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Accounting Standards in Regards to the Mobile Tech Industry

Moreau, Accounting Standards in Regards to the Mobile Tech Industry

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The mobile tech industry is one of the most influential and useful industries to both consumers and businesses because of how necessary that level of functionality is. The value that this industry adds to businesses and individuals is significant, and will likely only increase as the world continues to shift to the mobile landscape. And unlike other valuable industries such as energy, it is not geographically dependent where mobile tech companies are stationed. The purpose of this paper is to examine some of the accounting topics which are most prevalent to the mobile tech industry; namely research and development, inventory, and other intangibles like advertising. The two most significant sets of accounting standards, US GAAP and IFRS, treat these topics differently. This paper analyzes these differences in order to determine which system is more beneficial to the current trends and strategies used by mobile tech companies today. The result is that there are no significant definite differences between GAAP and IFRS in the mobile tech industry with regard to inventory and intangibles, but there is potential for significant benefit under IFRS depending upon specific business practice. There is also significant benefit for IFRS when R&D costs are rising.

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The mobile tech industry is one of the most prominent in modern times. The ability to communicate from and to almost any location on a variety of digital formats has not only benefitted humanity in many aspects, but shaped it as well. Beginning in the 1970's with Motorola's introduction of the cell phone, the mobile tech industry would go on to include the introduction of product categories such as laptop computers, multi-media players, smartphones and tablets, other smart devices such as watches and glasses, and the digital applications which run on these devices. As electronic related technology advances and branches out into new areas, the mobile tech industry is one of the quickest to reflect them in their products. Innovations in camera hardware, display technology, as well as battery life and charging capabilities, are just a few of the features that are constantly being upgraded with almost every new model of a product. The functionality of these devices have been increasing to the point where the original use for the product is no longer the highlight feature, such as with cell phones and calling, and the importance of this industry now and in the years to come is undeniable. *Is IFRS more conducive to the mobile tech industry than US GAAP in regards to research and development, inventory, and intangibles?* The differences between the two systems with respect to research and development, inventory, and intangible costs (the most relevant portions of mobile tech companies), will show whether IFRS or US GAAP is more receptive to the needs of the mobile tech industry.

Research & Development

The research and development activities of mobile tech companies are vital not only to drive innovation, but are necessary for companies just to keep up with competition. Varieties and models of devices are introduced and updated every year, and new features are constantly being added. Companies like Apple, Microsoft, and Samsung spend billions of dollars each year in order to develop new products, representing about 10-20% of revenue, and others like Intel make R&D their primary focus for their operations (Fortune). The rapid pace these companies are maintaining require significant investment into their R&D departments. This development is split further into two categories. Hardware development has to do with the physical device, and involves components such as microprocessors, batteries, glass and plastics, radio transmitters, cameras, etc. While such parts of some devices can sometimes be replaced, the majority of a device's hardware is upgraded or fixed by the purchase of a new device; a factor which has shaped the market by spurring the development of hardware components. New models are periodically entered into the market with upgraded components, making older models obsolete and encouraging the purchase of the entire set of new components rather than individually upgrading parts when possible. The other part of R&D has to do with software/OS development. This involves the many applications for smart devices, their user interfaces of devices, etc. Software, applications, and OS can be upgraded for those items that can access the internet at any time, so long as the physical processors can support the functions. Because of the internet and mobile cellular networks, the results of this type of research and development can be accessed, purchased, and distributed at anytime, anywhere, and almost instantaneously. IFRS

treats both sections differently than US GAAP, which can lead to significant differences in the outlook of a company based upon financials.

When it comes to hardware development, standard R&D rules within each system apply. IFRS allows companies to capitalize and amortize R&D costs (IASB). This allows companies to spread out these costs over a period of time in which the product or technology developed will be in sale. IFRS takes the stance that this more accurately reflects the purpose of R&D costs as an asset, and the advantage for companies lies in more gradual effects upon net income. Profitability for these companies is also higher in the beginning of the amortization period than those that expense those costs. US GAAP, on the other hand, requires companies to expense R&D costs as they are incurred (FASB). This is because GAAP feels the different treatment of R&D costs, which can be large items on financial statements, could be easily misused for items that should be kept separate and thus not have the principle basis for capitalization. The result of these differences is that a company using GAAP may have periods where net income is low as development is increased, and periods where net income is significantly higher after development is completed and those cost are no longer in the financial statements. Companies using IFRS will have less of an impact on their financial statements in the early periods of the amortization of capitalized R&D costs, but net income will be impacted in later periods. GAAP takes costs on immediately and in full, while IFRS takes them on over time.

