GMA Holdings/GMA Networks

Ticker:	GMAP:PM/GMA7:PM	Closing Price (1/31/17):	PHP5.90
6 Month Avg. Daily Vol. (USD mn):	0.56	Market Cap (USD mn):	421
Estimated Annualized Return:	12.5%	Suggested Position Size:	4.0%

February 1, 2017

FACTOR RATINGS

Factor	Rating	Comment
Financial Health	5	Healthy net cash position
Business Quality	5	Strong barriers to entry (economies of scale, customer captivity, regulatory)
Management Quality	2	
Operations	2	Inefficient relative to peers, Behind ABS CBN in programming
Capital Allocation	3	One of the best allocators within the industry
Corporate Governance	2	Excessive management salaries
Valuation	3	Slightly undervalued
Growth Prospects	2	GDP growth with potential for growth below GDP in the future if the internet takes share

Scale 1 = worst 5 = best

Source: Reperio Capital Research

INVESTMENT THESIS

GMA Network is a competitively advantaged firm enjoying economies of scale with customer captivity and regulatory barriers to entry. Unfortunately, management's operational inefficiency is creating a drag the business's profitability. Additionally, management pay themselves 20% of operating profit. The company is trading on a free cash flow yield of 7.5% and should grow at least at 5.0% leading to a minimum expected annualized return of 12.5%.

COMPANY DESCRIPTION

Company History

GMA Network, Inc. (GMA) is a free-to-air broadcasting company engaged in television and radio broadcasting, the production of programs for domestic and international audiences, and other related businesses. The company derives the majority of its revenues from advertising related to television broadcasting. GMA Network has 47 VHF and 41 UHF TV stations throughout the Philippines with its signal reaching approximately 98% of the country's Urban TV Households.

Robert La Rue Stewart founded GMA in 1950 as Republic Broadcasting System (RBS) with its flagship AM radio station DZBB operating from Escolta, Manila. RBS started broadcasting on Channel 7 in the Greater Manila Area in 1961. In 1975, Felipe L. Gozon, Menardo R. Jimenez, and Gilberto M. Duavit took over management of RBS and renamed it to GMA 7.

The original meaning of the acronym "GMA" was Greater Manila Area, referring to the initial coverage area of the station. The company changed its name to Global Media Arts. Today, its corporate name is GMA Network, Inc.

Apart from its television and radio networks, the company owns many media businesses including film production, record publishing and distribution, program acquisition and syndication, international channel operation, production design, talent development and management, marketing and promotions, audio-visual production and new media.

In addition to its presence in the Philippines, GMA's content is distributed outside the Philippines through its subscription-based international channels distributed through multiple platforms. Its content is also on many platforms through worldwide syndication sales to broadcasters/companies in China, Southeast Asia, Africa, and Europe.

In February 2001, Philippines Long Distance Telephone Company (PLDT) agreed to acquire 75% interest in GMA for PHP 8.5 billion. Regulatory approval for the deal was received in August 2001. In late 2001, the relationship between the parties deteriorated and PLDT pulled out of the deal stating its debt was too much of a burden to complete the deal.

GMA went public in 2007. As of September 30, 2016, the company had 3,361,047,000 common shares outstanding and 7,499,507,184 preferred shares outstanding. Common shares have two classes, common shares and Philippine Deposit Receipts (PDRs). Filipinos can only hold common shares, while anyone can hold PDRs. The two are fully fungible for Filipinos. The company's preferred shares are unlisted and convertible to common shares at a rate of 5 preferred shares to 1 common share. The public float is 24.38%.

Largest Shareholders	9/30/16
FLG Management & Development Corp	25.3%
Group Management	28.5%
M.A. Jimenez Enterprises	15.6%
Television International Corporation	11.5%
Others	19.2%
Public float	24.4%

Source: Company data

FLG Management & Development Corp. is an investment vehicle of Felipe L. Gozon, the Chairman of the Board and CEO of GMA Network. Mr. Gozon is an attorney graduating from Yale Law School. Aside from GMA Network, he is a Senior Partner at the Law Firm of Belo Gozon Elma Parel Asuncion & Lucila.

M.A. Jimenez Enterprises and Television International Corporation are investment vehicles of Menardo Jimenez was the former President and CEO of the GMA Network. He gave up the position to brother-in-law Felipe Gozon in 2000.

The company's approved dividend policy entitles holders of common shares to receive annual cash dividends equivalent to a minimum of 50% of the prior year's net income based on the recommendation of the Board of Directors.

Business Model

GMA Network creates and purchases content aggregates the content into channels. Channels are transmitted to audiences directly or over the internet. GMA generates revenue primarily by selling time within programs to advertisers. Advertisers pay based on the size and type of audience. Advertising accounted for roughly 90% of revenues over the past three years. The company also generates revenue from selling content internationally and via its websites.

Revenue (PHP mn)	2013	2014	2015
Television and radio airtime	11,727	10,679	12,381
Production and others	1,224	1,304	1,346
Total revenue	**12,951**	**11,983**	**13,727**

Source: Company data

In 2015, over 90% of the company's revenue was from television and radio airtime with the remaining revenues coming from content production and others. In the first six months of 2016, Channel 7/RTV accounted for 94% of television and radio airtime revenue while GMA's news station, GNTV, accounted for 2% of television and radio airtime revenue and radio accounted for 4% of television and radio airtime revenue.

The costs of creating content and purchasing local or international content are fixed and are the same regardless of audience size. For GMA, production costs or content creation costs equates the cost of goods sold.

Production costs (PHP mn)	2013	2014	2015
Talent fees	3,044	2,739	2,800
Rentals and outside services	819	740	732
Other program expenses	1,182	1,121	1,247
Cash production costs	**5,045**	**4,600**	**4,779**
Program rights amortization	565	647	755
Depreciation and amortization	288	305	309
Non-cash production costs	**853**	**951**	**1,064**
Total production costs	**5,898**	**5,552**	**5,843**

Source: Company data

The production cost structure is shown above. Talent fees account for roughly half of the company's total production costs. The next largest expense is rentals and outside services,, which has decreased as a percentage of total production costs indicating the company is slowing moving more production in-house. Overall, the company's gross margin has averaged 55.0% over the past three years.

SG&A Expenses (PHP mn)	2013	2014	2015
Personnel costs	2,170	2,529	2,571
Outside services	508	422	341
Facilities costs	665	592	558
Taxes and licenses	141	232	157
Others	734	752	755
Cash GAEX	**4,218**	**4,526**	**4,382**
Depreciation and amortization	418	472	491
Provision for doubtful accounts	1	1	9
Amortization of software costs	31	23	21
Non-cash GAEX	**450**	**496**	**521**
Total GAEX	**4,668**	**5,022**	**4,902**

Source: Company data

The general and administrative expenses (GAEX) required to generate revenue averaged 37.9% of revenue over the past three years with personnel costs being the largest expense accounting for 50% of total GAEX. At 12% of GAEX, facilities costs were the next largest cost and only other cost accounting for more than 10% of GAEX.

Over the past three years, the total amount of operating expenses were relatively stable over the past three years while revenue fluctuated potentially pointing to the vast majority of operating expenses being fixed.

Profitability	2013	2014	2015
Revenue	**12,951**	**11,983**	**13,727**
Fixed expenses	7,523	7,248	7,534
Variable expenses	3,042	3,326	3,211
Total operating expenses	**10,565**	**10,574**	**10,745**
Operating profit	**2,386**	**1,409**	**2,982**
Working capital	3,158	4,530	3,863
Fixed capital	5,395	5,174	4,930
Invested capital	8,553	9,704	8,793
Operating margin	18.4%	11.8%	21.7%
IC turnover	1.51	1.23	1.56
ROIC	27.9%	14.5%	33.9%

Source: Company data

We estimate that roughly 70% of operating expenses are fixed. We assume all production costs are fixed along with 25% of GAEX personnel expenses. The fixed portion of GAEX personnel expenses is sales staff.

