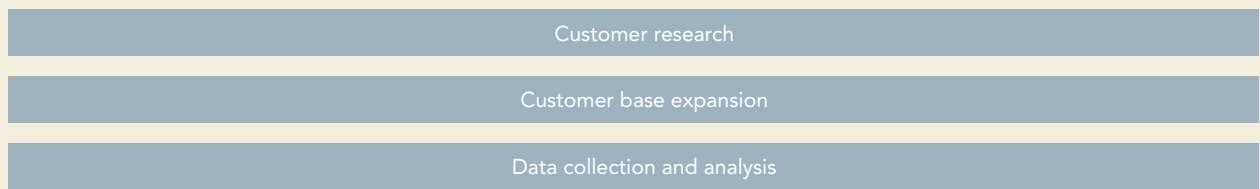
**Retail (durable goods) value chain**



**Lending/leasing value chain**



**Supporting activities**



pieces of the puzzle together. It would have been more cumbersome, if not impossible, to try to out-source any part of the value chain than to do everything in-house.

But as has been the case in other industries, as the PAYGo sector matures, a supportive business ecosystem that offers products and services to PAYGo lenders will develop. While the leading PAYGo companies remain largely integrated, different configurations of these value chains are coming into the market, notably through the business models of new entrants.

For example, in Rwanda, Ignite Power is procuring systems from multiple suppliers and stitching together financing and distribution, with the government, in principle, providing some type of guarantee on the loans. But established players are also innovating. d.Light, a solar manufacturer turned PAYGo company, and Musoni Kenya, an MFI, have partnered to combine their expertise to provide PAYGo services to the increasingly competitive Kenyan market. Greenlight Planet, another solar manufacturer, has partnered with Angaza to offer high-quality, PAYGo-ready SHS for companies to distribute and finance.

To succeed in this space, financial services providers need to master the distribution and service

problems that PAYGo lenders have been working on for years, or out-source those activities.

By the same token, PAYGo lenders also have a lot to learn from financial institutions, notably MFIs. Indeed, their success depends on adopting some of the best practices from those industries, such as underwriting (e.g., credit scoring), portfolio monitoring, and balance sheet management (e.g., reducing tenor gaps between the commercial debt they incur and consumer finance they offer).

**Strategies for smoother scaling**

In the coming years, competition will become fiercer as PAYGo lenders seek a first-mover advantage in the more attractive markets in a region. Meanwhile, as companies begin to reach truly meaningful scale, costs will come down. This also is a good thing because as consumers become more exposed to PAYGo offerings, they will demand higher quality at a lower price. Finally, SHS will likely become commoditized as these rising tides lift all boats to a point where customers really do not care so much about the brand. Hence, companies that do not make the right strategic and operational choices at this juncture, when the sector is

still relatively nascent but rapidly evolving, will be left behind. PAYGo lenders must ask themselves: Is it necessary to have such a complex assortment of activities under one umbrella? Does this configuration hinder our company's ability to scale?

Answering these questions requires a thorough financial and operational review. Determining the type of company that is being analyzed is crucial here: If it walks like a duck and talks like a beaver, it just may be a platypus. One of the worst mistakes one could make is to apply a set of analytical tools from the wrong industry. When a company's activities span multiple value chains, it is worth considering **an internal management accounting exercise to produce separate statements for different business units.**

As Section 3 will demonstrate, if one part of the company's business model involves activities in the lender value chain, then it is particularly important to separate the financial institution's activities from that of the rest of the company, because lenders are fundamentally different from nonlenders. Among other things, a lender necessarily has a larger balance sheet, which ought to be the focus of any internal or external analysis of company performance. Isolating the financial side of the business, with its larger balance sheet, from the rest of the company will provide investors and managers with a more detailed and nuanced view of the company.

Once this accounting exercise is complete, the results can be used to decide whether the activities of the financial institution side of the business ought to remain in-house or be sourced externally

(i.e., by partnering with a financial institution, which could be a bank or MFI). If the decision is to keep financing internal, then PAYGo lenders can use the separate financial statements to begin carving out a distinct legal identity for the FinCo. This could ultimately lead to the creation of a specialized, deposit-taking PAYGo bank. As noted in Muench, Waldron, and Faz (2016), both models offer advantages through lower cost of funds and operational clarity for the business, which would result in a higher likelihood that growth will be sustainable.

Bank or not, if the FinCo becomes a separate legal entity, it will have an easier time raising wholesale debt from financial institution-focused investors. For example, microfinance investment vehicles, such as responsAbility, Symbiotics, and Blue Orchard, manage US\$13.5 billion in global assets and are ostensibly looking for new opportunities (Symbiotics 2017). Meanwhile, the OpCo could focus its efforts on the nonfinancial side of the business, thereby providing the company and specialized venture capital-, retail-, and utility-focused investors with a clearer picture of a nonfinancial company's performance. Since the balance sheet of the OpCo would not include a large portfolio of receivables, it would be easier to focus on the cash flow and income statements, as is typical for nonfinancial companies.

But before any of this can happen, there needs to be a clear understanding of the business. The next section focuses on how to undertake and interpret a piece-by-piece financial analysis of a PAYGo lender.



Photo by Natalie Brown



## Challenges in assessing the financial performance of PAYGo lenders

**P**AYGo lenders have already managed to attract an impressive amount of capital in a relatively short amount of time (over US\$500 million since 2013). It could be that the companies are performing well and that the funds going into the sector are sound investments. But what if that is not the case? What if those funds are only delaying an inevitable bursting of the bubble? These questions—of impact versus hype, of sound investments versus asset bubbles—are already being debated in the broader development community. As such, the sector is at a point where it would benefit from a more granular approach to analyzing its performance.

### Business model novelty is a barrier to performance analysis

All entrepreneurs and investors take risks, but the challenge for anyone looking at a novel business model is to recognize the risks and understand how to assess them. As discussed, PAYGo business mod-

els have two unique features that can make it difficult to identify and assess their risks:

- They operate across value chains.
- They are vertically integrated.

This complicates financial analysis because different types of companies structure their financial statements differently and require different analytical approaches. For example, a financial institution’s income statement will start by comparing interest revenue to interest expense, whereas the income statement of a retailer will start with comparing revenues to the cost of goods sold (COGS) (see Table 1). These variations in the starting point by which to assess a firm’s profitability are driven by fundamental differences in the respective business models. It would be a mistake to feature interest so prominently when analyzing a retailer; on the other hand, it would be a mistake not to do so when analyzing a financial institution. So, how does an investor analyze a company that is one part retailer and one part financial institution?

**TABLE 1 Comparative income statement structures**

Retailer		Lender	
<i>Income Statement Structure</i>			
Revenue	1,000	Interest income	1,000
Less: Cost of goods sold (COGS)	(800)	Less: Interest expense	(800)
<b>Equals: Gross profit</b>	<b>200</b>	<b>Equals: Net interest income</b>	<b>200</b>
Less: Operating expenses	(150)	Plus: Noninterest revenue	50
<b>Equals: Operating income</b>	<b>50</b>	<b>Equals: Total revenue</b>	<b>250</b>
Less: Interest expense	(10)	Less: Operating expenses	(150)
<b>Equals: Earnings before taxes</b>	<b>40</b>	<b>Equals: Earnings before taxes</b>	<b>100</b>
<i>Select Key Performance Indicators</i>			
Gross margin	20%	Net interest margin	8%
Operating margin	5%	Efficiency ratio	60%

Note: Gross margin = Gross profit/Revenue; Operating margin = Operating income/Revenue; Net interest margin = Net interest income/Interest-bearing assets; Interest-bearing assets assumed to be 2,500; Efficiency ratio = Operating Expenses/Total revenue

As the industry matures, the analytical approach to assessing the performance of PAYGo companies will likely converge on a set of standards, just as it did in the microfinance industry. In the meantime, the diversity of PAYGo business models and the broad array of potential metrics could lead analysts to make grave mistakes. One such mistake would be to apply a given metric to the wrong context. Consider two of these metrics: EBITDA Break Even and Average Revenue per User (ARPU).