If a company is regularly developing new and popular devices it may make sense to deal with the full force of the cost as it occurs, as with US GAAP. The period in which the product is developed will have expenses offset by the sales of the new product, while the following periods will have net income unhindered by the effects of amortization that Come with reporting financials under IFRS. A great example of this is Apple Inc. who file their consolidated

financials according to GAAP. Their extremely popular products are usually able to generate more than enough revenue in opening weeks to offset R&D expenses (IFRS.org). For companies which have a slower rate of product development, or may develop products that don't capture as much of the market share, capitalization of R&D may be a more attractive strategy.

Software development has its own set of rules for representation which differ from other forms of R&D. Software falls under the classification of intangible assets. IFRS allows the development costs of software to be capitalized and amortized over time so long as the software can be deemed as economically feasible, showing no difference from other types of intangibles. Under US GAAP the development of intangible assets is normally expensed just like with hardware. Software is a notable exception however, as costs associated with internally used software are allowed to be capitalized through the development stages. Development costs of software that will be distributed or sold outside of the company can be capitalized once it is deemed "technologically feasible", which basically means the software exists as a working model (FASB). The capitalization of both systems is set for the estimated revenue generating life of the software program.

The nature of software development is unique amongst intangibles. While software may hit the market once it is operational, it will usually receive changes and more development from the creator of the program, called updates. These updates can occur because the author feels the need to change what the program can offer users, to fix issues, to adapt to the progression of technology, or even just to alter the appearance of the software to the user. Regardless of the reason, these updates represent more investment on behalf of the author, and thus more costs. Furthermore, these updates can continue as long or as short after the introduction of the software into the product as the author desires, possibly extending the amortization indefinitely. IFRS

allows capitalization of these costs from the start, which increases the assets of the company both through the initial development and through subsequent updates. By comparison GAAP's suspended capitalization allows for companies to have significantly greater control over how these costs affect their financials. Companies are able to adjust development to alter how much of the costs are expensed and how much can be capitalized by developing post market introduction.

US GAAP	IFRS
Research and Development costs are expensed as they occur	Development costs are capitalized and held as assets on the balance sheet. Their value is amortized over useful life
Software development costs for externally used software can be capitalized for a portion of their life	Software development costs are capitalized

(IFRS.org)

Inventory

Manufacturing is a vital part of any company which provides products for their customers. The mobile tech industry is no different; with an estimated 1.4 billion smartphones in use this year, enough cell phones to give one to six out of seven people worldwide, and in-car smart systems being the fastest growing segment of the automobile industry, the creation of these products are going to have a significant impact upon financials. While companies handle manufacturing segments of their businesses in different ways, manufacturing specific costs will still comprise of a basic number of factors. The cost of materials is a major component of the manufacturing process, and they include metals, plastics, carbon-fibers, glass, and the various materials and metals like lithium needed to create chips and processors and batteries. All of these parts and materials need to be stored when they are not in use, and so inventory comes into play. The most significant difference between US GAAP and IFRS lies with how inventory

costs are valued. These costs are associated with both raw materials and finished products have to be carefully managed with the demand of the market in order to keep them as low as possible.

As inventory is such a major target of the efforts of management, it follows that US GAAP and IFRS will have differences between how these costs are handled. For instance, inventory costs can be valued in different manners, with US GAAP allowing for LIFO and FIFO while IFRS does not allow LIFO at all. IFRS does allow for inventory to be written down in value and then allows companies to reverse this write-down, while US GAAP prohibits the reversal of write-downs. This means that while US GAAP allows for increased control over cost of goods sold due to increased valuation options, IFRS allows for companies to have greater control over the valuation of inventory, and thus their assets.