Additionally, all depreciation and facilities costs are assumed to be fixed. All other expenses under GAEX are assumed to be variable.

Since 2007, to generate one peso of revenue, GMA needs to spend 34 centavos on working capital and 40 centavos on fixed capital leading to 74 centavos of total investment. For every peso of revenue, the company generates 24.4 centavos of operating profit leading to an average ROIC of 23.3%.

INDUSTRY ANALYSIS

Industry History

A predecessor of ABS CBN's, ABS introduced television to the Philippines in 1953. ABS started broadcasting DZAQ-TV3 on a four-hour-a-day schedule from six to ten in the evening. At the start, programs were American as it was cheaper to purchase international programming than produce programming locally. ABS CBN's other predecessor CBS started in 1955. The industry continued to grow in popularity with many new television channels broadcasting until 1972 when Ferdinand Marcos placed Philippines under martial rule and took control over the media. The industry was under government control until 1986. ABS-CBN began satellite and international broadcasts in 1989. During the 1990s and 2000s, there was a proliferation of new channels and Filipino programming started to be exported to other countries. In 2009, ABS-CBN started testing digital terrestrial television and SkyCable launched the first HD television channel. In 2010, Philippines adopted the Japanese ISDB-T standard.

According to CASBAA, the association for the multi-channel audio-visual content creation and distribution industry across Asia, in 2010 the number of television households in the Philippines was 13.5 million. 1.5 million households subscribed to cable television and another 100,000 subscribed to direct to home (DTH) services. Metro Manila has the highest pay TV penetration rate was Metro Manila at 27% of households.

Industry Value Chain

TV Industry Value Chain	Content Creators	Content Wholesalers	Broadcasters	Distributors	End Users
Role in the Value Chain	Creating programming	Wholesale international content to distributors	Content aggregation and packaging into channels	Aggregates channels delivering to end users	Access content through free to air or subscription using 1 or multiple devices
Key Players	GMA ABS CBN TV5 Independents International	Cable Boss ACCION	GMA ABS CBN TV5 Youtube Netflix	SkyCable Global Cable Destiny Cable Cablelink CignalTV MediaQuest	
Revenue Source	Broadcaster	Content creators	Advertiser	Subscriber	

Source: Reperio Capital Research

Evidence of Barriers to Entry

We believe barriers to entry are the most significant force in determining the underlying quality and economics of a business. Barriers to entry stops competition from entering the market allowing a company to sustain excess profitability. The absence of barriers to entry allows competition to enter the market competing away all excess profitability. In practice, excess profitability can persist for a prolonged period without barriers to entry. The institutional imperative can lead to less than optimal decision by some competitors allowing other competitors to take advantage of the poor management and generate excess profits. Also, demand can outpace supply in the short term leading to an ability to take advantage of the disequilibrium through price hikes leading to excess profitability. As supply catches up with demand, usually when demand growth slows, excess profitability will be eliminated.

There are indicators that provide evidence of the existence of barriers to entry within an industry. The first is the number of competitors within the industry. Many competitors within an industry means competitors can freely enter the market, while a small number of competitors means entry and survival within the industry is difficult.

Philippines Audience Share Total Day	2010	2011	2012	2013	2014	2015	Jan-Sep 2016
ABS CBN	43%	36%	42%	42%	44%	42%	44%
GMA	33%	35%	31%	33%	34%	38%	34%
TV5	8%	13%	12%	11%	9%	7%	7%
Others	16%	16%	15%	14%	13%	14%	15%
2 firm concentratio ratio	76%	71%	73%	75%	78%	80%	78%
3 firm concentration ratio	84%	84%	85%	86%	87%	86%	85%
Herfindahl index	0.30	0.27	0.29	0.30	0.32	0.32	0.31

Source: Kantar Media TV Measurement, Total Philippines as of September 30, 2016, Reperio Capital Research estimates

There are a number of firms competing in the Philippines television industry but the top two firms dominate the industry with almost 80% of the audience share in 2015. Since 2010, the top three firms' average audience share was 85% pointing very high industry concentration. Over the same period, the industry's Herfindahl Index averaged 0.30 also pointing to very high industry concentration. Only the audience share of the top three firms were used to calculate the Herfindahl Index as estimating the number and market share of smaller firms does not meaningfully change the industry's Herfindahl Index. As illustrated by concentration ratios, the Philippines television Industry is extremely concentrated pointing to the existence of barriers to entry.

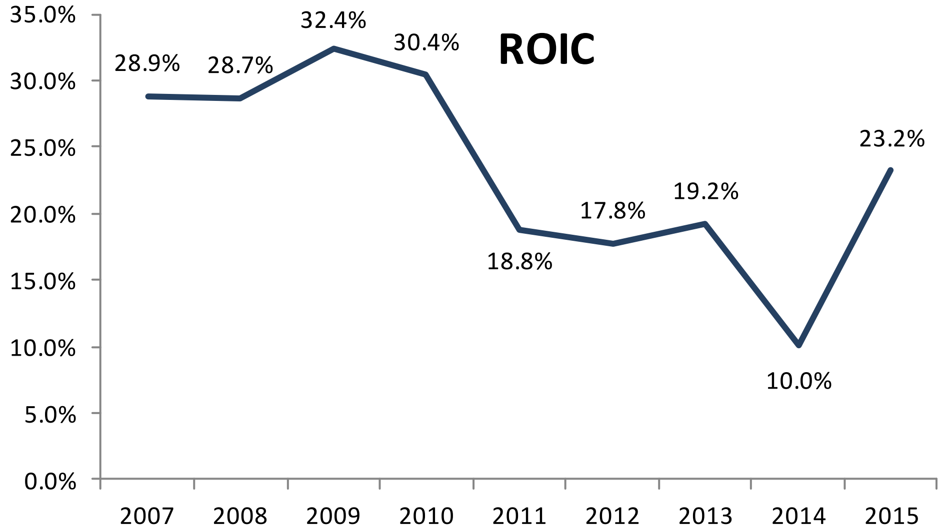
The next indicator we look at to determine whether barriers to entry exist is market share stability. If there are barriers to entry, market share should be stable as potential entrants find it difficult to take share from incumbents. In the absence of barriers to entry, new entrants can use many strategies to take market share from incumbents.

Philippines Audience Share Total Day	2010	Jan-Sep 2016	Abs Share Chg
ABS CBN	43%	44%	1%
GMA	33%	34%	1%
TV5	8%	7%	1%
Others	16%	15%	1%

Source: Kantar Media TV Measurement, Total Philippines as of September 30, 2016, Reperio Capital Research estimates

As illustrated in the table above, the average absolute share change since 2010 is 1% pointing to share stability and additional evidence that barriers to entry exist. If over a period of at least five years the absolute average share change within an industry is two percentage points or less, barriers to entry exist. If the absolute average share change exceeds five percentage points, it is unlikely that barriers to entry exist.

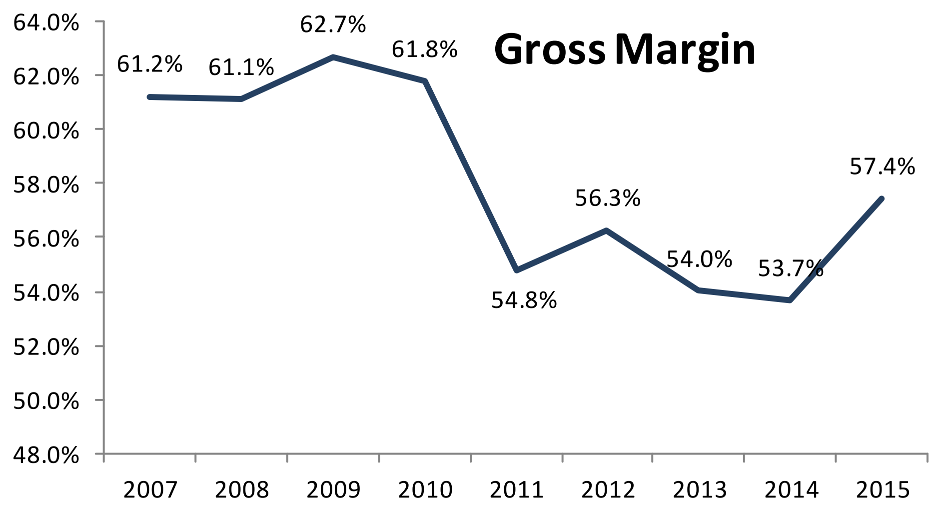
The next and probably the most important test of barriers to entry is sustained excess profits as measured by ROIC minus the cost of capital. If a company is able to generate at least 15% ROIC on a regular basis, it is strong evidence of potential barriers to entry. ROIC cannot be used in isolation as a company can generate excess profits in the short to medium term without the existence of barriers to entry. To calculate ROIC, we attempt to separate any operating performance from capital allocation decisions leading to only using net operating assets to calculate the amount of invested capital (net working capital + PP&E + other operating assets).