EBITDA—earnings before interest, taxes, depreciation and amortization—is a measure that can be useful in various contexts, from determining the sustainability of a company’s debt-bearing capacity to a quick-and-dirty valuation multiple. But it is a measure that is rarely used when analyzing a financial institution because, among other things, interest expenses are to a financial institution what COGS is to a manufacturing company: fundamental. As shown in Table 1, for a financial institution, interest expenses (and interest income) are at the core of earnings, which makes the very term “earnings before interest . . .” nonsensical. Moreover, EBITDA can be a misleading indicator of profitability for a utility. The capital expenditure involved in installing a large asset base is a significant negative cash flow for utilities, but by not subtracting depreciation, EBITDA does not account for that as an expense. This can be particularly pernicious if, as in the case of a PAYGo company, technological advances are making the assets obsolete in just a few years. As Warren Buffet said: “References to EBITDA make us shudder—does management think the tooth fairy pays for capital expenditures?”

ARPU is another metric that can be useful in certain contexts but not in others. For a utility with a large base of fixed assets, it makes sense to understand how many users the utility has and how much each of those users is paying. The same thinking could arguably be applied to some PAYGo providers that structure their business models around providing energy as a service. But it is largely useless to a retailer that sells goods (average unit price is a better metric) or a lender that does not sell goods or services but charges interest only on the amount lent.

In both examples, a metric can be useful in certain contexts, but not useful in others. That is why, as a first step, it is important to determine what type of company is being analyzed. And in the case

of a PAYGo company, where the business model can manifest itself in various configurations of multiple value chains, coming at the analysis from different angles will lead to a more accurate assessment of a company’s performance. In this paper, the focus is on the business model of PAYGo Inc., which combines elements of the durable goods and financial services value chains. This is not because other configurations are not possible, instead it is because categorizing each potential business model configuration and highlighting analytical best practices for each of them is beyond the scope of this paper.

## Lessons from other industries

The challenge of assessing the performance of a company that is involved in multiple activities is not unique to the PAYGo sector. Historical and current examples abound, and it is worth reviewing a few of them to see which lessons can be applied to the PAYGo space.

### *Auto Manufacturers—Ford*

Take, for example, the practices of the automotive industry, where most companies focus on two value chains: consumer durable goods and consumer lending. Ford provides separate reporting for its automotive and financial businesses, which makes it easy for executives and investors to consider each part separately. Its financial services business is a distinct legal entity that issues its own financial statements and has a distinct set of debt investors. But even if that were not the case, financial analysts would still try their best to separate the two using whatever tools are at their disposal. To understand why, consider information from Ford’s latest annual statement (see Table 2).

Ford’s financial services business has about 1.5 times the assets of its automotive business. To the uninitiated, this may lead to the conclusion that Ford is more of a financial institution than a car company. But as Fitch states in its Ratings Criteria,<sup>2</sup> financial institutions have larger balance sheets than typical industrial or manufacturing companies.

2. “To the extent possible, Fitch’s analysis de-consolidates FS captives from the main auto group, as their metrics (e.g. larger balance sheet, different profit margins) distort the consolidated figures when comparing the group’s core industrial performance with that of its peers.”

**TABLE 2 Select financial indicators for Ford (year ending 12/31/16)**

(Figures in US\$ Millions)	Automotive	Financial Services	Financial % of Automotive
<b>INCOME STATEMENT</b>			
Revenue	141,564	10,253	7.2%
Net Income	6,313	1,315	20.8%
<b>BALANCE SHEET</b>			
Total Assets	96,929	146,252	150.9%
Total Equity	17,298	11,935	69.0%
<b>RATIOS</b>			
Net Income Margin	4.5%	12.8%	
Return on Assets	6.5%	0.9%	
Return on Equity	36.5%	11.0%	
Equity/Assets	18%	8%	

They also have lower levels of equity relative to their assets. Since the whole objective of financial intermediation is to take funds from one source (e.g., wholesale debt, deposits) and provide them to another (e.g., loans, leases), it should be obvious that doing so will result in a highly leveraged company.

Note that it may be tempting to compare the net income margins of both companies and conclude that the financial services business is more profitable, but that would be a mistake. It is true that the automotive business generates nearly 15 times more revenue than the financial services business yet produces only five times the profit. But that comparison does not paint a complete picture. For one thing, the financial services business has much lower marketing costs than it would have if it had to attract customers independently of the Ford brand. Its customers literally walk in the door to buy the product of another company (and that company has a massive marketing budget). If you took the “Ford” out of Ford Financial Services and put it in a separate store front, it would have to spend substantially more to attract customers, making it unlikely that it would maintain the same profit margins. Another major difference is that the financial services business is much more asset-intensive and needs to have higher margins to generate an acceptable return on investment. That is, the margins must compensate for the higher asset intensity.

Even the return on equity (ROE) of the two businesses cannot be compared directly. First, as discussed, the automotive business subsidizes the financial services business by bearing customer-acquisition costs. Second, the two businesses have different risk profiles, and the higher risk business

(automotive) needs to have a higher off-setting ROE. Third, return on assets (ROA) and ROE of the automotive business are more likely to be inflated because important economic assets, such as technical know-how and brand names, are off the balance sheet, and many properties are listed at old book values rather than at current replacement costs.

#### **Mobile Network Operators—Verizon**

Another group of companies that has encountered the need to develop and manage financial institution-related activities are mobile network operators (MNOs) in developed countries. In recent years, it has become common for these players to offer device payment plans to finance the smartphones of their customers, although unlike PAYGo lenders, MNOs do not design or manufacture their devices.

Best practices for MNOs engaged in device financing are still evolving, but some hints are emerging from their financial statements. Verizon, for example, reported that in 2016 it had US\$11.797 billion in gross receivables from device payment plans. There was also US\$0.688 billion in allowances for credit losses, leaving US\$10.598 billion reported on its balance sheet in two places: “Accounts Receivable, Net” and “Other Assets.” Verizon also has sold US\$4.3 billion in receivables to other investors, though Verizon remains responsible for servicing those receivables.

The US\$11 billion in device financing receivables represents a relatively small proportion of Verizon’s US\$89 billion of wireless revenue earned in 2016 when compared with the dynamics in the PAYGo

sector, where receivables account for a much larger proportion of revenues. But other parallels to the PAYGo space make the comparison particularly interesting. For example, both mobile phones and SHS are smaller, more portable devices that depreciate quickly so it would not be cost effective to repossess them on a large scale. This contrasts with automobiles, where the underlying asset has more value and higher liquidity in the secondary market. Both mobile devices and SHS have some element of remote lockout technology built into the assets. Best practices in accounting for these and other issues related to accounting for mobile device financing are still evolving, and those in the PAYGo space would be wise to pay attention to lessons that can be learned from other sectors.

### Applying the lessons to the PAYGo sector

Clearly, it is difficult to assess the performance of a company that is involved in financial and retail activities by looking only at consolidated financial statements.

One challenge relates to the largest asset on the company's balance sheet. Whether you call these accounts receivable, loans, or leases, the underlying economics are the same: They represent obligations that other parties must pay in the future. In financial-institution-analysis jargon, the concept is referred to as "portfolio quality," and assessing it is paramount to determining an institution's performance. Portfolio quality assessment involves several elements, including the following:

- **Default risk.** A company may have \$10 million in receivables on its balance sheet, but if its customers do not typically pay on time, the real value may be less. In traditional microfinance, the standard key performance indicator (KPI) for measuring this risk is the sum of the portfolio that is over 30 days past due, commonly called PAR30. Several KPIs have been proposed to measure default risk in PAYGo companies, but the industry has yet to settle on a standard.
- **Time value of money.** If one company is expected to be repaid \$10 million over the course of two years, then its assets are more valuable than that of a company that is expected to be repaid the

same amount over the course of 10 years (all else being equal). In traditional microfinance, the value of the asset is most often the principal amount of the loan, but another approach would be to discount the stream of expected payments. Again, a variety of approaches are used in the PAYGo sector, making it difficult for investors to assess performance of a single company or to compare the performance of several companies.