US GAAP	IFRS
Inventory costs can be valued with either LIFO or FIFO	Companies are prohibited from using LIFO
Inventory can be written down, but reversal of write-downs are prohibited	Inventory can be written down in value and this write-down is reversible

(IFRS.org)

Intangibles

A significant part of any major corporation's financial statements are intangibles. These costs can include trademarks, licenses, and prepaid expenses. Under IFRS advertising costs, among other commonly expensed items under US GAAP, are able to be prepaid and held as an asset. The mobile tech industry has shown heavy investment into advertisement campaigns on all platforms. All technology companies such as Apple, Microsoft, and Google, deal with a large amount of intangibles when it comes to their software development, as discussed before.

Companies have also started to invest in different sales venues, including popular ecommerce locations and other internet-based methods. All of these strategies fall under intangible costs,

and without them the industry would not be nearly as gargantuan as it is today at the consumer level. There are a few key differences between how US GAAP and IFRS handle these costs, though they are largely very similar. Under US GAAP, advertising costs are either expensed once they are incurred or once they are first aired, and some types can even be capitalized (FASB). Under IFRS, advertising costs are expensed when incurred, and prepayments of advertising costs can be held as assets. IFRS also allows for far greater adjustment of the value of intangibles while they are held on a companies books. This means that companies using IFRS can have greater control over their assets and expenses by pre-purchasing advertisements. US GAAP companies cannot hold prepaid advertisements as an asset, but can keep the transaction off of their records altogether if they pay for the advertisements long before they air. Advertising, like the other costs which can be capitalized, can usually only be capitalized for a one-year period. The resulting effect on financials is that companies using IFRS are able to have greater control of their assets on a quarterly basis, but there is little or no effect on yearly financials.

US GAAP	IFRS
Intangibles like advertising are expensed, while others are either expensed or capitalized given specific criteria	Intangibles such as advertising and overhaul costs are able to be prepaid and held as assets on the balance sheet while capitalized

(IFRS.org)

Major Mobile Tech Companies

The mobile tech industry is comprised of a good deal of companies. While some of these companies only dabble in this industry, others make it their main operating segment. Each are generally different. The following section is a brief overview of Apple, Samsung, Microsoft, and The LG Corporation and how their business structure relates to representation on their financials.

These companies represent some of the largest whose operations are involved in production or design of mobile technologies and components thereof. All have different strategies and company structures, and this reflects on how their financial statements appear. They also report their consolidated financials under differing systems. The analysis of these companies can shed light into how US GAAP and IFRS can offer benefits over each other, and which strategies can best thrive under each system.

Founded in 1976, Apple started out by building personal computers. The company developed their product rapidly, and the company soon took off financially. The company files their consolidated financials under US GAAP. An important distinction of their business model is that Apple does very little of their own manufacturing. They produce everything from smartphones and mp3 players, to laptops and tablets and touchscreen console systems in cars made by Tesla motors, to their smart watch, all of which now use their self-designed operating systems. However, most of Apple's operations have to do with research and development of their products and their processing chips, the management of their software services, and their general selling and administrative duties. Instead they enter into partnerships with companies, so far in Asia, to manufacture most of the parts and assemble them. Another company, Samsung, is a Korean headquartered multi-national company. Starting as a trading conglomerate, the company started to focus on electronics and telecommunications in the 1960s. Samsung is unique in that it's manufacturing is the main focus of its operations. It even produces a number of electronic chips and processors for other mobile tech companies, and up until recently even manufactured for Apple. Two of their largest chip production facilities are located in South Korea, as well as facilities for assembly, testing, packaging, and R&D. The majority of their operations being in South Korea, they report their consolidated financials according to IFRS. However, Samsung

does have a major production plant in Austin, Texas, and they have design centers in California, London, and Tokyo among others.

Microsoft started out as a company specializing in software development. Their products set the standard for software. As technology progressed the company expanded with their Windows and Windows phone operating systems, their internet browsers, and Microsoft Office. Recently Microsoft has expanded into producing hardware, with specialty windows smart-phones, and their acclaimed surface brand of products. Most of their manufacturing of mobile devices is done outside of the country, through partnerships with manufacturing companies, but their software is mostly manufactured and packaged in the US. The largest operating segments of the company are their design and their sales segments, each representing over 40% of the functionality of the company. Microsoft files consolidated financials under GAAP. The LG Corporation is another Korean based conglomerate. The company responsible for the production of mobile tech is actually LG electronics, which the LG corporation owns 30% of. They have production facilities all over the world, with the majority located in East Asia, except for North America. The vast majority of their R&D facilities are located in Korea, but North America has the next highest amount of research centers. There are no sales facilities in Korea, and most are located in Europe, the Middle-East, and the Americas (LG).