Source: Company data

Since 2007, GMA's ROIC averaged 23.3%, well above the 15% threshold, with the lowest ROIC of 10% in 2014. The strength of GMA's profitability points to barriers to entry.

The final test to see if barriers to entry exist is looking at potential pricing power. We assess pricing power by looking at company's gross margin. If a company has pricing power, it should be able to raise prices to cover its raw material costs leading to a stable to increasing gross margin.



Source: Company data

GMA's gross margin has declined from 61.2% in 2007 to 57.4% in 2015. Although the company's gross margin is high, there is very little stability with a step change in 2011 with gross margin declining by 7.0%. The lack of gross margin stability points to no pricing power and a lack of barriers to entry.

Overall, the evidence of barriers to entry existing is strong with three of the four tests pointing to barriers to entry existing.

Barriers to Entry

Given the evidence pointing to the existence of barriers to entry, the next question is what are those barriers to entry? We believe there are four barriers to entry; supply advantages, demand advantages, economies of scale with some form of customer captivity, and/or government regulation.

Within the Philippines and globally, the Television Industry's barriers to entry take the form of economies of scale with customer captivity, and regulatory barriers.

Economies of scale comes from high fixed costs associated with producing and purchasing content as viewership of content is not known at the time of producing the program. Production costs represented 41.9% of sales. The fixed cost nature of content production/purchasing allows larger companies to produce/purchase higher quality content as they can outspend competitors. There is a wide gap in audience share from the two largest competitors, ABS CBN and GMA, and all other peers allowing ABS CBN and GMA to outspend peers by a noticeably amount. In the nine months ending 2016, ABS CBN had a 44% audience share, GMA had a 34% audience share, and third place TV5 had a 7% audience share. Assuming audience share and market share equate, TV5 would have to be twice its current size to spend as much on production costs and be break even at a gross margin level. This does not account for fixed costs below the gross margin line including depreciation and amortization, facilities, and personnel related to sales of advertising space. We estimated non-production fixed costs represented an additional 13.0% of GMA's sales.

Customer captivity comes from continuous programming such as news and long running television shows, such as soap operas and sitcoms. Consumers tend to watch the same news station and get addicted to television shows. Continuous programming also requires fixed infrastructure leading to the previously mentioned economies of scale.

Like many countries, the Philippines restricts ownership of media assets. According to Article 16, Section 11 of the Philippine Constitution "The ownership and management of mass media shall be limited to citizens of the Philippines…"

Economies of scale combined with customer captivity and regulatory restrictions are very difficult barriers to entry to overcome. Audience share is stable and the industry is becoming more concentrated pointing to a stable to expanding barriers to entry while the declining ROIC points to deteriorating barriers to entry.

A good way of understanding the competitive advantage is determining the length of time it would take a new entrant to replicate GMA competitive position. To replicate GMA's competitive position, any new entrant would first have to obtain regulatory licenses associated with owning and operating mass media. This requirement is restricted to Filipinos A new entrant would have to spend over PHP5.5 billion annual in content production. This content then needs to be packaged and distributed. Advertising slots also need to be sold via building a sales force. GMA's audience share and time in the business has created relationships that are difficult to replicate. Additionally, a new entrant would need to acquire all the expertise associated with running the business. The company would also need to advertise heavily in an attempt to attract customers from rivals. Despite, the heavy spending the share stability in the industry points an inability to attract an audience. If we assume 1% share can be acquired every year, equal to the average absolute share change over the past five years, it would take 34 years to reach GMA's current position. Assuming all share gains are taken from GMA, despite evidence of industry concentration increasing, it would take 17 years to reach GMA's position.

Given the barriers to entry, it seems GMA's competitive position within the Filipino Television industry will remain very strong. A more likely scenario is over the top takes hold or some other technology disrupts the importance of television. Overall, GMA's barriers to entry seem to be very difficult to overcome and should be sustained for a long period.

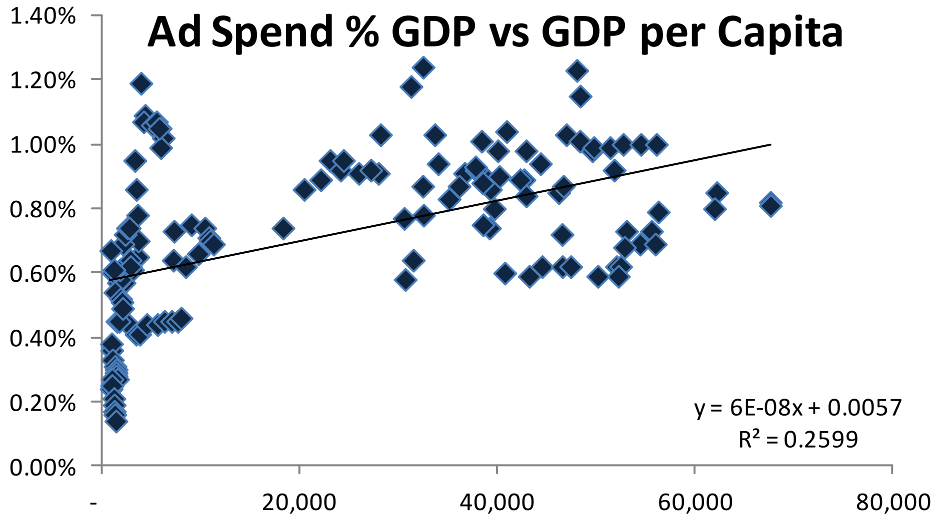
GROWTH

Ad spending is linked to GDP. The table below shows ad spending as a percentage of GDP for a number of different countries at a number of stages of development.

Ad Spend % GDP	2007	2008	2009	2010	2011	2012	2013	07-13 μ	07-13 σ
Philippines	**0.6%**	**0.6%**	**0.6%**	**0.7%**	**0.7%**	**0.7%**	**0.7%**	**0.66%**	**0.07%**
Australia	1.0%	1.0%	0.9%	0.9%	0.9%	0.8%	0.8%	0.92%	0.09%
Canada	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.61%	0.01%
China	0.4%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%	0.44%	0.02%
Hong Kong	0.8%	0.6%	0.6%	0.8%	0.8%	0.9%	0.9%	0.77%	0.12%
India	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.32%	0.04%
Indonesia	0.6%	0.6%	0.6%	0.6%	0.7%	0.7%	0.8%	0.63%	0.07%
Japan	0.9%	0.9%	0.9%	0.8%	0.9%	0.9%	0.9%	0.89%	0.04%
Malaysia	0.6%	0.6%	0.7%	0.8%	0.7%	0.7%	0.7%	0.69%	0.05%
New Zealand	1.2%	1.2%	1.0%	1.0%	1.0%	1.0%	1.0%	1.10%	0.14%
Pakistan	0.2%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.22%	0.04%
Singapore	0.7%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.76%	0.06%
South Korea	1.0%	0.9%	0.7%	0.9%	0.9%	1.0%	0.9%	0.89%	0.07%
Taiwan	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.41%	0.02%
Thailand	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.0%	1.11%	0.11%
USA	1.2%	1.2%	1.0%	1.0%	1.0%	1.0%	1.0%	1.08%	0.12%
Vietnam	0.7%	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%	0.55%	0.08%