Portfolio quality management is a quintessential activity of a lender, and over the centuries, the financial institution sector has developed a rigorous set of techniques to assess portfolio quality. These analytical methods are not perfect and modern economies are still prone to credit bubbles, but the tools to prevent those bubbles are infinitely more refined in the traditional banking or even the microfinance sectors than they are in the PAYGo sector.

New analytical methods and KPIs need to be developed for the PAYGo sector, and an initiative to do just that is being led by Lighting Global, in partnership with the World Bank and Global Off-Grid Lighting Association (GOGLA). A key part of the initiative is not just to develop KPIs, but also to determine the best way to apply them (Lerner et al. 2017). There are several options, including the following:

- **Status quo.** Simply apply the new methods and KPIs to companies as they exist today. However, one barrier to this approach is that PAYGo companies currently issue financial statements that intermingle financial and nonfinancial activities, making it difficult to apply the appropriate analytical techniques. See Box 1 for an example.
- **SPV/securitization.** Placing the portfolio or receivables into special purpose vehicles (SPVs) and securitizing that portfolio would make it easier and cleaner for debt investors to analyze portfolio quality and fund portfolio growth. This may be a viable option, but some of the potential barriers to achieving it are scale and collateral. Asset securitization markets thrive (e.g., mortgages, car loans) when they have trillions of dollars in assets and loans that are typically backed by stronger collateral than an SHS.

A third approach, and one recommended in this paper, is to follow the examples of Ford and other

**BOX 1****The interest rate question**

The approach to PAYGo financial reporting addressed in this paper highlights one very important element of PAYGo business models that is rarely discussed: interest rates charged to customers. All payment plans have an embedded interest rate. However, determining that rate for PAYGo companies can be challenging because (i) the only public knowledge is the stream of payments, and (ii) it is difficult to determine the appropriate cash costs of a PAYGo SHS. To illustrate the point, consider the two scenarios in Table B1-1.

**TABLE B1-1 PAYGo Inc. interest rate scenarios**

Scenario	A	B
Sum of 12 monthly payments	120	120
Cost of physical inputs for SHS	60	60
Market value of SHS if bought in cash	100	80
OpCo gross margin	40%	25%
FinCo annual rate	41%	122%

In both scenarios, a customer receives an SHS and pays a total of US\$120 by making 12 monthly installments of \$10 over the course of one year. In both scenarios, the cost of hardware to manufacture the SHS for PAYGo Inc. is US\$60. It might seem evident that since the COGS of the product is US\$60 and the sum of all the payments is US\$120, then the gross margin is 100 percent. However, there is also an interest rate embedded somewhere in the final price, and deter-

mining that requires knowing what the SHS would cost if it were bought outright. This being the case, an alternative approach may be to take the sum of the various components that go into the SHS (e.g., solar panel, battery, modem, remote lockout hardware). However, this approach would not reflect a complete picture either. Most PAYGo companies include warranties and provide some degree of customer service, and the value of those services needs to be added to the cash cost. Finally, the intellectual property of a revolutionary device that is user-friendly has a value that also needs to be considered. Apple, for example, earns approximately a 40 percent gross margin on each iPhone it sells.

Determining the cash price matters because it drives the interest rate. In scenario A, the assumption is that the SHS has a cash price of \$100, so OpCo would earn a gross margin of 40 percent and FinCo would earn an interest rate of 41 percent. In scenario B, the market value of the SHS is \$80, which results in a gross margin of 25 percent and an interest rate of 122 percent.

It may be argued that whichever of these scenarios is closer to reality, the result is an interest rate that is too high. The issue of what should be considered excessive interest rates is familiar and controversial territory in the realm of traditional microfinance and weighing in on that debate is outside the scope of this paper. What is clear is that an interest rate exists, and that standards should be set to ensure transparency at the very least.

companies that have created captive (i.e., co-owned or in-house) financing units: **Create separate financial statements for the retail and credit sides of the business.** There are risks and challenges with this approach as well. Not least of which is the fact that it would be difficult to completely divorce the servicing of the SHS asset (which may need to be done by the retail company) from the financing of the SHS. However, these challenges could be addressed and the benefits would outweigh the costs. The remainder of this paper outlines the

advantages of taking this approach, and how it might work in practice for a PAYGo company.

**A new approach to PAYGo financial reporting**

To illustrate both how a PAYGo company could generate separate financial statements for its financial institution arm and the risks of neglecting to do so, this paper presents a financial model for PAYGo

Inc., the generic PAYGo company introduced in first half of this paper.

At the core of the financial model are the unit economics of an SHS sold by PAYGo Inc. The unit economics are then divided between **one company that focuses on the durable goods retail value chain (OpCo) and another that focuses on the financial services value chain (FinCo)**. The assumption is that, at the time of sale, OpCo sells the receivables to FinCo (see Box 2). OpCo earns a 30 percent gross margin on each unit, and the rest of OpCo's financial statements are structured like those of a standard durable goods company. Meanwhile, FinCo earns an effective yield of 60 percent on the receivables it purchases from OpCo, and is otherwise structured like a standard nonbank financial institution that relies on wholesale financing. The Appendix illustrates how the economics are distributed between entities.

A snapshot of the financial statements derived from the model are included in the Appendix. This paper does not focus on how to build this type of model. Rather, the focus is on demonstrating some of the analytical errors that could occur if attempting to assess the performance of a PAYGo company without considering its hybrid nature.

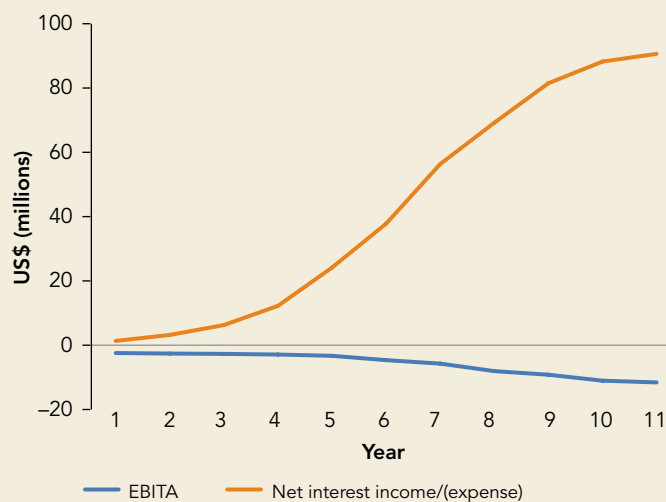
The consolidated financial statements of OpCo and FinCo (also included in the Appendix) are presented in a manner similar to the way most PAYGo companies structure their financial statements today. This illustrates how challenging it is to use only the consolidated statements to assess performance, and why it is easier and cleaner to look at them separately. The following are three examples of mistakes, one from each of three financial statements, that could be made by focusing only on the consolidated statements approach.

#### EXAMPLE 1. INCOME STATEMENT—EBITDA

As discussed, EBITDA is an illogical metric to use to analyze a lender (since earnings consist largely of interest). Forcing the financial statements to calculate EBITDA, as the PAYGo Inc. consolidated finan-

FIGURE 6

#### PAYGo Inc. consolidated EBITDA and net interest income



cial statements do, and then basing any decision on that metric, would result in a significant analytical mistake, as illustrated in Figure 6.

A focus on EBITDA would show that PAYGo Inc. is performing poorly because EBITDA ignores a significant stream of net interest income. In the case of PAYGo Inc., the negative EBITDA at the consolidated level is more than offset by net interest income.

The situation can be even more challenging for PAYGo companies that do not break out interest income from their device sales at all. What is more likely to happen in that scenario is that all the payments received from customers are reported as revenue (including principal, interest, gross margin). Meanwhile, all interest expense is reported below the EBITDA line, even though it is arguably the core part of the financial institution business. In this case, focusing on EBITDA would have the opposite effect of that illustrated in Figure 6. EBITDA would be inflated because it does not consider an expense tied directly to an element of revenue. It would be like eliminating the cost of steel in the COGS of an auto manufacturer.