When comparing the strategies and structures of these companies, it is clear that they have adopted techniques which allow them to minimize or eliminate disadvantages of each system. Apple, for instance, partners with manufacturers in Asia for their manufacturing, which allows them to avoid many inventory expenses altogether for raw materials and components. Because the parent company owns significant but not controlling interest of the companies which perform the operations of its mobile tech offerings, the LG Corporation does not need to include

it's manufacturing activities in its consolidated financial statements. This allows for the company to maintain a good amount of control over the process as well as allowing manufacturing to operate under different systems than the LG corporation should it be more beneficial.

Across the board research and development activities are located strongly both where the company is headquartered as well as in the United States. This may be because the human resources for R&D in the mobile tech industry are more developed here in the United States. There is no denying that American-based companies have been able to alter their corporate strategy to benefit from the dual expensing/capitalization of R&D under US GAAP, by timing the recouping of these expenses to be in the periods where developed technologies will be the most profitable. While there are other reasons for manufacturing to be outsourced to other countries, including cost effectiveness and more lenient operating regulations, there also appears to be a significant benefit to either having manufacturing operations run under IFRS or to avoid them altogether. Marketing expenses seem to be unavoidable, and there appears to be little difference to whether they are under US GAAP or IFRS.

Direct Comparison of Financials Under GAAP and IFRS

In order to demonstrate just how IFRS and US GAAP alter how a company's financials look, this section will take a company using US GAAP and alter their financials according to rules set forth by IFRS. While this analysis will focus on those areas that were covered earlier in this paper, it is important to note that there are other differences between US GAAP and IFRS can have an effect on financials. These include revenue recognition, asset impairment, and others, however such factors require an amount of detail that is not available for use by the

public. This analysis will cover only standards involved with research and development, intangibles, and inventory. The complete comparison of financials are demonstrated in appendices A through C.

Research and development costs are expensed under US GAAP. This increases expenses and lowers cash, resulting in no change to the total asset balance. Under IFRS research and development would still lower cash and still increase assets when capitalized. While the immediate debit/credit balance stays the same, this difference means that financial ratios are impacted. These capitalizations are then amortized over the period in which they can generate revenue, but are still considered part of operations just like R&D expenses under US GAAP. Given the nature of the industry, as well as Apple's business practices, this period is estimated at 2 years, as older models still provide significant income after their newer counterparts become the standard. The current amortization expense for R&D is then half of this periods' capitalization plus the remaining half from the previous period. As the value of investments made are currently rising, the effect of amortization is lower figures than would be found for expensing the full amount in the current period. The immediate effect on R&D increases their net income by between 2-7% each year, which also increases earnings per share. Total assets and retained earnings are increased, raising the value of the company as depicted on the balance sheet.

Effects on intangibles and inventory are not so easily determined without a more comprehensive breakdown of financial information. Apple already uses a FIFO system as IFRS would require, so there would be no effect on cost of goods sold. Given their rapid pace of product development, a LIFO system would not be entirely beneficial to them as a means of reporting less taxable income. As for intangibles, Apple has a scheduled and very preplanned

approach to their promotional strategy. The ability to prepay for advertising, as well as to count this as an asset on their books, could be very useful. Apple has shown it has increased advertising spending every year since 2008, and reported a 50% increase from the previous year with \$1.8 billion in advertising expenses spent in 2015. By holding prepayment of advertising as an asset, Apple would be able to leverage their asset balance throughout the year to make themselves appear more favorable. At year end there would be little difference however due to amortization rates on these prepaid assets.