Source: ZenithOptimedia

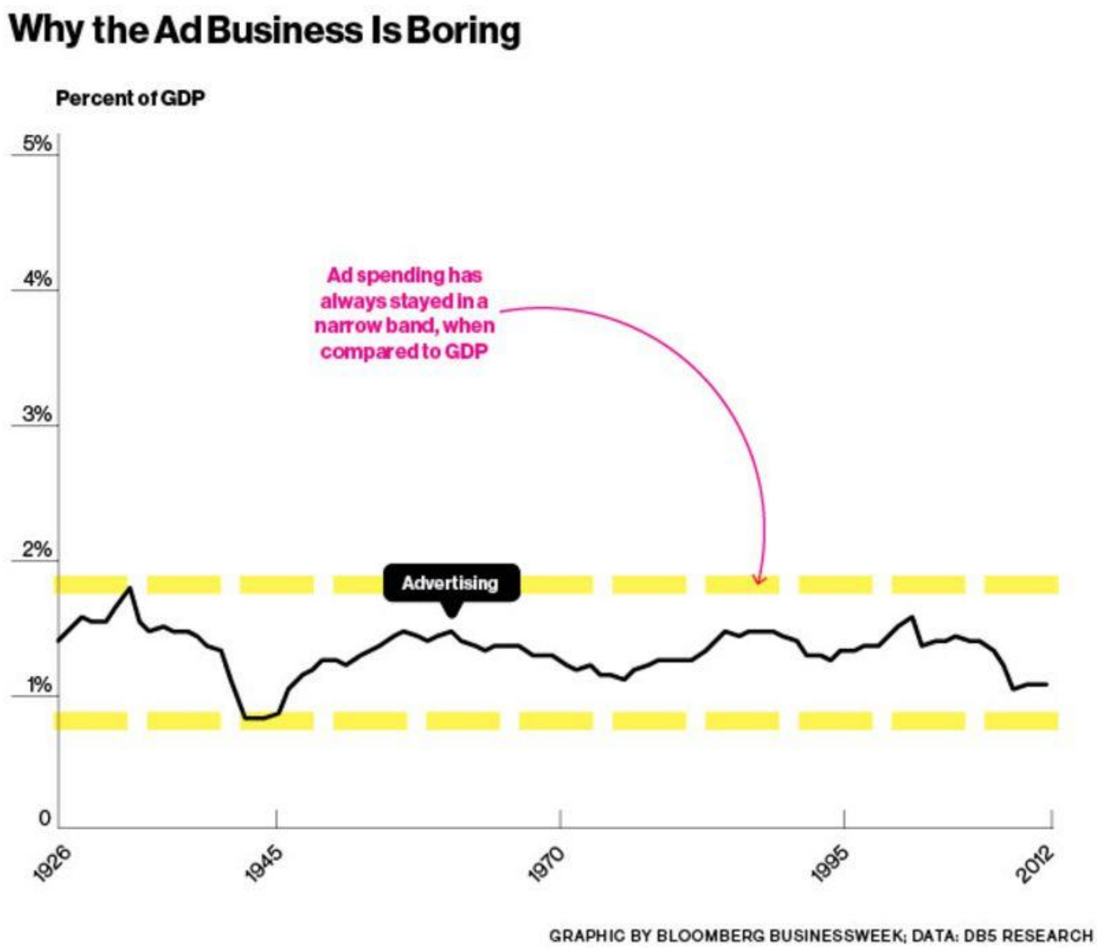
For most countries ad spend as a percentage of GDP has remained relatively stable. There is little correlation between ad spend to GDP and GDP per capita so growth in ad spend to GDP should not necessarily increase as GDP per capita increases.



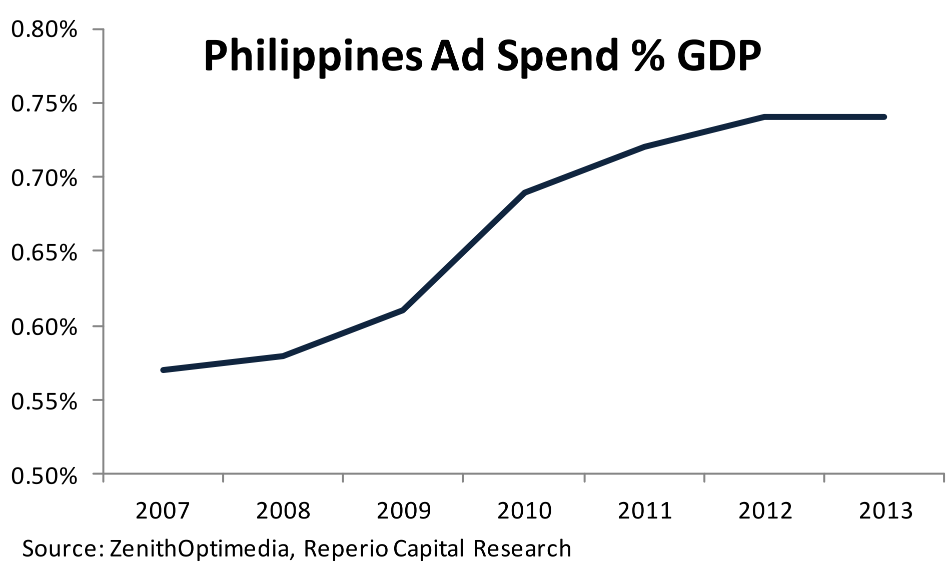
Source: ZenithOptimedia, Reperio Capital Research

The scatter plot graph above shows the relationship across countries and years. A linear trend only has an R squared of 0.2599, while a power trend has the highest R squared of 0.4492 illustrating while there is relationship it is not strong.

Looking at the United States as it has the most data, ad spend as a percentage of GDP has been consistently between 1-2% over the past 100 years, as illustrated by the chart from Bloomberg Businessweek. The consistency and lack of growth in ad spend relative to GDP supports the argument that ad spend as a percentage of GDP does not increase with development.



Since 2007, the Philippines ad spend to GDP has remained between 0.57% and 0.75% but seemingly on an upward trend.



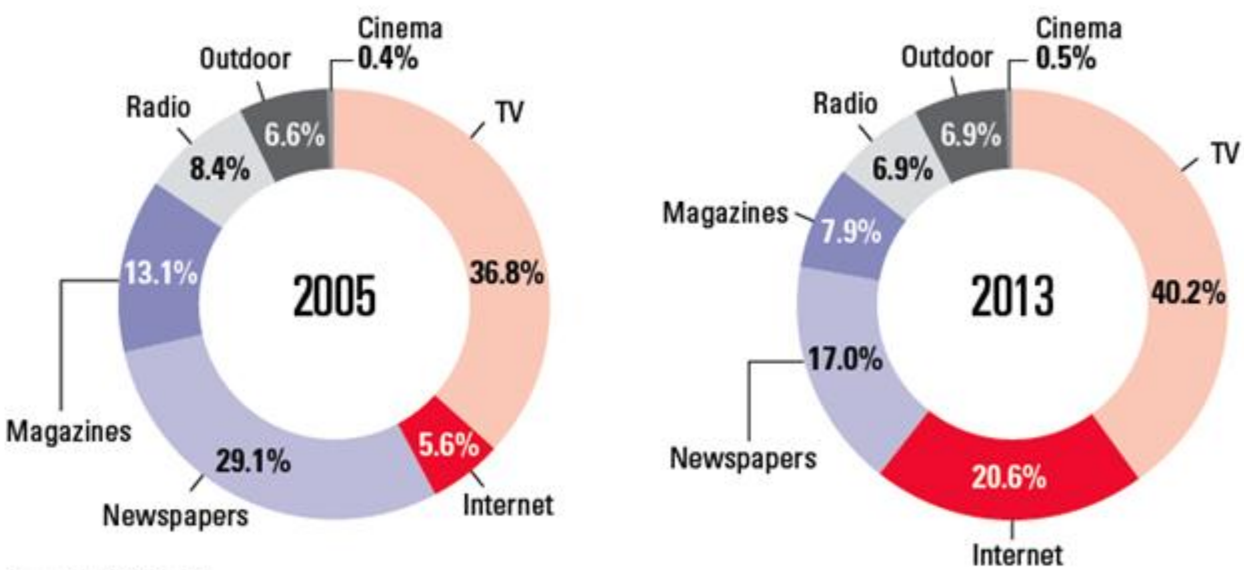
Given the evidence, it seems appropriate to assume a stable ad spend as a percentage to GDP meaning the overall advertising market will grow with GDP growth.