Regardless, showing only consolidated financial statements forces the categorization of interest in a manner that is incorrect for either the durable goods business or the financial institution business. To provide a clearer perspective of the performance of

FIGURE 7

FinCo and OpCo net income

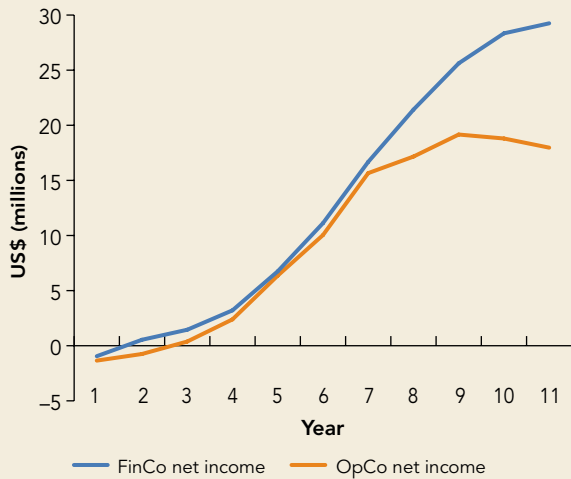
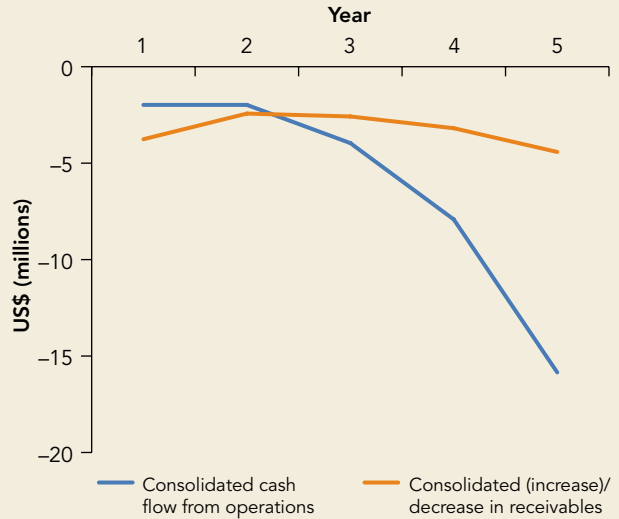


FIGURE 8

PAYGo Inc. cash flow statement metrics (5-year)



each company, the financial statements of OpCo and FinCo need to be separated, and the focus should be on the net income of each, as shown in Figure 7.

**EXAMPLE 2. CASH FLOW STATEMENT—CASH FROM OPERATIONS**

Because cash is both the input received from suppliers and the output provided to customers of a financial institution, it is difficult to make use of the cash flow statement in the way it would be used for a non-financial institution. For example, consider a bank (BankCo) that has an opportunity to borrow US\$100 at 10 percent interest for two years and simultaneously lend that money to another borrower at 12 percent interest for two years. This is clearly a good deal for BankCo (all else being equal), but what would the financial statements show at the end of the first year? Assets of 100 yielding net income of just US\$2, and 2 percent is a very low ROA.

As long as BankCo keeps growing, providing more and more of these US\$100 loans, the amount of cash required from debt investors will dwarf its net income. But does that mean that BankCo is providing a bad deal to investors? Not necessarily. If the bank appropriately manages its risk, the debt investors in this case have the option to recuperate 100 percent of their initial investment after

two years. The equity investors in this example have not put up any money, so they should be happy as well.

For that reason and others, the cash flow statement tends to play a secondary role in analyzing the financial statements of a lender. That contrasts with most other industries, where the cash flow statement is often the focus. In the case of PAYGo companies, the issue manifests itself most clearly in cash from operations, see Figure 8 and Figure 9.

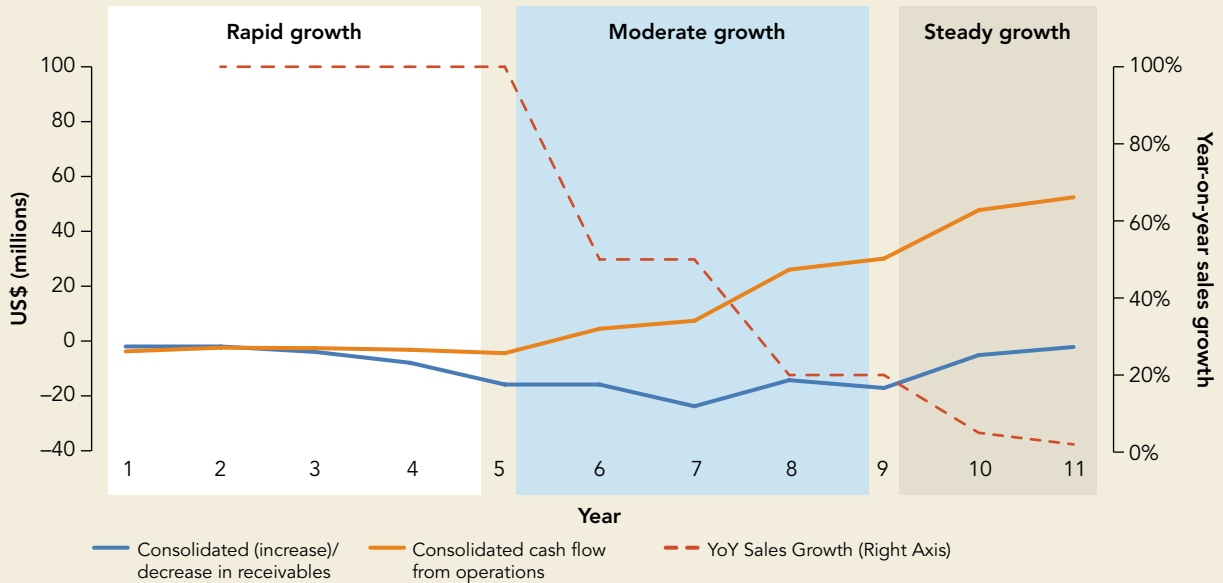
As shown in Figure 8, the consolidated cash from operations for PAYGo Inc. is between negative US\$2 million and negative US\$5 million for the first five years of the company’s existence. A closer look into the accounts shows that the biggest drag on cash from operations is an increase in accounts receivable, which costs the company over \$15 million in negative cash flow in Year 5. Based on this negative cash flow, it may be tempting to conclude that an increase in accounts receivable is the biggest problem the company faces. And zooming out to a wider time horizon, as shown in Figure 9, may seem to confirm that view.

Figure 9 shows that PAYGo Inc. starts generating significant operating cash flow only when accounts receivables cease to be such an aggressively negative cash flow.

Should PAYGo Inc. focus on reducing its accounts receivables so it can return more cash to investors?

FIGURE 9

**PAYGo Inc. cash flow statement metrics (11-year)**



Of course not! This issue is the same as the one BankCo faced in the example. Notice that the dramatic increase in cash from operations occurs only once the company decreases its rate of growth. This is because, as in the BankCo example, cash outflow to provide a loan is almost always greater than cash inflow from interest (this effect tends to be more pronounced with longer-term loans and with lower interest rates).

Does this mean that PAYGo Inc. should reduce its growth rate to improve its cash from operations? No! As long as PAYGo Inc. can earn a higher interest rate on its receivables than it pays on the debt it has to raise to fund its receivables (all else being equal), it should continue to grow its portfolio of receivables as much as possible. “All else being equal” is a key phrase here, because PAYGo Inc. will need to ensure that it is making loans that will actually be repaid (i.e., good underwriting) and that it has access to sufficient wholesale debt of appropriate tenors and currencies (i.e., sound liability management) to fund its growth. The point is that the negative cash flow resulting from the growth of receivables is not a flaw in the business model. It is

a feature of the business model, just as it is for any lender or leasing company.

**EXAMPLE 3. BALANCE SHEET—LEVERAGE**

The business model of a lender is based on (i) securing a liability (e.g., wholesale debt, deposits) that requires a lower interest expense and (ii) creating an asset (e.g., loan, lease, receivable) that pays a higher interest rate. Because of this, lenders tend to have much higher leverage than nonfinancial institutions. In developed markets, for example, it is not uncommon for banks to have debt/equity ratios close to 10x. More appropriate to the PAYGo context, MFIs tend to have debt/equity ratios around 5x.