Conclusion

The results of this analysis show that above all else, it is no easy task to make accurate comparisons and predictions for companies using different accounting standards. Companies can follow business practices and structures which may portray them in excellent condition under one set of standards, but those same practices may make them appear worse off under another. If a company had to switch standards, then it is likely they would adapt their strategies and spending patterns to adjust. That being said, IFRS has some clear advantage over US GAAP when it comes to financial reporting for topics involving research and development, inventory, and intangibles. The most significant and apparent differences lie in how the company can classify development costs in the financial statements. IFRS shows an increase in net income, as well as an increase in total assets. Differences in inventory practices are hard to determine due to the number of strategies which can be pursued. However, the practices permitted by IFRS could allow companies to alter the value of inventory on the balance sheet through impairment and reversing impairment. Advertising costs can be transformed into pre-paid assets in order to further alter the appearance of financials. It is important to note that the benefit of an accounting system which increases net income is likely not enough for companies to move to a different

country, as there are many factors involved in these decisions including resource allocation and material and labor costs. It is also worth noting that there are many cultural, ethical, and historical reasons for why US GAAP has many of the restrictions that it does in comparison with IFRS, and there are many parties which view those restrictions as a more accurate way of determining the value of companies regardless of impact to financial statements. Those notes aside, this analysis has shown that as far as accounting systems go IFRS is generally more conducive to the R&D, inventory, and intangibles accounting topics. Such advantages tend to indicate that IFRS is more beneficial to companies in the mobile tech industry than US GAAP.

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Appendix A: Income Statement Academic Festival, Event 12 [2017]

All US GAAP figures from Apple Inc. 10-K.

	US GAAP		IFRS	
	September 24, 2016	September 26, 2015	September 24, 2016	September 26, 2015
Net sales	\$215,639	\$233,715	\$215,639	\$233,715
Cost of sales	131,376	140,089	131,376	140,089
Gross margin	84,263	93,626	84,263	93,626
Operating expenses:				
Research and development	10,045	8,067	9,056	4,034
Selling, general and administrative	14,194	14,329	14,194	14,329
Total operating expenses	24,239	22,396	23,250	18,363
Operating income	60,024	71,230	61,013	75,263
Other income/(expense), net	1,348	1,285	1,348	1,285
Income before provision for income taxes	61,372	72,515	62,361	76,548
Provision for income taxes	15,685	19,121	15,685	19,121
Net income	\$45,687	\$53,394	\$46,676	\$57,427
Earnings per share:				
Basic	\$8.35	\$9.28	\$8.53	\$9.98
Diluted	\$8.31	\$9.22	\$8.49	\$9.91
Shares used in computing earnings per share:				
Basic	5,470,820	5,753,421	5,470,820	5,753,421
Diluted	5,500,281	5,793,069	5,500,281	5,793,069
Cash dividends declared per share	\$2.18	\$1.98	\$2.18	\$1.98

Under IFRS research and development would be reported at lower values immediately, resulting in lower net income. This also affects earnings per share, and net income is used in main financial statements.

Appendix B: Balance Sheets Accounting Standards in Regards to the Mobile Tech Industry
 All US GAAP figures from Apple Inc. 10-K

CONSOLIDATED BALANCE SHEETS				
(In millions, except number of shares which are reflected in thousands and par value)				
	US GAAP		IFRS	
	September 24, 2016	September 26, 2015	September 24, 2016	September 26, 2015
ASSETS:				
Current assets:				
Cash and cash equivalents	\$20,484	\$21,120	\$20,484	\$21,120
Short-term marketable securities	46,671	20,481	46,671	20,481
Accounts receivable, less allowances of \$53 and \$63, respectively	15,754	16,849	15,754	16,849
Inventories	2,132	2,349	2,132	2,349
Vendor non-trade receivables	13,545	13,494	13,545	13,494
Other current assets	8,283	15,085	8,283	15,085
Total current assets	106,869	89,378	106,869	89,378
Long-term marketable securities	170,430	164,065	170,430	164,065
Property, plant and equipment, net	27,010	22,471	27,010	22,471
Goodwill	5,414	5,116	5,414	5,116
Acquired intangible assets, net	3,206	3,893	8,229	7,927
Other non-current assets	8,757	5,422	8,757	5,422
Total assets	\$321,686	\$290,345	\$326,709	\$294,388
LIABILITIES AND SHAREHOLDERS' EQUITY:				
Current liabilities:				
Accounts payable	\$37,294	\$35,490	\$37,294	\$35,490
Accrued expenses	22,027	25,181	22,027	25,181
Deferred revenue	8,080	8,940	8,080	8,940
Commercial paper	8,105	8,499	8,105	8,499
Current portion of long-term debt	3,500	2,500	3,500	2,500
Total current liabilities	79,006	80,610	79,006	80,610
Deferred revenue, non-current	2,930	3,624	2,930	3,624
Long-term debt	75,427	53,329	75,427	53,329
Other non-current liabilities	36,074	33,427	36,074	33,427
Total liabilities	193,437	170,990	193,437	170,990
Commitments and contingencies				
Shareholders' equity:				
Common stock and additional paid-in capital	31,251	27,416	31,251	27,416
Retained earnings	96,364	92,284	101,387	96,307
Accumulated other comprehensive income/(loss)	634	-345	634	-345
Total shareholders' equity	128,249	119,355	133,272	123,389
Total liabilities and shareholders' equity	\$321,686	\$290,345	\$326,709	\$294,388