Philippines GDP (Current PHP)	CAGR
1960-2015	13.4%
1970-2015	13.8%
1980-2015	12.1%
1990-2015	10.6%
2000-2015	9.1%
2005-2015	8.9%
2010-2015	8.1%
2016F-2021F	6.8%

Source: World Bank, Reperio Capital Research, IMF forecasts

The table above shows the growth of Philippines GDP in current local currency terms over various periods along with IMF forecasts through 2021. IMF is forecasting 6.8% growth per year until 2021.

Given it seems ad spend will growth with GDP, the question now becomes how will the ad spend be divided among different types of media. Television accounted for 75% of total ad spend in the Philippines in 2006, 74% in 2010, 77% in 2011, 78% in 2013, and 71% in 2015. As illustrated, television has long been the dominant form of advertising in the Philippines. Outside of the Philippines, TV is far less dominant as shown in the graphic below.



Source: ZenithOptimedia

While television is far less dominant outside of the Philippines, it still holds a leading share of ad spend as it is the easiest and most cost effective way to reach the masses. Internet advertising is growing the fastest and taking a larger piece of the pie. Television continues to gain share increasing its slice of the advertising pie from 36.8% in 2005 to 40.2% in 2013. The growth of the internet and television's share of ad spend is coming at the expense of everything else with newspapers and magazines being the biggest losers. The resilience of television means it continues to play an important role for advertisers in reaching a mass-market audience. The internet has not been able to take the role of reaching mass markets as audiences on the internet are much more fragmented. The internet is now doing the jobs for audiences that newspapers and magazines used to do therefore is taking their share of the advertising budgets. This makes sense as newspapers and magazines audience is much more fragmented with magazines catering to niche interests while newspaper catered to local interests therefore could never garner the national audience that major television stations.

While internet advertising should continue to grow, the importance of television within the Philippines will allow it to maintain a large portion of the advertising market. TV may not be the best for targeting a specific audience, but it provides an opportunity to reach an audience that other media cannot reach making it a perfect venue to educate the masses about your product.

Within TV, GMA and ABS CBN's maintaining roughly 80% audience share with an increasing audience share concentration in the industry have been stable with barriers to entry allowing the companies to maintain their share of TV's advertising.

Overall, ad spend should remain stable as a percentage of GDP. IMF forecasts GDP growth of 6.8% until 2021. TV currently accounts for 71% of advertising within the Philippines and has oscillated in the 70-80% region over the past decade. It should continue to maintain a strong position among other mediums particularly when digital and internet advertising is taking share from other media rather than TV. Within TV, GMA and ABS CBN's position will be difficult to overcome and could potentially further consolidate.

MANAGEMENT

To judge the strength of a management team we assess management's incentives and its ability in operations, strategy, capital allocation, and corporate governance.

Incentives

The current chairman of the board and CEO, Felipe Gozon owns 25.3% of the company via FLG Management & Development Corp. GMA's management team incentives seem to be aligned with minority shareholders as members of the board and management team are the largest shareholders in the company.

Operational Efficiency

Regardless of the existence of barriers to entry, operational efficiency is crucial. In an industry with barriers to entry, a firm can fully exploit its advantage. Without barriers to entry, operationally inefficient firms would be forced out of the industry due to persistent losses.

Operational Efficiency	GMA Network	ABS CBN
Revenue	364	619
Production costs	(163)	(263)
Gross profit	201	356
Other operating expenses	(136)	(277)
Operating profits	66	79
Net operating assets	269	736
Gross margin	55.2%	57.5%
Operating margin	18.0%	12.7%
Net operating asset turnover	1.35	0.84
RONOA	24.3%	10.7%
(5Yr Avg, PHP mn per percentage point of audience share)		

The metrics listed above are averages over the last five years in a millions of Philippine pesos per percentage point of audience share. ABS CBN is a media conglomerate with many unrelated business segments. Its most comparable business segment is its TV and Studio segment, which releases partial accounts. ABS CBN generates much higher revenue per percentage point of audience share but also spends more on the production of content leading to a slightly higher gross margin than GMA. ABS CBN's audience share advantage was already mentioned but it also dominates the top 10 most watched programs over the past five years, with GMA only getting a Manny Pacquiao fight in 2012 and another in 2014 into the top 10 most watched programs. The audience share and domination of the top 10 programs points to superior content of ABS CBN and ability to charge higher prices than GMA.

Operationally, GMA's operational expenses are much lower than ABS CBN's on both a per percentage point of audience share and as a percentage of sales. GMA's operating expenses per percentage of audience share are less than half of ABS CBN's and 7.6% less as a percentage of sales.

GMA's has much higher capital efficiency with net operating asset turnover of 1.35 times compared to 0.84 times for ABS CBN. The operating efficiency and capital efficiency allows GMA to be much more profitable with a return on net operating assets of 24.3% compared to 10.7%. GMA is far more operationally efficient than ABS CBN allowing it to exploit the barriers to entry within the industry.

Key Value Drivers, 4 Year Average	GMA	ABS CBN	CBS	21st Century Fox	Grupo Televisa	Television Broadcasts	BEC World	Media Nusantara	Surya Citra	Average
COGS	-44.6%	-61.7%	-58.3%	-64.1%	-53.5%	-40.3%	-52.3%	-43.9%	-34.8%	-50.4%
Gross margin	55.4%	38.3%	41.7%	35.9%	46.5%	59.7%	47.7%	56.1%	65.2%	49.6%
GAEX % sales	-37.5%	-30.1%	-20.4%	-16.2%	-22.1%	-26.2%	-12.5%	-19.1%	-17.7%	-22.4%
Operating margin	17.9%	8.2%	21.3%	19.6%	24.4%	33.5%	35.2%	37.0%	47.5%	27.2%
Working capital turnover	3.3	26.1	20.8	13.6	(7.4)	5.0	(15.5)	1.9	4.3	5.8
Fixed capital turnover	2.5	1.3	3.9	3.4	1.1	1.6	2.4	2.8	4.8	2.6
IC turnover	1.4	1.2	3.3	2.7	1.3	1.2	2.8	1.1	2.3	1.9
ROIC	25.3%	10.1%	69.5%	53.0%	32.8%	40.2%	98.9%	41.6%	107.9%	53.2%
Revenue growth	4.3%	10.3%	-0.5%	-0.4%	8.3%	-6.5%	2.1%	0.9%	8.9%	3.1%
Gross profit growth	5.1%	14.9%	-3.1%	0.1%	7.9%	-10.6%	-9.5%	1.7%	6.4%	1.4%
Operating profit growth	9.3%	24.1%	-1.9%	3.7%	0.5%	-22.4%	-14.9%	-0.3%	7.5%	0.6%
IC growth	-0.2%	7.6%	4.1%	12.7%	15.8%	-1.0%	61.6%	42.6%	14.0%	17.5%
Operating asset % total assets	82.9%	64.7%	34.0%	35.7%	44.6%	55.2%	61.7%	61.7%	58.7%	55.5%
Working capital % invested capital	42.8%	4.7%	15.7%	19.8%	-18.3%	23.9%	-18.1%	59.4%	53.0%	20.3%
Fixed capital % invested capital	57.2%	95.3%	84.3%	80.2%	118.3%	76.1%	118.1%	40.6%	47.0%	79.7%
EV/EBIT	8.5	17.2	12.6	11.7	66.5	5.8	6.2	10.4	20.9	17.8
EV/IC	2.3	1.7	7.5	5.3	17.5	2.8	3.8	2.8	18.3	6.9

Source: Company data, Reperio Capital Research

The table above illustrates the key value drivers of a number of television broadcasters around the world. ABS CBN's figures are different from the previous discussion as this is the whole company rather than just the TV and Studio business.