Commercial or industrial companies, on the other hand, tend to have much lower debt/equity ratios. This is especially true for technology companies, because of the unpredictable nature of technology, and for start-ups that do not have extensive track records and must substantially rely on equity investors. Those features make debt investors wary



BOX 2

Transfer pricing

The model presented in this paper is a theoretical and simplified construct that is intended to highlight fundamental performance analysis issues. Operationalizing this approach would be a complex exercise that would involve taking into account several legal and accounting issues, including those relating to transfer pricing between business units. The legal and accounting practices for transfer pricing vary by jurisdiction, but the issues relate to, among other things, where profits are accounted for.

For example, OpCo could sell its receivables to FinCo at an unfairly high price. The higher price would result in lower profits for FinCo, and higher profits for OpCo. In addition to potentially deceiving customers

about the interest rate (as illustrated in Box 1), it would be unfair to FinCo investors (if they are not the same investors of OpCo). Moreover, if the companies are subject to different tax regimes, there is the potential issue of tax avoidance.

These transfer pricing issues are surmountable and are certainly not unique to the PAYGo sector, but addressing them in detail is outside the scope of this paper. It is worth noting, however, that a best practice for captive financial companies is to make their portion of any transfer price as clean and transparent as possible. This is because the debt investors that captive financial companies rely on are averse to ambiguity.

of technology companies and start-ups. However, investing in a loan portfolio carries a lower risk (assuming good underwriting) because each loan obligor has already committed to make a payment. It is also important to note that the debt-bearing capacity of commercial/industrial companies is typically established with ratios like debt/EBITDA or interest coverage, which are rarely used for financial institutions.

Figure 10 illustrates that the consolidated debt/equity ratio of PAYGo Inc. climbs to 100 percent quickly. If PAYGo Inc. were considered to be a technology company, that level of debt might be a cause for concern. But splitting that debt into FinCo and OpCo provides a much more nuanced and useful picture of the technology company's modest indebtedness.

FIGURE 10

Debt/equity ratio

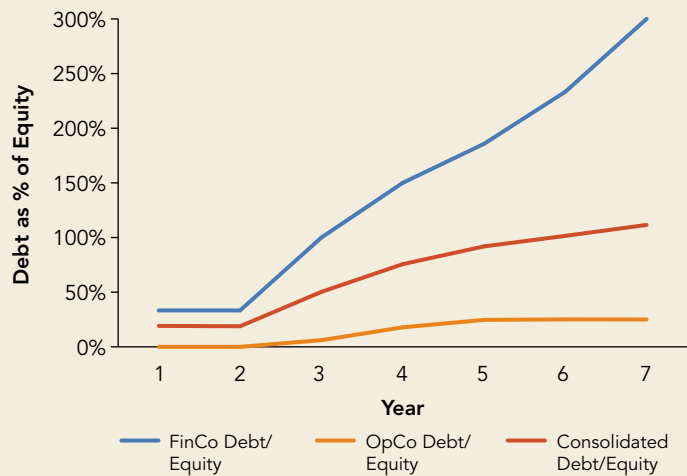




Photo by Hailey Tucker



## Conclusion

**P**AYGo lenders have built truly remarkable businesses in a short period. As the sector moves beyond its infancy, these companies are expected to change the way off-grid households access both energy services and financing that supports an improved quality of life more broadly. Doing so will require sustainable, understandable, and investable businesses.

The PAYGo sector is approaching its first half-decade of existence, and more companies that have successfully attracted the interest of donors, multi-

lateral banks, and frontier investors are celebrating the 100,000-customer mark. If the sector plans to move to the next level and start targeting a broader spectrum of investors, including commercial financial institutions, a more transparent and granular analysis of its key drivers must be undertaken. A separate approach to PAYGo companies' retail activities and consumer financial activities could help investors to better assess a business and the potential for it to scale up.



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## Data and Methodology

### Schematic of unit economics for an SHS sale

#### 1 INITIAL PURCHASE:

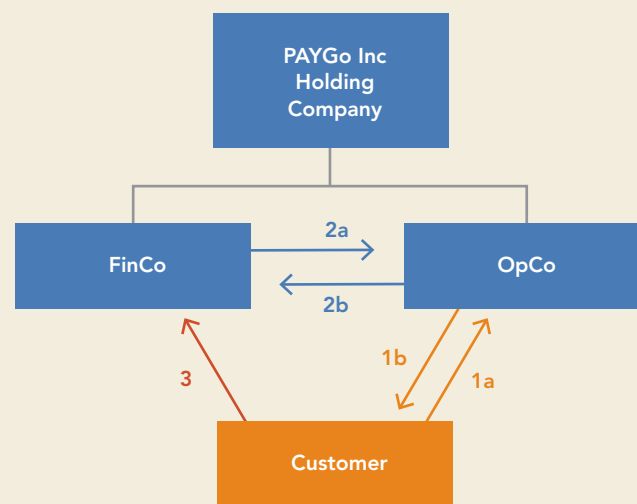
- 1a. Customer pays deposit to OpCo (\$20) and promises to make payments over time.
- 1b. OpCo delivers SHS to customer.

#### 2 SALE OF RECEIVABLE:

- 2a. FinCo pays OpCo outstanding balance on SHS loan (\$80).
- 2b. OpCo transfers (\$80) receivable to FinCo. OpCo has received full cash cost of SHS upfront, earns a gross margin on the unit, and no longer has receivable on balance sheet.

#### 3 LOAN SERVICING: Customer makes payments of principal and interest on SHS loan to FinCo. FinCo maintains receivable (\$80) on balance sheet and earns interest income with each payment.

(Payment could also be made through OpCo in exchange for servicing fee paid by FinCo.)