Intangible assets are increased under IFRS. The balance sheet becomes equal by raising retained earnings. IFRS results in increased value to the company.

Appendix C: Statement of Cash Flows Apple Inc. 10-K, Event 12 [2017]

All US GAAP figures from Apple Inc. 10-K

CONSOLIDATED STATEMENTS OF CASH FLOWS				
(In millions)				
	US GAAP		IFRS	
	September 24, 2016	September 26, 2015	September 24, 2016	September 26, 2015
Cash and cash equivalents, beginning of the year	\$21,120.00	\$13,844	\$21,120	\$13,844
Operating activities:				
Net income	45,687	53,394	46,676	57,427
Adjustments to reconcile net income to cash generated by operating activities:				
Depreciation and amortization	10,505	11,257	19,561	15,291
Share-based compensation expense	4,210	3,586	4,210	3,586
Deferred income tax expense	4,938	1,382	4,938	1,382
Changes in operating assets and liabilities:				
Accounts receivable, net	1,095	611	1,095	611
Inventories	217	-238	217	-238
Vendor non-trade receivables	-51	-3,735	-51	-3,735
Other current and non-current assets	1,090	-179	1,079	3,855
Accounts payable	1,791	5,400	1,791	5,400
Deferred revenue	-1,554	1,042	-1,554	1,042
Other current and non-current liabilities	-2,104	8,746	-2,104	8,746
Cash generated by operating activities	65,824	81,266	65,824	81,266
Investing activities:				
Purchases of marketable securities	-142,428	-166,402	-142,428	-166,402
Proceeds from maturities of marketable securities	21,258	14,538	21,258	14,538
Proceeds from sales of marketable securities	90,536	107,447	90,536	107,447
Payments made in connection with business acquisitions, net	-297	-343	-297	-343
Payments for acquisition of property, plant and equipment	-12,734	-11,247	-12,734	-11,247
Payments for acquisition of intangible assets	-814	-241	-10,859	-8,308
Payments for strategic investments	-1,388	—	-1,388	—
Other	-110	-26	-110	-26
Cash used in investing activities	-45,977	-56,274	-45,977	-56,274
Financing activities:				
Proceeds from issuance of common stock	495	543	495	543
Excess tax benefits from equity awards	407	749	407	749
Payments for taxes related to net share settlement of equity awards	-1,570	-1,499	-1,570	-1,499
Payments for dividends and dividend equivalents	-12,150	-11,561	-12,150	-11,561
Repurchases of common stock	-29,722	-35,253	-29,722	-35,253
Proceeds from issuance of term debt, net	24,954	27,114	24,954	27,114
Repayments of term debt	-2,500	—	-2,500	—
Change in commercial paper, net	-397	2,191	-397	2,191
Cash used in financing activities	-20,483	-17,716	-20,483	-17,716
Increase/(Decrease) in cash and cash equivalents	-636	7,276	-636	7,276
Cash and cash equivalents, end of the year	20,484	\$21,120	\$20,484	\$21,120

Cash is not affected by switching to IFRS. Depreciation and amortization are increased, as well as payments for intangible assets, counteracting the raised net income.