GMA outperforms on gross margin relative to its peers with only Surya Citra Media, Media Nusantara, and Television Broadcasts having a higher gross margin meaning the company is spending less than peers on content, which could be efficiency or under spending. The company has the highest spending on GAEX relative to its peers. The company could be shifting costs from gross margin to operating expenses or it could be inefficient relative to peers. The company has the second lowest operating margin of all peers, ahead of only ABS CBN.

The company is middle of the pack in capital efficiency with four peers being more efficient at turning over invested capital and four peers being worse at turnover invested capital.

Overall, GMA has the second lowest ROIC of all peers ahead of only ABS CBN. Despite performing poorly relative to peers, GMA still generates an ROIC well above the benchmark rate of 15%. It is interesting that the two Filipino companies performed so poorly on profitability as the country has one of the most favorable market structures with essentially a duopoly. GMA has a strong gross margin pointing to an ability to extract more value from its content than peers. The key driver to GMA's profitability weakness is administrative expenses as the company pointing to weaker operational efficiency than global peers. It is also not a capital efficiency issue as the company is also middle of the pack in invested capital turnover.

Strategy

Evidence points to the existence of barriers to entry within the industry with GMA being a competitively advantaged firm within the industry. The company's management team has been in place since they took ownership in 1975. During that time, they have built and maintained their competitive position, which deserves praise.

The current barriers to entry are economies of scale and customer captivity. Strategy should be to strengthen those barriers to entry. The company currently spends a roughly 45% of sales on production costs. The largest competitor outside of ABS CBN, TV5, has an audience share of 7% roughly 1/5th of GMA's 34% audience share. Assuming market share and audience share are equal, TV5 needs to increase its audience share by 217% before it was able to produce the same amount and quality and reach break-even at the gross margin level. The company is spending the necessary amount on fixed costs to ensure its smaller competition has a difficult time gaining share.

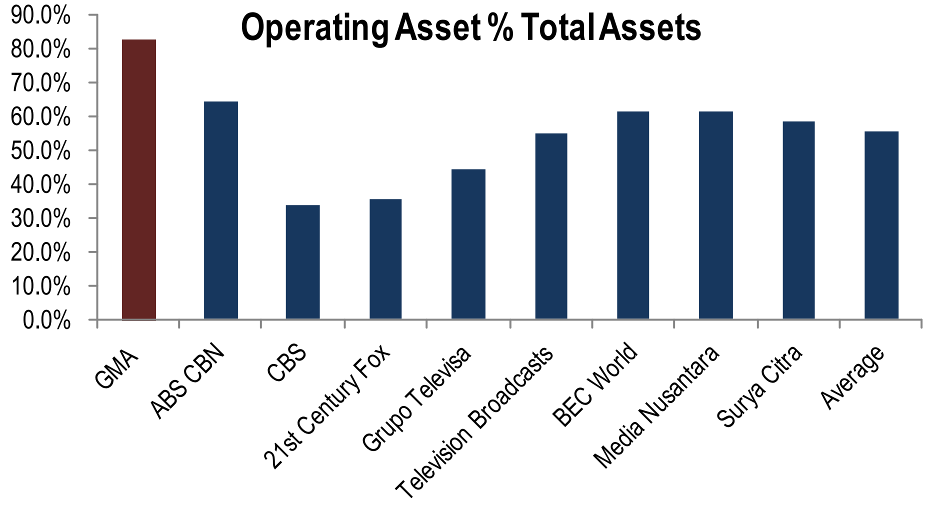
Despite the company's size advantage over smaller peers, GMA is competitively disadvantaged to ABS CBN. ABS CBN dominating the top 10 programs with GMA having the odd showing when it broadcasts a Manny Pacquiao fight illustrates GMA's lack of quality programming and inability to match ABS CBN in production costs due to its smaller size. The poor quality programming impacts customer captivity, as customers are less likely to create habit with poorer quality programming.

Capital Allocation

We start our discussion on capital allocation by looking at the company's financial health. If management takes on too much debt, it is taking a significant risk for minimal reward. At the end of September 2016, GMA had a net cash position of PHP1,596 million.

At the end of 2015, GMA Network's short-term loans amounted to PHP1,152.97 million. 100% of debt was in USD at an interest rate of 1.73%. At the end of 2014, GMA Network had PHP1,922.96 million in USD debt at an interest rate of 1.68% and PHP300 million in PHP debts at an interest rate of 1.90%. Foreign currency debt adds risk without any additional reward, particularly when there is a marginal difference in interest rates in USD debt and PHP debt. The unnecessary risk is nothing more than currency speculation. GMA Network has sufficient cash to buffer an increase in USD relative to PHP so other than poor judgment by management the company's FX debt is not a major concern.

Next, we look at the company's balance sheet to estimate the amount of operating assets and non-operating assets. We would like to see all assets as operating assets as the non-operating assets are not part of the company's core business and should be returned to shareholders. Since 2011, 83% of assets have been operating assets, the best of the peer group.



Source: Company data, Reperio Capital Research estimates

The company has not made any expensive acquisitions in the recent past. It also was willing to sell itself in 2001 to PLDT at PHP12.5 billion or 10 times EBITDA. The 2001 valuation is roughly 75% of the company's current enterprise value.

The company's approved dividend policy entitles holders of common shares to receive annual cash dividends equivalent to a minimum of 50% of the prior year's net income based on the recommendation of the Board of Directors.

Other than the excess non-operating assets on the company's balance sheet, it is doing a good job of allocating capital to fixed costs that are crucial to the company's size advantage. The company is also doing a good job of not straying from its core competency in a quest for growth.

Corporate Governance/Value extraction

With most emerging market small cap companies run by owner operators, the board and management is dominated by the owner operator making benevolence crucial.

To assess corporate governance we start by looking at the company's related party transactions.

Related Party	Category	Year	Amount/ Volume of Transactions	Receivables (Payables)	Terms	Conditions
Associate -						
Mont-Aire	Advances (see Note 11)	**2015**	**₱250,000**	**₱87,860,215**	Noninterest-bearing	Unsecured; not impaired
		2014	3,134,845	87,610,215		
Common stockholders:						
GMA Kapuso Foundation Inc.	Reimbursable charges	**2015**	**132,035**	**4,078,697**	On demand, noninterest-bearing	Unsecured; not impaired
		2014	197,020	4,011,857		
Belo, Gozon, Elma Law	Legal, consulting and retainers' fees	**2015**	**12,880,960**	**(560,000)**	On demand, noninterest-bearing	Unsecured; not impaired
		2014	12,327,240	(576,800)		
Joint ventures:						
Gamespan	Advances (see Note 11)	**2015**	**₱1,959,670**	**₱1,959,670**	Noninterest-bearing	Unsecured; not impaired
PEP	Advances (see Note 11)	**2015**	**₱619,078**	**₱619,078**	Noninterest-bearing	Unsecured; not impaired

The majority of related party transactions are legal, consulting, and retainers' fees paid to Belo, Gozon, Elma Law, the Chairman and CEO's law firm. These transactions are less than 1% of operating profit and seem to be reasonable. All other related party transactions are much smaller advances to associates and joint ventures. Overall, related party transactions do not point to any corporate governance issues or excess value extraction by management.

After related party transactions, the compensation to key management personnel is assessed to determine if wages are excessive.