## OPCO Financial Statements

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>OPCO BALANCE SHEET</b>												
Cash		500,000	900,000	1,800,000	3,600,000	7,200,000	11,618,333	18,928,333	25,920,000	31,104,000	32,659,200	33,312,384
Inventories		875,000	1,750,000	3,500,000	7,000,000	14,000,000	21,000,000	31,500,000	37,800,000	45,360,000	47,628,000	48,580,560
PP&E		200,000	650,000	1,500,000	3,150,000	6,400,000	11,050,000	17,800,000	25,270,000	33,604,000	41,225,200	47,730,544
<b>Total Assets</b>		<b>1,575,000</b>	<b>3,300,000</b>	<b>6,800,000</b>	<b>13,750,000</b>	<b>27,600,000</b>	<b>43,668,333</b>	<b>68,228,333</b>	<b>88,990,000</b>	<b>110,068,000</b>	<b>121,512,400</b>	<b>129,623,488</b>
Accounts payable to suppliers		291,667	583,333	1,166,667	2,333,333	4,666,667	7,000,000	10,500,000	12,600,000	15,120,000	15,876,000	16,193,520
Accrued warranties		75,000	200,000	425,000	850,000	1,700,000	2,800,000	4,300,000	5,640,000	6,948,000	7,754,400	8,181,648
Debt		—	—	300,000	1,600,000	4,200,000	6,800,000	10,700,000	26,080,000	31,696,000	33,380,800	34,088,416
<b>Total liabilities</b>		<b>366,667</b>	<b>783,333</b>	<b>1,891,667</b>	<b>4,783,333</b>	<b>10,566,667</b>	<b>16,600,000</b>	<b>25,500,000</b>	<b>44,320,000</b>	<b>53,764,000</b>	<b>57,011,200</b>	<b>58,463,584</b>
Paid—in capital		2,558,333	4,616,667	6,630,333	8,294,667	9,998,333	9,998,333	9,998,333	9,998,333	9,998,333	9,998,333	9,998,333
Retained earnings		(1,350,000)	(2,100,000)	(1,722,000)	672,000	7,035,000	17,070,000	32,730,000	34,671,667	46,305,667	54,502,867	61,161,571
<b>Total equity</b>		<b>1,208,333</b>	<b>2,516,667</b>	<b>4,908,333</b>	<b>8,966,667</b>	<b>17,033,333</b>	<b>27,068,333</b>	<b>42,728,333</b>	<b>44,670,000</b>	<b>56,304,000</b>	<b>64,501,200</b>	<b>71,159,904</b>
Check		—	—	—	—	—	—	—	—	—	—	—
<b>OPCO INCOME STATEMENT</b>												
Sales revenue from customers based on cash price		4,500,000	9,000,000	18,000,000	36,000,000	72,000,000	108,000,000	162,000,000	194,400,000	233,280,000	244,944,000	249,842,880
Subsidy		500,000	1,000,000	2,000,000	4,000,000	8,000,000	12,000,000	18,000,000	21,600,000	25,920,000	27,216,000	27,760,320
<b>Sales revenue</b>		<b>5,000,000</b>	<b>10,000,000</b>	<b>20,000,000</b>	<b>40,000,000</b>	<b>80,000,000</b>	<b>120,000,000</b>	<b>180,000,000</b>	<b>216,000,000</b>	<b>259,200,000</b>	<b>272,160,000</b>	<b>277,603,200</b>
Cost of goods sold		3,500,000	7,000,000	14,000,000	28,000,000	56,000,000	84,000,000	126,000,000	151,200,000	181,440,000	190,512,000	194,322,240
<b>Gross profit</b>		<b>1,500,000</b>	<b>3,000,000</b>	<b>6,000,000</b>	<b>12,000,000</b>	<b>24,000,000</b>	<b>36,000,000</b>	<b>54,000,000</b>	<b>64,800,000</b>	<b>77,760,000</b>	<b>81,648,000</b>	<b>83,280,960</b>
Warranty costs		100,000	200,000	400,000	800,000	1,600,000	2,400,000	3,600,000	4,320,000	5,184,000	5,443,200	5,552,064
Sales commissions		250,000	500,000	1,000,000	2,000,000	4,000,000	6,000,000	9,000,000	10,800,000	12,960,000	13,608,000	13,880,160
Marketing costs		250,000	500,000	1,000,000	2,000,000	4,000,000	6,000,000	9,000,000	10,800,000	12,960,000	13,608,000	13,880,160
Administration costs		2,250,000	2,500,000	3,000,000	4,000,000	6,000,000	8,000,000	11,000,000	12,800,000	14,960,000	15,608,000	15,880,160
<b>EBITDA</b>		<b>(1,350,000)</b>	<b>(700,000)</b>	<b>600,000</b>	<b>3,200,000</b>	<b>8,400,000</b>	<b>13,600,000</b>	<b>21,400,000</b>	<b>26,080,000</b>	<b>31,696,000</b>	<b>33,380,800</b>	<b>34,088,416</b>
Depreciation and amortization		—	50,000	150,000	350,000	750,000	1,350,000	2,250,000	3,330,000	4,626,000	5,986,800	7,374,816
<b>EBIT</b>		<b>(1,350,000)</b>	<b>(750,000)</b>	<b>450,000</b>	<b>2,850,000</b>	<b>7,650,000</b>	<b>12,250,000</b>	<b>19,150,000</b>	<b>22,750,000</b>	<b>27,070,000</b>	<b>27,394,000</b>	<b>26,713,600</b>
Interest expense		—	—	30,000	190,000	580,000	1,100,000	1,750,000	3,678,000	5,777,600	6,507,680	6,746,922
<b>EBT</b>		<b>(1,350,000)</b>	<b>(750,000)</b>	<b>420,000</b>	<b>2,660,000</b>	<b>7,070,000</b>	<b>11,150,000</b>	<b>17,400,000</b>	<b>19,072,000</b>	<b>21,292,400</b>	<b>20,886,320</b>	<b>19,966,678</b>
Taxes		—	—	42,000	266,000	707,000	1,115,000	1,740,000	1,907,200	2,129,240	2,088,632	1,996,668
<b>Net income</b>		<b>(1,350,000)</b>	<b>(750,000)</b>	<b>378,000</b>	<b>2,394,000</b>	<b>6,363,000</b>	<b>10,035,000</b>	<b>15,660,000</b>	<b>17,164,800</b>	<b>19,163,160</b>	<b>18,797,688</b>	<b>17,970,011</b>
<b>OPCO CASH FLOW STATEMENT</b>												
Net income		(1,350,000)	(750,000)	378,000	2,394,000	6,363,000	10,035,000	15,660,000	17,164,800	19,163,160	18,797,688	17,970,011
Adjustment for depreciation and amortization		—	50,000	150,000	350,000	750,000	1,350,000	2,250,000	3,330,000	4,626,000	5,986,800	7,374,816
(Increase) / Decrease in inventory		(875,000)	(875,000)	(1,750,000)	(3,500,000)	(7,000,000)	(7,000,000)	(10,500,000)	(6,300,000)	(7,560,000)	(2,268,000)	(952,560)
Increase / (Decrease) in accounts payable		291,667	291,667	583,333	1,166,667	2,333,333	2,333,333	3,500,000	2,100,000	2,520,000	756,000	317,520
Increase / (Decrease) in accrued warranties		75,000	125,000	225,000	425,000	850,000	1,100,000	1,500,000	1,340,000	1,308,000	806,400	427,248
<b>Cash flow from operations</b>		<b>(1,858,333)</b>	<b>(1,158,333)</b>	<b>(413,667)</b>	<b>835,667</b>	<b>3,296,333</b>	<b>7,818,333</b>	<b>12,410,000</b>	<b>17,634,800</b>	<b>20,057,160</b>	<b>24,078,888</b>	<b>25,137,035</b>
CAPEX		(200,000)	(500,000)	(1,000,000)	(2,000,000)	(4,000,000)	(6,000,000)	(9,000,000)	(10,800,000)	(12,960,000)	(13,608,000)	(13,880,160)
<b>Cash flow from investing</b>		<b>(200,000)</b>	<b>(500,000)</b>	<b>(1,000,000)</b>	<b>(2,000,000)</b>	<b>(4,000,000)</b>	<b>(6,000,000)</b>	<b>(9,000,000)</b>	<b>(10,800,000)</b>	<b>(12,960,000)</b>	<b>(13,608,000)</b>	<b>(13,880,160)</b>
Increase in paid-in capital		2,558,333	2,058,333	2,013,667	1,664,333	1,703,667	—	—	—	—	—	—
Dividend paid		—	—	—	—	—	—	—	(15,223,133)	(7,529,160)	(10,600,488)	(11,311,307)
Increase / (Decrease) in debt		—	—	300,000	1,300,000	2,600,000	2,600,000	3,900,000	15,380,000	5,616,000	1,684,800	707,616
<b>Cash flow from financing</b>		<b>2,558,333</b>	<b>2,058,333</b>	<b>2,313,667</b>	<b>2,964,333</b>	<b>4,303,667</b>	<b>2,600,000</b>	<b>3,900,000</b>	<b>156,867</b>	<b>(1,913,160)</b>	<b>(8,915,688)</b>	<b>(10,603,691)</b>
<b>Net cash flow</b>		<b>500,000</b>	<b>400,000</b>	<b>900,000</b>	<b>1,800,000</b>	<b>3,600,000</b>	<b>4,418,333</b>	<b>7,310,000</b>	<b>6,991,667</b>	<b>5,184,000</b>	<b>1,555,200</b>	<b>653,184</b>

## FINCO Financial Statements

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>FINCO BALANCE SHEET</b>												
Cash		198,097	396,193	792,387	1,584,773	3,169,546	4,754,319	7,131,479	8,557,775	10,269,330	10,782,796	10,998,452
Gross receivables		2,701,247	5,402,494	10,804,987	21,609,975	43,219,949	64,829,924	97,244,886	116,693,863	140,032,635	147,034,267	149,974,952
Unearned interest		547,401	1,094,801	2,189,603	4,379,205	8,758,411	13,137,616	19,706,424	23,647,709	28,377,251	29,796,113	30,392,036
<b>Gross receivables net of unearned interest</b>		<b>2,153,846</b>	<b>4,307,692</b>	<b>8,615,385</b>	<b>17,230,769</b>	<b>34,461,538</b>	<b>51,692,308</b>	<b>77,538,462</b>	<b>93,046,154</b>	<b>111,655,385</b>	<b>117,238,154</b>	<b>119,582,917</b>
Allowance for bad debt		172,880	345,760	691,519	1,383,038	2,766,077	4,149,115	6,223,673	7,468,407	8,962,089	9,410,193	9,598,397
<b>Net receivables</b>		<b>1,980,966</b>	<b>3,961,933</b>	<b>7,923,865</b>	<b>15,847,731</b>	<b>31,695,462</b>	<b>47,543,193</b>	<b>71,314,789</b>	<b>85,577,747</b>	<b>102,693,296</b>	<b>107,827,961</b>	<b>109,984,520</b>
<b>Total assets</b>		<b>2,179,063</b>	<b>4,358,126</b>	<b>8,716,252</b>	<b>17,432,504</b>	<b>34,865,008</b>	<b>52,297,512</b>	<b>78,446,268</b>	<b>94,135,521</b>	<b>112,962,626</b>	<b>118,610,757</b>	<b>120,982,972</b>
Asset-backed debt		544,766	1,089,531	4,358,126	10,459,502	22,662,255	36,608,258	58,834,701	75,308,417	90,370,100	94,888,605	96,786,378
<b>Total liabilities</b>		<b>544,766</b>	<b>1,089,531</b>	<b>4,358,126</b>	<b>10,459,502</b>	<b>22,662,255</b>	<b>36,608,258</b>	<b>58,834,701</b>	<b>75,308,417</b>	<b>90,370,100</b>	<b>94,888,605</b>	<b>96,786,378</b>
Paid-in capital		1,729,444	2,823,802	2,823,802	2,823,802	2,823,802	2,823,802	2,823,802	2,823,802	2,823,802	2,823,802	2,823,802
Retained earnings		(95,147)	444,793	1,534,324	4,149,200	9,378,951	12,865,452	16,787,765	16,003,303	19,768,723	20,898,350	21,372,793
<b>Total Equity</b>		<b>1,634,297</b>	<b>3,268,594</b>	<b>4,358,126</b>	<b>6,973,002</b>	<b>12,202,753</b>	<b>15,689,254</b>	<b>19,611,567</b>	<b>18,827,104</b>	<b>22,592,525</b>	<b>23,722,151</b>	<b>24,196,594</b>
Check		—	—	—	(0)	(0)	(0)	—	—	—	(0)	—
<b>FINCO INCOME SHEET</b>												
Interest income		1,355,093	3,257,587	6,515,173	13,030,346	26,060,693	41,280,642	61,920,963	78,246,441	93,895,729	102,137,672	105,031,743
Bad debt expense		345,760	691,519	1,383,038	2,766,077	5,532,153	8,298,230	12,447,345	14,936,814	17,924,177	18,820,386	19,196,794
Interest expense		21,791	65,372	217,906	592,705	1,324,870	2,370,821	3,817,718	5,365,725	6,627,141	7,410,348	7,666,999
Operating expenses		1,082,690	1,900,762	3,301,524	6,103,049	11,706,098	18,250,676	27,126,014	34,145,970	40,875,163	44,419,199	45,663,649
<b>Earnings before taxes</b>		<b>(95,147)</b>	<b>599,933</b>	<b>1,612,704</b>	<b>3,568,516</b>	<b>7,497,571</b>	<b>12,360,915</b>	<b>18,529,885</b>	<b>23,797,932</b>	<b>28,469,247</b>	<b>31,487,738</b>	<b>32,504,300</b>
Tax expense		—	59,993	161,270	356,852	749,757	1,236,092	1,852,989	2,379,793	2,846,925	3,148,774	3,250,430
<b>Net income</b>		<b>(95,147)</b>	<b>539,940</b>	<b>1,451,434</b>	<b>3,211,664</b>	<b>6,747,814</b>	<b>11,124,824</b>	<b>16,676,897</b>	<b>21,418,139</b>	<b>25,622,323</b>	<b>28,338,965</b>	<b>29,253,870</b>
<b>FINCO CASH FLOW STATEMENT</b>												
Net income		(95,147)	539,940	1,451,434	3,211,664	6,747,814	11,124,824	16,676,897	21,418,139	25,622,323	28,338,965	29,253,870
Increase / (Decrease) in bad debt allowance		172,880	172,880	345,760	691,519	1,383,038	1,383,038	2,074,558	1,244,735	1,493,681	448,104	188,204
<b>Cash flow from operations</b>		<b>77,733</b>	<b>712,820</b>	<b>1,797,193</b>	<b>3,903,183</b>	<b>8,130,852</b>	<b>12,507,862</b>	<b>18,751,454</b>	<b>22,662,873</b>	<b>27,116,004</b>	<b>28,787,069</b>	<b>29,442,074</b>
Purchase of receivables		(3,500,000)	(7,000,000)	(14,000,000)	(28,000,000)	(56,000,000)	(84,000,000)	(126,000,000)	(151,200,000)	(181,440,000)	(190,512,000)	(194,322,240)
Proceeds from maturities of receivables		1,346,154	4,846,154	9,692,308	19,384,615	38,769,231	66,769,231	100,153,846	135,692,308	162,830,769	184,929,231	191,977,477
<b>Cash flow from investing</b>		<b>(2,153,846)</b>	<b>(2,153,846)</b>	<b>(4,307,692)</b>	<b>(8,615,385)</b>	<b>(17,230,769)</b>	<b>(17,230,769)</b>	<b>(25,846,154)</b>	<b>(15,507,692)</b>	<b>(18,609,231)</b>	<b>(5,582,769)</b>	<b>(2,344,763)</b>
Increase / (Decrease) in debt		544,766	544,766	3,268,594	6,101,376	12,202,753	13,946,003	22,226,443	16,473,716	15,061,683	4,518,505	1,897,772
Additional paid-in capital		1,729,444	1,094,357	—	—	—	—	—	—	—	—	—
Dividends paid		—	—	(361,902)	(596,788)	(1,518,063)	(7,638,323)	(12,754,583)	(22,202,602)	(21,856,902)	(27,209,338)	(28,779,427)
<b>Cash flow from financing</b>		<b>2,274,210</b>	<b>1,639,123</b>	<b>2,906,692</b>	<b>5,504,588</b>	<b>10,684,690</b>	<b>6,307,680</b>	<b>9,471,859</b>	<b>(5,728,885)</b>	<b>(6,795,218)</b>	<b>(22,690,833)</b>	<b>(26,881,655)</b>
<b>Net cash flow</b>		<b>198,097</b>	<b>198,097</b>	<b>396,193</b>	<b>792,387</b>	<b>1,584,773</b>	<b>1,584,773</b>	<b>2,377,160</b>	<b>1,426,296</b>	<b>1,711,555</b>	<b>513,466</b>	<b>215,656</b>