Compensation of Key Management Personnel

The compensation of key management personnel of the Group, by benefit type, follows:

	2015	2014	2013
Salaries and other long-term benefits	**₱340,264,893**	₱286,346,811	₱294,044,757
Pension benefits	**145,000,353**	140,385,431	40,322,398
	₱485,265,246	₱426,732,242	₱334,367,155

Compensation to key management personnel averaged 20% of operating profit and 3.2% of sales, which is very high. Typically, we would want to see salaries at less than 5% of operating profit. This is a big negative as key management is already significant shareholders meaning the excessive salaries are just extracting value from minority shareholders. Management are no way creating the value extracted from salaries as the barriers to entry in the industry are so strong that pretty much anyone can run the company and generate the level of profitability the company is generating. The massive value extraction in the form of salaries is a big negative and significantly decreases the quality of the company.

VALUATION

We start by valuing GMA at its liquidation value. Liquidation value is the most appropriate valuation method for a company that is no longer viable therefore should be liquidated. Given GMA's competitively advantaged position in a viable industry, liquidation value is not too relevant. We estimated GMA's liquidation value to be PHP1.32 per share representing 79% downside.

Liquidation Value (PHP mn)	BS Value	% of BS Value	Liquidation Value	Per Share
Cash and equivalents	3,553	100%	3,553	0.73
Trade and other receivables	5,097	75%	3,823	0.79
Program and other rights	1,143	90%	1,029	0.21
Prepaid expenses and other current assets	937	90%	844	0.17
PP&E at cost	2,828	50%	1,414	0.29
Land at revalued	1,805	75%	1,354	0.28
Available-for-sale financial assets	192	100%	192	0.04
Investments and advances	147	50%	74	0.02
Other non-current assets	138	50%	69	0.01
Total liabilities	(5,918)	100%	(5,918)	(1.22)
Liquidation value	**9,922**	**65%**	**6,432**	
Shares outstanding (mn, diluted)			4,860	
Liquidation value per share			**1.32**	
Upside to liquidation value			**-79%**	

Source: Company data, Reperio Capital Research

Using a more conservative net current asset value per share, GMA's liquidation value is PHP0.99 per share leading to a liquidation value of roughly PHP0.99 to PHP1.32 per share.

Next, GMA is valued at its reproduction value. Reproduction is the appropriate valuation method in an industry lacking any barriers to entry, which eliminates excess profitability leading any investment not creating any additional value. The value of any asset under this condition is the cost to recreate the assets.

Reproduction Value (PHP mn)	FS Value	% of BS Value	Reproduction Value	Per Share
Cash and equivalents	3,553	100%	3,553	0.73
Trade and other receivables	5,097	107%	5,451	1.12
Program and other rights	1,143	100%	1,143	0.24
Prepaid expenses and other current assets	937	100%	937	0.19
PP&E at cost	2,828	100%	2,828	0.58
Land at revalued	1,805	100%	1,805	0.37
Available-for-sale financial assets	192	100%	192	0.04
Investments and advances	147	100%	147	0.03
Deferred income tax assets	274	100%	274	0.06
Other non-current assets	138	100%	138	0.03
Advertising	310	100%	310	0.06
Marketing expenses	147	100%	147	0.03
Research and surveys	114	200%	229	0.05
Personnel costs	5,409	20%	1,082	0.22
Total assets	**16,114**		**18,236**	**3.75**
Trade payables and other current liabilities	2,381	100%	2,381	0.49
Current portion of obligation for program and other rights	149	100%	149	0.03
Non-interest bearing liabilities	**2,530**		**2,530**	**0.52**
Asset reproduction value	**18,644**		**20,766**	
Short term loans			631	
Pension liability			1,291	
Other long term employee benefits			369	
Minority interests			59	
Equity portion of reproduction value			**18,417**	
Shares outstanding (mn, diluted)			4,860	
Reproduction value per share			**3.79**	
Upside to reproduction value			**-39%**	

Source: Company data, Reperio Capital Research

To calculate GMA's reproduction value, we assess what assets would need to be reproduced to reach GMA's competitive position. We start by looking at the company's balance sheet. The vast majority of balance sheet values are assumed a fair representation of the cost to reproduce the asset. Trade and other receivables come with bad debt that would need to be incurred to reproduce the company's level of receivables. GMA's bad debt provision is 7% of the company's trade and other receivables account. We assume a new entrant would need to match the company's level of bad debt. Additionally, a few expenses need to be recreated. Advertising and marketing are assumed to educate the population about the company's programming therefore in the process of recreating the company's position advertising and marketing is necessary to reach the company's audience share. Many television programs run for more than one year forcing a new entrant to spend a multiple of GMA's advertising and marketing expense as advertising and marketing may create value beyond one year, but to be conservative we assumed only one year of advertising would need to be recreated. Similarly, research and surveys create knowledge that is an asset to the business and not reflected on the balance sheet. This knowledge would probably take years to replicate but we assume that two years of research and survey expense would do a good job at replicating the asset. It also costs to hire personnel and talent. We assume that any new entrant would have to spend 20% of one year's personnel expense on agent's fees, recruiter's fee, and building the infrastructure to hire.

We also assume the non-interest bearing liabilities of trade payable and other current liabilities as well as current portion of obligation for program and other rights are spontaneously created decreasing the amount of funds required to invest in the business. Overall, we estimate GMA's reproduction value to be PHP3.79 per share or 39% downside.

Given the barriers to entry in the industry and GMA's competitively advantage position, valuing the company based off its earnings is the most appropriate valuation methodology. We value GMA using a variety of earnings based valuations. The first earnings based valuation is simply FCF yield plus growth. The Philippines advertising industry is very cyclical with political advertising distorting revenue generated by firms in some years. To eliminate this cyclicality associated with political advertisements, we average GMA's FCF over the past five years leading to a FCF yield of 7.5%. Given FCF takes into account working capital and fixed capital investment, any potential growth can be added to estimate a company's FCF yield to estimate its total return. It seems growth of industry will mirror the GDP growth rate as ad spend as a percentage of GDP tends to be relatively stable. Television's share of ad spend is increasing and the share within the industry is relatively stable. All evidence points to a growth rate equal to GDP or higher. The IMF forecasts that the Philippines will grow at a rate of 6.8% through 2021. If we use a growth rate of 5.0%, to add a bit of conservatism, GMA should return 12.5% per annum over the next five years.

The next earnings based valuation method assumes various competitive scenarios by changing key value driver assumptions used in a residual income/DCF with the output being a range of valuations. The key value driver assumptions we use for every residual income/DCF valuation is cost of capital, sales growth, operating margin, tax rate, working capital turnover, and fixed capital turnover. With our residual income/DCF valuation, we have a five-year forecast period followed by a fade to a terminal value in year 10.

Key Value Driver Assumptions	Forecast Period	Terminal Year 10	Current	Average	Peak	Trough	St Dev
Discount rate	10.0%	10.0%					
Tax rate	-30.0%	-30.0%	-30.0%	-29.1%	-23.5%	-33.2%	3.2%
Working capital turnover	3.3	3.3	3.3	2.9	3.8	2.5	0.4
Fixed capital turnover	2.8	2.8	2.8	2.5	2.8	2.3	0.2

The key value drivers that remain stable are discount rate, tax rate, working capital turnover and fixed capital turnover at the values listed above.

Key Value Driver Assumptions	Forecast Period	Terminal Year 10	Current	Average	Peak	Trough	St Dev
Sales growth	0.0%	0.0%	14.6%	3.8%	14.6%	-7.5%	7.2%
Operating margin	12.0%	12.0%	21.9%	24.0%	32.8%	12.0%	7.8%

Sales growth and operating margin are the key variables that change under different scenarios. We use three states of sales growth 0%, 2.5%, and 5% into perpetuity. There are four scenarios for operating margin: 2007-2015 trough = 12.0%, current = 21.9%, 2007-2015 average = 24.0%, and 2007-2015 peak = 32.8%.