## Consolidated Financial Statements

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>CONSOLIDATED BALANCE SHEET</b>												
Cash		698,097	1,296,193	2,592,387	5,184,773	10,369,546	16,372,653	26,059,812	34,477,775	41,373,330	43,441,996	44,310,836
Inventory		875,000	1,750,000	3,500,000	7,000,000	14,000,000	21,000,000	31,500,000	37,800,000	45,360,000	47,628,000	48,580,560
Receivables (net)		1,980,966	3,961,933	7,923,865	15,847,731	31,695,462	47,543,193	71,314,789	85,577,747	102,693,296	107,827,961	109,984,520
PP&E		200,000	650,000	1,500,000	3,150,000	6,400,000	11,050,000	17,800,000	25,270,000	33,604,000	41,225,200	47,730,544
<b>Total assets</b>		<b>3,754,063</b>	<b>7,658,126</b>	<b>15,516,252</b>	<b>31,182,504</b>	<b>62,465,008</b>	<b>95,965,845</b>	<b>146,674,601</b>	<b>183,125,521</b>	<b>223,030,626</b>	<b>240,123,157</b>	<b>250,606,460</b>
Accounts payable		291,667	583,333	1,166,667	2,333,333	4,666,667	7,000,000	10,500,000	12,600,000	15,120,000	15,876,000	16,193,520
Accrued warranties		75,000	200,000	425,000	850,000	1,700,000	2,800,000	4,300,000	5,640,000	6,948,000	7,754,400	8,181,648
Debt		544,766	1,089,531	4,658,126	12,059,502	26,862,255	43,408,258	69,534,701	101,388,417	122,066,100	128,269,405	130,874,794
<b>Total liabilities</b>		<b>911,432</b>	<b>1,872,865</b>	<b>6,249,793</b>	<b>15,242,836</b>	<b>33,228,922</b>	<b>53,208,258</b>	<b>84,334,701</b>	<b>119,628,417</b>	<b>144,134,100</b>	<b>151,899,805</b>	<b>155,249,962</b>
Paid in capital		4,287,778	7,440,468	9,454,135	11,118,468	12,822,135	12,822,135	12,822,135	12,822,135	12,822,135	12,822,135	12,822,135
Retained earnings		(1,445,147)	(1,655,207)	(187,676)	4,821,200	16,413,951	29,935,452	49,517,765	50,674,969	66,074,390	75,401,216	82,534,363
<b>Total equity</b>		<b>2,842,631</b>	<b>5,785,261</b>	<b>9,266,459</b>	<b>15,939,668</b>	<b>29,236,086</b>	<b>42,757,587</b>	<b>62,339,900</b>	<b>63,497,104</b>	<b>78,896,525</b>	<b>88,223,351</b>	<b>95,356,498</b>
Check		—	—	—	—	—	—	—	—	—	—	—
<b>CONSOLIDATED INCOME STATEMENT</b>												
Total revenue		5,000,000	10,000,000	20,000,000	40,000,000	80,000,000	120,000,000	180,000,000	216,000,000	259,200,000	272,160,000	277,603,200
Cost of goods sold		3,500,000	7,000,000	14,000,000	28,000,000	56,000,000	84,000,000	126,000,000	151,200,000	181,440,000	190,512,000	194,322,240
<b>Gross profit</b>		<b>1,500,000</b>	<b>3,000,000</b>	<b>6,000,000</b>	<b>12,000,000</b>	<b>24,000,000</b>	<b>36,000,000</b>	<b>54,000,000</b>	<b>64,800,000</b>	<b>77,760,000</b>	<b>81,648,000</b>	<b>83,280,960</b>
Operating expenses		3,932,690	5,600,762	8,701,524	14,903,049	27,306,098	40,650,676	59,726,014	72,865,970	86,939,163	92,686,399	94,856,193
<b>EBITDA</b>		<b>(2,432,690)</b>	<b>(2,600,762)</b>	<b>(2,701,524)</b>	<b>(2,903,049)</b>	<b>(3,306,098)</b>	<b>(4,650,676)</b>	<b>(5,726,014)</b>	<b>(8,065,970)</b>	<b>(9,179,163)</b>	<b>(11,038,399)</b>	<b>(11,575,233)</b>
Depreciation and amortization		—	50,000	150,000	350,000	750,000	1,350,000	2,250,000	3,330,000	4,626,000	5,986,800	7,374,816
Net interest income / (expense)		1,333,302	3,192,215	6,267,267	12,247,641	24,155,823	37,809,822	56,353,245	69,202,716	81,490,988	88,219,643	90,617,822
Other expenses		345,760	691,519	1,383,038	2,766,077	5,532,153	8,298,230	12,447,345	14,936,814	17,924,177	18,820,386	19,196,794
<b>Earnings before taxes</b>		<b>(1,445,147)</b>	<b>(150,067)</b>	<b>2,032,704</b>	<b>6,228,516</b>	<b>14,567,571</b>	<b>23,510,915</b>	<b>35,929,885</b>	<b>42,869,932</b>	<b>49,761,647</b>	<b>52,374,058</b>	<b>52,470,978</b>
Taxes		—	59,993	203,270	622,852	1,456,757	2,351,092	3,592,989	4,286,993	4,976,165	5,237,406	5,247,098
<b>Net Income</b>		<b>(1,445,147)</b>	<b>(210,060)</b>	<b>1,829,434</b>	<b>5,605,664</b>	<b>13,110,814</b>	<b>21,159,824</b>	<b>32,336,897</b>	<b>38,582,939</b>	<b>44,785,483</b>	<b>47,136,653</b>	<b>47,223,881</b>
Check		—	(0)	—	—	—	—	—	—	—	—	—
<b>CONSOLIDATED CASH FLOW STATEMENT</b>												
Net income		(1,445,147)	(210,060)	1,829,434	5,605,664	13,110,814	21,159,824	32,336,897	38,582,939	44,785,483	47,136,653	47,223,881
Adjustment for depreciation and amortization		—	50,000	150,000	350,000	750,000	1,350,000	2,250,000	3,330,000	4,626,000	5,986,800	7,374,816
(Increase) / Decrease in inventory		(875,000)	(875,000)	(1,750,000)	(3,500,000)	(7,000,000)	(7,000,000)	(10,500,000)	(6,300,000)	(7,560,000)	(2,268,000)	(952,560)
(Increase) / Decrease in receivables		(1,980,966)	(1,980,966)	(3,961,933)	(7,923,865)	(15,847,731)	(15,847,731)	(23,771,596)	(14,262,958)	(17,115,549)	(5,134,665)	(2,156,559)
Increase / (Decrease) in accounts payable		291,667	291,667	583,333	1,166,667	2,333,333	2,333,333	3,500,000	2,100,000	2,520,000	756,000	317,520
Increase / (Decrease) in accrued warranties		75,000	125,000	225,000	425,000	850,000	1,100,000	1,500,000	1,340,000	1,308,000	806,400	427,248
Increase / (Decrease) in bad debt allowance		172,880	172,880	345,760	691,519	1,383,038	1,383,038	2,074,558	1,244,735	1,493,681	448,104	188,204
<b>Cash flow from operations</b>		<b>(3,761,567)</b>	<b>(2,426,480)</b>	<b>(2,578,406)</b>	<b>(3,185,016)</b>	<b>(4,420,545)</b>	<b>4,478,465</b>	<b>7,389,858</b>	<b>26,034,716</b>	<b>30,057,615</b>	<b>47,731,292</b>	<b>52,422,549</b>
CAPEX		(200,000)	(500,000)	(1,000,000)	(2,000,000)	(4,000,000)	(6,000,000)	(9,000,000)	(10,800,000)	(12,960,000)	(13,608,000)	(13,880,160)
<b>Cash flow from investing</b>		<b>(200,000)</b>	<b>(500,000)</b>	<b>(1,000,000)</b>	<b>(2,000,000)</b>	<b>(4,000,000)</b>	<b>(6,000,000)</b>	<b>(9,000,000)</b>	<b>(10,800,000)</b>	<b>(12,960,000)</b>	<b>(13,608,000)</b>	<b>(13,880,160)</b>
Increase / (Decrease) in debt		544,766	544,766	3,568,594	7,401,376	14,802,753	16,546,003	26,126,443	31,853,716	20,677,683	6,203,305	2,605,388
Equity investments		1,729,444	1,094,357	—	—	—	—	—	—	—	—	—
Dividends paid		—	—	(361,902)	(596,788)	(1,518,063)	(7,638,323)	(12,754,583)	(22,202,602)	(21,856,902)	(27,209,338)	(28,779,427)
<b>Cash flow from financing</b>		<b>2,274,210</b>	<b>1,639,123</b>	<b>3,206,692</b>	<b>6,804,588</b>	<b>13,284,690</b>	<b>8,907,680</b>	<b>13,371,859</b>	<b>9,651,115</b>	<b>(1,179,218)</b>	<b>(21,006,033)</b>	<b>(26,174,039)</b>
<b>Net cash flow</b>		<b>(1,687,357)</b>	<b>(1,287,357)</b>	<b>(371,714)</b>	<b>1,619,572</b>	<b>4,864,145</b>	<b>7,386,145</b>	<b>11,761,717</b>	<b>24,885,830</b>	<b>15,918,396</b>	<b>13,117,259</b>	<b>12,368,350</b>







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