Earnings Based Valuations (DCF/EVA/EPV)	2017 Target Price (PHP)	Upside	2021 Target Price (PHP)	Upside	ROIC
0% growth, trough margins	2.89	-54%	3.67	-41%	13%
0% growth, current margins	5.36	-14%	6.79	9%	23%
0% growth, average margins	5.89	-5%	7.46	20%	25%
0% growth, peak margins	8.08	30%	10.22	64%	35%
2.5% growth, trough margins	3.35	-46%	4.34	-30%	13%
2.5% growth, current margins	6.68	7%	8.70	40%	23%
2.5% growth, average margins	7.40	19%	9.65	55%	25%
2.5% growth, peak margins	10.35	66%	13.51	117%	35%
5% growth, trough margins	4.31	-31%	5.73	-8%	13%
5% growth, current margins	9.35	50%	12.59	102%	23%
5% growth, average margins	10.45	68%	14.07	126%	25%
5% growth, peak margins	14.91	139%	20.14	223%	35%
Average Earnings Valuations Upside	**7.42**	**19%**	**9.74**	**56%**	**23%**

Source: Reperio Capital Research estimates

The average 2017 target price is PHP7.42 or 19% upside, while the average 2020 target price is PHP9.74 or 56% upside. The maximum downside over the next five years is 41% under the no growth and trough operating margin scenario. This scenario points to a deterioration of the competitive environment where barriers to entry are eliminated and television share of ad spend is succeeded to the internet. The maximum upside is 228% under the 5% growth and peak operating margin scenario. This scenario points television maintaining its share of total ad spend and more benign competitive environment allowing for stronger profitability. The more likely of the two scenarios is the most optimistic scenario as this was the norm prior to 2011. Our base case scenario is 2.5% perpetuity growth with average operating margins leading to 55% upside over the next five years.

In summary, earning base valuation is the most appropriate valuation methodology for GMA as its industry has barriers to entry and the company is competitively advantaged. FCF yield and average of all the earnings scenarios lead to 10-12.5% annualized return.

RISKS

We classify the risks to an investment into four main categories: financial risk, business risk, macro risk, and valuation risk. Financial risk is the risk of permanent loss of capital due to an inability to pay its debts. Business risk is the risk a permanent loss of capital due to an impairment of a company's earning power from competition, poor management, a disruptive technology, or government regulation. Macro risk is the risk of permanent loss of capital due to macroeconomic troubles of a country. Valuation risk is the risk of permanent loss of capital from paying too much for a company.

Financial risk

GMA is very conservatively financed with a net cash position of PHP1,596 million and has a competitively advantaged position making the probability bankruptcy very low. The company does finance itself with USD debt rather than PHP debt making the company susceptible to any significant moves in the USDPHP exchange rate. It is not a concern as the company has sustainable earnings stream and a net cash position.

Business Risk

Given GMA benefits from its competitively advantaged position, the biggest risk to the company's business is if those barriers to entry were to weaken allowing competitively disadvantaged peers to catch up with GMA. GMA's strongest barrier to entry is economies of scale due to the large fixed costs associated with production costs. If the company's relative size advantage were to deteriorate, the competitive environment would be come much tougher. If fixed costs were to turn variable or not be crucial to creating value, it would also weaken GMA's competitive position.

The Philippines has a regulation stating that only Filipinos can own mass media companies. If this law were to change, the number of broadcasters could increase leading to a potential pricing war via declining ad rates.

GMA's content seems to lower quality than ABS CBN as illustrated by ABS CBN dominating the top 10 most viewed shows in Philippines for a number of years and ABS CBN's high revenue per percentage of audience share. If the relative weakness in content production and sourcing continues, GMA may relinquish share.

Cable may increase its penetration providing more options for viewers and fragmenting audience share leading to a fragmentation of advertising revenue. At the end of 2015, cable TV penetration stood at 17% of all homes with televisions up from 15% in 2012 and 11% in 2010. Cable TV penetration is well below international standards with pay TV in Asia at 54% so there is potential for increased penetration if cable operators can improve their offering.

The internet is changing distribution in many industries including television. The biggest threat to television broadcasters is content producers going direct to consumers or over the top (OTT). If the OTT offering is more attractive, audiences will shift their viewing habits to providers of content via the internet. We are seeing content aggregators such as Netflix and Hulu make significant inroads in the developed world. Content aggregators acquire content from content producers and sell subscriptions. These are more of a threat to cable as they are essentially performing the same job of bundling niche content and selling it to the consumer for a subscription fee. Internet penetration in the Philippines is at 43.5%. While GMA and ABS CBN are at risk, these two produce their own local content. If the content aggregators are able to disrupt the distribution part of GMA's and ABS CBN's business, there will always be value in their local content. These aggregators have started producing content but not niche language content.

The internet is taking over traditional roles that the television used to perform. News, which is continuous content that creates customer captivity, is being consumed via the internet rather than the traditional television in many parts of the world. An increasing shift of audience towards the internet will severely affect GMA's profitability.

The production of content leads to a high level of fixed costs creating operating leverage. Operating leverage is a double edge sword as growth leads to greater profitability while decline in profitability leads to a greater fall in profits. If TV broadcasting as matured and is in the decline phase of its lifecycle it may not take long before profitability is eliminated.

Macro Risk

Our goal with assessing macro risk is not to forecast the path of macroeconomic indicators but to eliminate risks from a poor macroeconomic position.

GMA Network business is primarily in the Philippines, a country that seems to be in very good financial health. In 2015, the country's current account was 2.6% of GDP and its structural balance was 0.18% of GDP allowing the country to self-finance all the domestic initiatives as well as decrease the country's debt load. The country does not have too much credit in the system with domestic credit provided by the financial sector at 59.1% at the end of 2015, which is well below the Emerging Markets average of 97.5% and the High Income countries average of 205%. Gross government debt as a percentage of GDP stood just under 35% with External Debt to GDP at 36%. The one concerning macroeconomic indicator is the level of growth in credit in the Philippines. Over the past five years, the amount of domestic credit provided by the financial sector has increased at a rate 12% per annum. When a country is growing its banking assets at this pace, there is a high probability of an increase in non-performing loans. The country's banking system has a healthy capital balance with capital to assets at 10.6%.

Valuation Risk

The key valuation risk is the assumptions used in our scenario analysis are too optimistic. We looked at GMA's operating history back to 2007. If we reviewed 2011 to 2015 rather than 2007 to 2015, there would be a difference in valuations. Using 2011 to 2015, the average operating margin would decrease from the current 24.0% to 18.3%. The peak operating margin would decline to the current operating margin of 21.0%. We used the operating history since 2007 as the company's profitability in the trailing twelve months ending in September 2016 returned to levels not seen before 2011.

CONTACT:

Marc Melendez, CFA

Senior Analyst

Reperio Capital Research LLC

www.reperiocapital.com

(718) 705-4969

marcmelendez@reperiocapital.com

DISCLOSURE:

This report has been prepared and distributed by Reperio Capital LLC. This report is based on sources that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. All information contained herein is subject to change without notice. Reperio Capital Research LLC is not registered as an investment adviser nor a broker/dealer with the U. S. Securities & Exchange Commission, FINRA or any other regulator in any jurisdiction for the provision of investment advice.

The analysis and information presented in this report by Reperio Capital Research LLC may include summary profiles of key companies in the relevant sector and the information is offered for subscriber interest only. This Report is not to be used or considered as a recommendation to buy, hold or sell any securities or other financial instruments and does not constitute an investment recommendation or investment advice. This report is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any information in this report is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. Statements included in this report may constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements involve a number of risks and uncertainties such as competitive factors, technological development, market demand and the company's ability to obtain new contracts and accurately estimate net revenues due to variability in size, scope and duration of projects, and internal issues.

Neither Reperio Capital Research LLC nor the principals, officers and directors of Reperio Capital Research LLC have a long or short position with respect to any of the shares of the subject company covered in this report. Reperio Capital Research LLC is not a broker-dealer and does not generate any investment banking or commission-based revenue with respect to the securities of the company described herein.

Our professionals may provide oral or written market commentary that reflects opinions that are contrary to the opinions expressed in this report. The price and value of the investment referred to in this report may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Our report is disseminated primarily electronically, and, in some cases, in printed form. Electronic report is simultaneously available to all recipients in any form. The information contained in this report is not incorporated into the contents of our website and should be read independently thereof.